# SUNDAY **17.06.2018**

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| 10:00<br>20:00 | Pre Conference Workshops \| Meetings | M2<br>Conference Venue |
| 15:00<br>20:00 | Registration \| Welcome Tours | M1&M2 Registration/<br>Welcome Desk |

**20:00 Welcome Reception | M1&M2 ECEE Outdoor Porch**

# MONDAY **18.06.2018**

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| 07:30<br>09:00 | Registration | M1&M2 Registration/<br>Welcome Desk |

**09:00-09:30 Opening Ceremony | M1.1 Friends of Music Hall**

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| 09:30<br>10:30 | 5th Nicholas Ambraseys Distinguished Lecture \| Peter Fajfar<br>Session Chairs: Kyriazis Pitilakis, Atilla A. Ansal<br><br>ID: 12284 Analysis in Seismic Provisions for Buildings – Past, Present and Future<br>Peter Fajfar | M1.1<br>Friends of Music Hall |
| 10:30<br>11:15 | Mo.KL01: Keynote Lecture \| Gian Michele Calvi<br>Session Chair: Ezio V. Faccioli<br><br>ID: 12271 A Redefinition of Seismic Input for Design and Assessment<br>Gian Michele Calvi, Daniela Rodrigues, Vitor Silva | M1.1<br>Friends of Music Hall |

**11:15-11:35 Coffee Break**

## 11:45-13:00 CONCURRENT ORAL SESSIONS

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| | **Mo.OS01: Seismic Design and Analysis of Reinforced Concrete Buildings (I)**<br>Session Chairs: Andre Rene Plumier, Thanasis Triantafillou, Gregory Penelis | M1.1<br>Friends of Music Hall |
| 11:45<br>11:55 | ID: 10568 The Combined Effect of Rigid Diaphragm and Beam Modelling in RC Buildings Under Pushover Analysis<br>Francesca Barbagallo, Melina Bosco, Aurelio Ghersi, Edoardo Michele Marino, Pier Paolo Rossi | |
| 11:55<br>12:05 | ID: 11927 Jointless Construction – Optimization of Aseismic Multi Storey Buildings<br>Olga Markogiannaki, Konstantinos Psarras, Ioannis Tegos | |
| 12:05<br>12:15 | ID: 11256 Definition of Yield Seismic Coefficient Spectrum for Nonlinear Seismic Design of Structural Systems<br>Adam A. Abdelrahman, Tadanobu Sato, Chunfeng Wan, Zhishen Wu | |
| 12:15<br>12:25 | ID: 11503 A Design Method For Reinforced Concrete Frame Buildings Based On Pondered Virtual Work<br>Orlando Arroyo, Abbie Liel, Sergio Gutiérrez | |
| 12:25<br>12:35 | ID: 10204 Investigation on Bolted Precast Column Connection for Seismic Applications<br>Elena Camnasio, Panagiotis Kiriakopoulos | |
| 12:35<br>12:45 | ID: 10146 Experimental and Theoretical Results on Cracking of Concrete Walls Submitted to Cyclic Shear Forces<br>Philippe Bisch, Silvano Erlicher, Miquel Huguet, Gianluca Ruocci | |

| **Mo.OS02: Seismic Hazard Engineering Seismology and Strong Ground Motion (I)**<br>Session Chairs: Anastasia Kiratzi, Nikolaos Theodoulidis, Zafeiria Roumelioti | **M2.1**<br>**Aimilios Riadis** |
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| 11:45 11:55 | **ID: 10321** Investigations on PSHA in Northern Italy, Within and After Project Sigma<br>Ezio V. Faccioli, Manuela Vanini |
| 11:55 12:05 | **ID: 11191** An Ultra-Dense Strong-Motion Urban Network Based On in-House Designed MEMS Accelerographs: The Case of Lefkas City, Greece<br>Christos Z. Karakostas, Vassilis K. Papanikolaou, Nikolaos P. Theodoulidis |
| 12:05 12:15 | **ID: 10601** Simulated Near-Fault Ground Motions for Specified Design Scenario in Tabriz City Using Stochastic Model<br>Rasool Ghorbani, Touraj Taghikhany |
| 12:15 12:25 | **ID: 11119** Development and Applications of Spectrum-Compatible Fourier Amplitude Spectra<br>Luis A. Montejo, Aidcer L. Vidot-Vega |
| 12:25 12:35 | **ID: 11251** Wavelet based Synthetic Accelerograms Simulation Technique<br>Dmitry Melkov, Vladislav Zaalishvili |
| 12:35 12:45 | **ID: 10779** Novel Ground Motion Prediction Model for Peak Inelastic Displacements<br>Pablo Heresi, Héctor Dávalos, Eduardo Miranda |
| **Mo.OS03: Laboratory In-Situ Testing and Structural Health Monitoring of Structures (I)**<br>Session Chairs: George C. Manos, Alberto Pavese, Konstantinos Trelvopoulos | **M2.3**<br>**Maurice Saltiel A** |
| 11:45 11:55 | **ID: 11604** Ductility of Reinforced Concrete Members Incorporating Mechanical Splices<br>D.V. Bompa, A.Y. Elghazouli |
| 11:55 12:05 | **ID: 11549** Shake Table Test of Large Scale Structures Subject to Pounding<br>Vincent Crozet, Ioannis Politopoulos, Thierry Chaudat |
| 12:05 12:15 | **ID: 11929** Collapse Shaking Table test on a URM-Timber Roof Substructure<br>Antonio Correia, Umberto Tomassetti, Alfredo Campos Costa, Andrea Penna, Guido Magenes, Francesco Graziotti |
| 12:15 12:25 | **ID: 10426** Tests and Numerical Simulations Defining The Material Properties of a Steel Beam-To-Column Connection Subjected to Cyclic Loading<br>George Manos, Alexandra Nalmpantidou, Vladimiros Kourtides, Anthimos Anastasiades |
| 12:25 12:35 | **ID: 10850** Development Of A High Channel Count Distributed Data Acquisition System For Shaking Table Testing<br>Adam J Crewe, Tony R Horseman, Matt S Dietz, Olafur Oddbjornson, Luiza Dihoru, Panos Kloukinas, Elia Voyagaki, Colin A Taylor |
| 12:35 12:45 | **ID: 11939** Damage Identification On a Prestressed Concrete Beam Using Modal Strains Identified From FBG Data<br>Dimitrios Anastasopoulos, Guido De Roeck, Edwin Reynders |
| **Mo.OS04: Site Effects and Microzonation Studies (I)**<br>Session Chairs: Francesco Silvestri, Anastasios Anastasiadis, Maria Manakou | **M2.4**<br>**Maurice Saltiel B** |
| 11:45 11:55 | **ID: 11733** Are We Ready To Perform Fully Site-Specific Seismic Hazard Studies in Low-To-Moderate Seismicity Areas?<br>Fabrice Hollender, Emeline Maufroy, Pierre-Yves Bard, Gabriele Ameri, Vincent Perron |
| 11:55 12:05 | **ID: 10513** Nonlinear Site Amplification Model Derived from Strong Motion Records Including Records of the 2011 Tohoku, Japan, Earthquake<br>Saburoh Midorikawa, Arika Hori |
| 12:05 12:15 | **ID: 10471** Reference Rock Sites Versus EC8-A Sites<br>Chiara Felicetta, Giovanni Lanzano, Maria Damico, Lucia Luzi, Rodolfo Puglia, Francesca Pacor |

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| 12:15<br>12:25 | ID: 11365 Evidences to Sustain Nonlinear Seismology Approach in Areas Subjected to Strong Vrancea Earthquakes<br>Gheorghe Marmureanu, Alexandru Marmureanu, Carmen Ortanza Cioflan, Constantin Ionescu, Elena Florinela Manea |
| 12:25<br>12:35 | ID: 11634 Numerical Analysis of the Effects of Regional and Local Geology on Ground Motion Prediction<br>Sara Touhami, Fernando Lopez Caballero, Didier Clouteau |
| 12:35<br>12:45 | ID: 10365 Spectral Element Analysis of Ground Motion for Slope Topography Due to Incident Plane SV Wave<br>Jingxiong Wang, Weiyu Zhang, Hongjing Li |

**Mo.OS05: Risk Assessment of Critical Buildings Infrastructures Utility Systems and Industrial Facilities (I)** — M2.5 Maurice Saltiel C

Session Chairs: Mario Ordaz, Didier Combescure, Marios Pazidis

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| 11:45<br>11:55 | ID: 11964 Fragility of Critical Transportation Infrastructure Systems Subjected to Geo-Hazards<br>Sotiris Argyroudis, Stergios Mitoulis, Mike Winter, Amir Massoud Kaynia |
| 11:55<br>12:05 | ID: 10255 Real Time Damage Scenario and Seismic Risk Assessment of Italian Roadway Network<br>Antonella Di Meo, Barbara Borzi, Davide Quaroni, Mauro Onida, Venanzio Pascale |
| 12:05<br>12:15 | ID: 12326 Earthquake Risk Assessment of RC Bridges Accounting for SSI and Site Effects: The Role of the Soil<br>Dimitris Pitilakis, Marios Pazidis, Vassilis Papanikolaou |
| 12:15<br>12:25 | ID: 11980 Fragility Curves For As Built and Retrofitted Bridges Considering Various Retrofit and Ground Improvement Methods For the Soil- Foundation- Superstructure System<br>Sotiria Stefanidou, Anna Karatzetzou, Olga Markogiannaki |
| 12:25<br>12:35 | ID: 12210 Variation in Seismic Risk of Highway Bridges in Flood-Prone Regions<br>Taner Yilmaz, Swagata Banerjee |
| 12:35<br>12:45 | ID: 10577 Seismic Risk Assessment of Reinforced Concrete Bridges in Washington State<br>Abigail Christman, Paolo Martino Calvi |

**Mo.OS06: Large Scale Facilities for Earthquake Engineering purposes** — M2.6 Museum Hall

Session Chairs: Colin Taylor, Stathis Bousias, Efthymios Apostolou

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| 11:45<br>11:55 | ID: 10943 Multi-Axial Subassemblage Testing Stand For Hybrid Simulations Up To Six Physical Degrees-Of-Freedom<br>Giuseppe Abbiati, Bozidar Stojadinovic |
| 11:55<br>12:05 | ID: 10224 Shake Table Test of Earthquake Loading of Structures<br>Xiaoyang Qin, Tam Larkin, Nawawi Chouw |
| 12:05<br>12:15 | ID: 10965 Full Scale Shake Table Tests of Cladding Panels<br>Tatjana Isakovic, Blaz Zoubek, Matej Fischinger |
| 12:15<br>12:25 | ID: 10379 Seismic Response of Non-Displacing Basement Walls: Numerical Verification of Centrifuge Experiments<br>Louizos Tsantilas, Evangelia Garini, George Gazetas |
| 12:25<br>12:35 | ID: 11546 Response and Sensitivity Analysis of the Frame-Core-Tube Super High-Rise Structure Based on the Improved Layered Shell Model<br>Chengjiang Sun, Zhinan Ren, Shaojun Fu, Zheng He |
| 12:35<br>12:45 | ID: 11905 Damping Calculation From Free-vibration Experiments At The Real-scale Structure Of Europroteas<br>Dimitris Pitilakis, Athanasios Vratsikidis |
| 12:45<br>12:55 | ID: 11799 Safecladding Project: Pseudodynamic Testing on Precast structures with horizontal cladding panels<br>Agnese Scalbi, Marco Lamperti Tornaghi, Paolo Negro |

| Mo.OS07: Soil-Foundation-Structure Interaction (I)<br>Session Chairs: Geert Degrande, Emmanouil Rovithis, Manthos Papadopoulos | M2.7<br>Library Hall |
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| 11:45<br>11:55 | ID: 11924 Soil Structure Interaction Effects At Urban Scale<br>Anna Karatzetzou, Evi Riga, Kyriazis Pitilakis |
| 11:55<br>12:05 | ID: 11046 Site-City Interaction (SCI) in a Recent Urbanized Area of Rome (Italy)<br>Chiara Varone, Luca Lenti, Salvatore Martino, Jean-François Semblat |
| 12:05<br>12:15 | ID: 11076 Full-Scale Free- And Forced-Vibration Experiments At The EuroProteas SSI Facility: Experimental Data Exploitation<br>Athanasios Vratsikidis, Dimitris Pitilakis |
| 12:15<br>12:25 | ID: 11461 Investigation of the Dynamic Response and SSI effects of the Instrumented Municipality Building in Lefkas, Greece<br>Christos Z. Karakostas, Emmanouil N. Rovithis, Konstantinos E. Morfidis, Georgios - Alexandros Chatzistefanou, Vassileios A. Lekidis, Nikolaos P. Theodoulidis, Triantafyllos K. Makarios |
| 12:25<br>12:35 | ID: 11976 Seismic Site-City effect study in an offshore extension area<br>Reza Taherzadeh, Gaelle Renoud-Lias, Alix Faye-Chellali, Gabriel Daum, Bertrand Her |
| 12:35<br>12:45 | ID: 11710 Sensitivity Analysis of Seismic Soil-Foundation-Structure interaction in Masonry Buildings Founded On Cavities<br>Annachiara Piro, Filomena de Silva, Anna Scotto di Santolo, Fulvio Parisi, Francesco Silvestri |
| **Mo.OS08: Performance-Based Design of Structures (I)**<br>Session Chairs: Dimitrios Lignos, Matjaz Dolsek, Despoina Skoulidou | **M2.8<br>CR1** |
| 11:45<br>11:55 | ID: 10656 Probabilistic Performance-based Assessment Of RC Buildings Subjected To Seismic Slope Displacements<br>Stavroula Fotopoulou, Kyriazis Pitilakis |
| 11:55<br>12:05 | ID: 11391 Comparing Seismic Demand to Spectrum-Compatible Recorded and Stochastic Ground Motions<br>Alexandra Tsioulou, Carmine Galasso, Alexandros A. Taflanidis |
| 12:05<br>12:15 | ID: 11831 A Nonstationary Stochastic Ground Motion Model Based On Specified Earthquake Scenarios<br>Kostas Papakonstantinou, Christos Vlachos, George Deodatis |
| 12:15<br>12:25 | ID: 11535 Influence Of Non-Stationary Frequency Content Of Recorded Ground Motions To Seismic Demand Of Multi-Storey Structures Via The Wavelet-Based Alpha (A) Index<br>Alessandro Margnelli, Mohsen Kohrangi, Agathoklis Giaralis, Dimitrios Vamvatsikos |
| 12:25<br>12:35 | ID: 10181 Seismic Response History Analysis for the Next Generation of Buildings<br>Rafael de Amorim Salgado, Serhan Guner |
| 12:35<br>12:45 | ID: 12004 A Look at the seismic risk of Italian code-conforming RC buildings<br>Akiko Suzuki, Georgios Baltzopoulos, Iunio Iervolino, Paolo Franchin, Gennaro Magliulo, Angelo Masi, Fabrizio Mollaioli, Enrico Spacone, Gerardo Verderame |

**12:45-13:45 Lunch Break**

## 14:00-14:30 THEME LECTURES

**Mo.TL01: Theme Lecture | Mauro Dolce** — M1.1 Friends of Music Hall
Session Chair: Robin J S Spence

ID: 12303 The 2016-17 Central Apennines seismic sequence: analogies and differences with recent Italian earthquakes
Mauro Dolce, Daniela Di Bucci

**Mo.TL02: Theme Lecture | John Douglas** — M2.1 Aimilios Riadis
Session Chair: Mustafa Erdik

ID: 12237 Capturing Geographically-Varying Uncertainty in Earthquake Ground Motion Models or What We Think We Know May Change
John Douglas

**Mo.TL03: Theme Lecture | Paolo Franchin** — M2.4 Maurice Saltiel B
Session Chair: Eduardo Miranda

ID: 12296 Research Needs Towards A Resilient Community
Paolo Franchin

**Mo.TL04: Theme Lecture | Alain Pecker** — M2.6 Museum Hall
Session Chair: George Gazetas

ID: 12353 Seismic Design Of Foundations In Difficult Soil Conditions: Examples Of Solutions
Alain Pecker

## 14:40-16:40 CONCURRENT ORAL SESSIONS

**Mo.OS09: Seismic Design and Analysis of Reinforced Concrete Buildings (II)** — M1.1 Friends of Music Hall
Session Chairs: Tatjana Isakovic, Panagiotis Kotronis, Kosmas Dragos

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| 14:40<br>14:50 | ID: 10353 Structural Analysis Using Spectral Element Method (SEM)<br>Nilgun Merve Caglar, Erdal Safak |
| 14:50<br>15:00 | ID: 10408 Inelastic Strain Gradients in Reinforced Concrete Structural Walls<br>Farhad Dashti, Rajesh P Dhakal, Stefano Pampanin |
| 15:00<br>15:10 | ID: 10116 Seismic Design of Earthquake Resilient Coupled Shear Wall with Replaceable Coupling Beam and Non-Damaged Wall Foot<br>Cong Chen, Xianmin Wen |
| 15:10<br>15:20 | ID: 11179 Tests of external Beam-Column joints with X-type reinforcement under cyclic loading<br>Emmanuil A. Golias, Chris G. Karayannis, Athanasios I. Karabinis |
| 15:20<br>15:30 | ID: 10440 Multi-modal pushover analysis for a multi-component earthquake: an operative method inspired by the Direct Vectorial Approach<br>Olivier Lherminier, Silvano Erlicher, Miquel Huguet Aguilera |
| 15:30<br>15:40 | ID: 11116 GLRC_HEGIS global constitutive model for RC walls and slabs for seismic nonlinear structural analyses<br>Miquel Huguet, Mehdi Bourahla, Silvano Erlicher, Panagiotis Kotronis |
| 15:40<br>15:50 | ID: 11483 Influence of infills on the seismic behaviour of a six storey RC frame at different levels of demand<br>Maria Favvata<br><br>ID: 10441 Use Of Seismological Information For The Design Of Multistory Buildings<br>Slava Iegupov, Alexander Kendzera, Yuliia Semenova, Yurii Lisovyi, Konstantin Iegupov |
| 15:50<br>16:00 | ID: 11241 Seismic Performance of High-Strength RC Beam-Column Joints Using Headed Bars Under High P-D Effects<br>Ker-Chun Lin, Kai-Ning Chi, Wei-Fan Zhao, Chien-Kuo Chiu, Sheng-Jhih Jhuang |

16:00 16:10 **ID: 11208 Modal Strain-Based Post-Earthquake Damage Characterization of R/C Frame Buildings**
Bianca Orsola Decarli, Agathoklis Giaralis

## Mo.OS10: Seismic Hazard Engineering Seismology and Strong Ground Motion (II)

M2.1
Aimilios Riadis

Session Chairs: Costas Papazachos, Christos Papaioannou, Evangelia Garini

14:40 14:50 **ID: 10977 Spatial variability of near-fault earthquake ground motion from 3D physics-based numerical simulations**
Chiara Smerzini

14:50 15:00 **ID: 12077 Strong Motion Database for Crustal Earthquakes in Greece and Surrounding Area**
Emmanouel Scordilis, Nikolaos Theodoulidis, Ioannis Kalogeras, Basil Margaris, Nikolaos Klimis, Andreas Skarlatoudis, Jonathan Stewart, David Boore, Emel Seyhan, Alexandros Savvaidis, George Mylonakis, Panagiotis Pelekis

15:00 15:10 **ID: 10721 Cybershake NZ v17.9: New Zealand simulation-based probabilistic seismic hazard analysis**
Karim Tarbali, Brendon Bradley, Jonney Huang, Viktor Polak, Daniel Lagrava, Jason Motha, Sung Bae

15:10 15:20 **ID: 10873 Parameter Estimation Methods for Modeling of Time and Space Interactions of Earthquake Rupture**
Luis Ceferino, Anne Kiremidjian, Gregory Deierlein

15:20 15:30 **ID: 12239 Effects of Ground Motion Rotation on the Damage Potential of Mainshock-Aftershock Sequences**
Weiping Wen, Changhai Zhai, Cuihua Li, Duofa Ji

15:30 15:40 **ID: 11313 Seismological Parameters Influence on PGA Prediction by a Neural Network Approach**
Sofiane Hammal, Nouredine Bourahla, Nasser Laouami

15:40 15:50 **ID: 11687 Strong motion simulation for the main shock of the 2004 southwest-off Kii Peninsula earthquake based on pseudo point-source model**
Atsushi Nozu

15:50 16:00 **ID: 10824 Prediction of Magnitude and Epicentral Distance from a Single Seismic Record**
Majid Mahood

16:00 16:10 **ID: 12209 Multi-Scenario Seismic Hazard Assessment For Structural Design**
Marco Fasan, Andrea Magrin, Claudio Amadio, Fabio Romanelli

16:10 16:20 **ID: 11446 Methodology for the Reassessment of Magnitudes Assigned to Historical Earthquakes**
Cedric Giry, Yi Zhu, Irmela Zentner, Sophie Capdevielle, Frederic Ragueneau, Emmanuelle Nayman

## Mo.OS11: Laboratory In-Situ Testing and Structural Health Monitoring of Structures (II)

M2.3
Maurice Saltiel A

Session Chairs: Stefano Pampanin, Zoran Milutinovic, Konstantinos G. Kostinakis

14:40 14:50 **ID: 10561 Experimental Investigation of Bond Behavior of Roughened CFRP Bars in High Strength Concrete**
T.Tibet Akbas, Oguz C. Celik, Cem Yalcin

14:50 15:00 **ID: 11618 Monitoring Structural Health by Analyzing Nonlinear Elastic Processes in Buildings**
Ariana Lucia Astorga Nino, Philippe Gueguen, Toshihide Kashima

15:00 15:10 **ID: 10348 Ambient Vibration Testing of Public Unreinforced Masonry Buildings built in the beginning of the 20th Century**
Sergey Churilov, Stefan Micevski, Elena Dumova-Jovanoska

15:10 15:20 **ID: 10328 In-situ Measurements and Numerical Simulation of the Dynamic and Seismic Response of Bell Towers**
George Katakalos, Evaggelos Kozikopoulos, Lambros Kotoulas

15:20 15:30 **ID: 10192 Strong Motion Instrumentation in a Six-story Wooden Building and Analysis of its Dynamic Characteristics**
Toshihide Kashima, Tamae Fukuba, Hiroto Nakagawa

15:30 15:40 **ID: 10661 Damage detection using Principal Component Analysis applied to temporal variation of natural frequencies**
Oriol Caselles, Jaume Clapes, Ahmed Elyamani, Javier Lana, Carolina Seguí, Alejo Martín, Roca Pere

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| 15:40<br>15:50 | ID: 10499 Hybrid Simulation of Axially-Stiff Multi-DOF Element: Observed Challenges and Proposed Solutions<br>Georgios Giotis, Oh-Sung Kwon, Shamim A. Sheikh |
| 15:50<br>16:00 | ID: 10843 Effect of Spandrel Beam on the Seismic Behaviour of Wide Beam-column Connections<br>Roy Y.C. Huang, J.S. Kuang |
| 16:00<br>16:10 | ID: 10249 Structural Health Monitoring; Comparison of System ID Techniques for a 3-Story Framed Building<br>Lauren Benstead, Peter Laursen, Cole McDaniel, Graham Archer |
| 16:10<br>16:20 | ID: 10383 System Identification for Base Isolated Buildings<br>Ary Paredes, Ruben Boroschek, Marcos Orchard |
| 16:20<br>16:30 | ID: 10948 Accommodating Synchronization-induced Errors in Operational Modal Analysis<br>Kosmas Dragos, Triantafyllos Makarios, Ioanna Karetsou, George D. Manolis, Kay Smarsly |

## Mo.OS12: Site Effects and Microzonation Studies (II)

M2.4
Maurice Saltiel B

Session Chairs: Theodoros Chatzigogos, Nikolaos Klimis, Chiara Smerzini

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| 14:40<br>14:50 | ID: 10677 Ground Surface Amplification For Canyon Topographies Excited With Bi-directional Earthquake Records<br>Evangelia Skiada, Stavroula Kontoe, Peter J. Stafford, David M. Potts |
| 14:50<br>15:00 | ID: 10785 Influence of Nonlinear Effects induced by Strong Earthquakes on Soil Deposit Parameters<br>Stefan Florin Balan, Bogdan Felix Apostol, Constantin Ionescu |
| 15:00<br>15:10 | ID: 11724 Seismic Demands as a Result of Directivity Effects from the Mw 5.1 2011 Lorca (Spain) Earthquake<br>Carlos Gordo-Monso, Eduardo Miranda |
| 15:10<br>15:20 | ID: 11258 3-D Wave Propagation Analyses For Long-Period Ground-Motions In Sendai Basin, Japan<br>Susumu Ohno, Satoru Koike |
| 15:20<br>15:30 | ID: 12208 Quick and Reliable Assessment of Vs Profiles and 1D Ground Response Along the Trans Adriatic Pipeline<br>Costas Papazachos, Andreas A. Antoniou, Prodromos Psarropoulos, Marios Anthymidis, Giannis Papazachos |
| 15:30<br>15:40 | ID: 11507 Development of a 3-D Topographical Basin Structure Based On Seismic and Geotechnical Data: Case Study at a High Seismicty Area of Gölyaka, Düzce, Turkey<br>Karim Yousefi-Bavil, Mustafa Kerem Koçkar, Haluk Akgün |
| 15:40<br>15:50 | ID: 12301 Site Effects As Proxy for Building Behavior: Acquasanta Terme (Ascoli Piceno, Italy) Study Case<br>Antonio Costanzo, Fawzi Doumaz, Arrigo Caserta |
| 15:50<br>16:00 | ID: 11802 Geophysical study and 2D non-linear modeling of site effects in the city of Vina del Mar, Chile<br>Valeria Soto, Luis Podesta, Esteban Saez |
| 16:00<br>16:10 | ID: 11946 Spectral Amplification- Modelling for Triangular Hill Geometry<br>Yogendra Singh, Shadab Ahmad, Dhiraj Raj, Kavan Girishchandra Modha, Dominik H. Lang |
| 16:10<br>16:20 | ID: 11721 Effect of The 2D Spatial Variability of Linear Soil Properties on Surface Ground Motion Variability<br>Elias El Haber, Cecile Cornou, Dalia Youssef Abdel-Massih, Denis Jongmans, Fernando Lopez-Caballero, Tamara Al Bittar |

## Mo.OS13: Risk Assessment of Critical Buildings Infrastructures Utility Systems and Industrial Facilities (II)

M2.5
Maurice Saltiel C

Session Chairs: Helen Crowley, Sotiris Argyroudis, Stavroula Fotopoulou

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| 14:40<br>14:50 | ID: 11834 Developing a Global Earthquake Risk Model<br>Vitor Silva, Helen Crowley, Kishor Jaiswal, Ana Beatriz Acevedo, Massimiliano Pittore, Murray Journey |
| 14:50<br>15:00 | ID: 11306 Empirical fragility assessment of the Italian masonry buildings using data from the Emilia 2012 sequence of earthquakes<br>Ioanna Ioannou, Enrica Verrucci, Vincenzo Arcidiacono, Tiziana Rossetto |

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| 15:00<br>15:10 | ID: 10560 Intensity Measures for the Collapse Assessment of Infilled RC Frames<br>Gerard OReilly, Mohsen Kohrangi, Paolo Bazzurro, Ricardo Monteiro |
| 15:10<br>15:20 | ID: 10264 Prediction of Damage Scenario of Italian RC Buildings Under Induced Seismicity<br>Stefano Barone, Barbara Borzi |
| 15:20<br>15:30 | ID: 12343 Evaluation of Seismic Risk on UNESCO Designated Cultural Heritage Sites in Europe<br>Venetia Despotaki, Vitor Silva, Sergio Lagomarsino, Irina Pavlova, Jair Torres |
| 15:30<br>15:40 | ID: 10330 Seismic Vulnerabilty Curves For Industrial Steel Structures<br>Ioannis Andreas Ntaliakouras, Nikos Grigoriou Pnevmatikos |
| 15:40<br>15:50 | ID: 11061 Soil-Structure Interaction Effect On Earthquake Vulnerability Assessment Of MRF: The Role Of The Structure<br>Christos Petridis, Dimitris Pitilakis |
| 15:50<br>16:00 | ID: 10373 A Methodology to Quantify Debris Generation After a Seismic Event<br>Marco Domaneschi, Gianluca Scutiero, Sebastiano Marasco, Gian Paolo Cimellaro, Ahmed Amir Khalil, Cosimo Pellecchia, Emiliano De Iuliis |
| 16:00<br>16:10 | ID: 11783 Seismic Loss Assessment for Peruvian University Buildings with simulated Fragility Functions<br>Jose Martin Velasquez Vargas, Dina Cotrado, Jose Acero, Jose Oscar Ruiz Esquivel, Holger Lovon |
| 16:10<br>16:20 | ID: 11741 Software Toolset To Enable Image Classification of Earthquake Damage To Above-Ground infra-structure<br>Anahid Behrouzi, Maria Pantoja |
| **Mo.OS14: New Generation Performance and Resilience Based Design of Structures and Systems**<br>Session Chairs: Gian Paolo Cimellaro, Kevin Mackie, Rallis Kourkoulis | **M2.6<br>Museum Hall** |
| 14:40<br>14:50 | ID: 10475 Cyclic Lateral Loading of Dry-jointed Precast Concrete Frames on Rocking or Fixed Footings<br>Nikos Stathas, Elias Strepelias, Xenofontas Palios, Michael Fardis, Stathis Bousias |
| 14:50<br>15:00 | ID: 11481 A Cost/Performance-Based Evaluation of Low-Damage Building Systems<br>Simona Bianchi, Jonathan Ciurlanti, Stefano Pampanin |
| 15:00<br>15:10 | ID: 11105 Performance of SHFRCC-RC Concrete Members under Cyclic Displacement Reversals<br>Antroula Georgiou, Stavroula Pantazopoulou |
| 15:10<br>15:20 | ID: 11605 Drift Response of Tall Cross-Laminated Timber Buildings Under Realistic Earthquake Loads<br>Cagatay Demirci, Christian Malaga-Chuquitaype, Lorenzo Macorini |
| 15:20<br>15:30 | ID: 10309 Life-cycle and resilience analysis of RC buildings in Bucharest, Romania<br>Florin Pavel, Dan Stanescu, Radu Vacareanu, Veronica Coliba, Ionut Craciun |
| 15:30<br>15:40 | ID: 10786 Resilience-based Seismic Evaluation of an Existing Mid-rise Commercial Building in Turkey<br>Kerem Pencereci, Emre Toprak, Sean Merrifield, Nicole Paul, Ibrahim Almufti, Cuneyt Anadolu |
| 15:40<br>15:50 | ID: 11667 Seismic Energy Based Design: Numerical Evaluation of Diverse MDOF Systems<br>Ahmet Gullu, Ercan Yuksel, Cem Yalcin |
| 15:50<br>16:00 | ID: 10934 Quantification of Damage of Rocking Concrete Walls with Energy Dissipating Elements<br>Taku Obara, Hidekazu Watanabe, Takeshi Kuwabara, Susumu Kono |
| 16:00<br>16:10 | ID: 12214 Challenges on CLT Structures Seismic Response: Traditional System vs Low Damage System<br>Antonio Sandoli, Valentina Tomei, Barbara Ferracuti, Maria Zucconi |
| 16:10<br>16:20 | ID: 10773 Assessment of Seismic behavior and Performance of Low- and Mid-Rise Office and Hospital RC Shear Wall Buildings<br>Vesna Terzic, Kristijan Kolozvari, Daniel Saldana |

| Mo.OS15: Soil-Foundation-Structure Interaction (II)<br>Session Chairs: Ioannis Anastasopoulos, Yiannis Tsompanakis, Marianna Loli | | M2.7<br>Library Hall |
|---|---|---|
| 14:40<br>14:50 | ID: 10836 Comparison Between Direct and Sub-Structures Approaches in the Evaluation of the Seismic Demand for Reinforced Concrete Structures<br>Romeo Tomeo, Antonio Bilotta, Dimitris Pitilakis, Emidio Nigro | |
| 14:50<br>15:00 | ID: 10973 Seismic Performance Comparison Of Two Rocking Isolation Alternatives For An Overpass Bridge<br>Athanasios Agalianos, Antonia Psychari, Michalis F. Vassiliou, Bozidar Stojadinovic, Ioannis Anastasopoulos | |
| 15:00<br>15:10 | ID: 10919 Beating Effect in an Historical Building Identified from Seismic Responses<br>Dario Rinaldis, Giacomo Buffarini, Paolo Clemente | |
| 15:10<br>15:20 | ID: 10223 Dynamic Interaction Between Clustered Structures<br>Gonzalo Barrios, Xiaoyang Qin, Tam Larkin, Nawawi Chouw | |
| 15:20<br>15:30 | ID: 11804 Seismic Settlements Of Shallow Foundations: A Sliding Block Approach<br>Dimitris Karamitros, Evangelia Nicolaidou, Nicholas Alexander | |
| 15:30<br>15:40 | ID: 10889 Hybrid Foundations Used for Protection Against Reverse Fault Rupture<br>Marianna Loli, Irene Georgiou, Evangelia Garini, George Gazetas | |
| 15:40<br>15:50 | ID: 11676 Damage Evaluation Of RC Building With Soil-Structure Interaction By Seismic Interferometry: A Numerical Case Study<br>Fernando Lopez-Caballero, E. Diego Mercerat | |
| 15:50<br>16:00 | ID: 10463 The Influence Of Uncertain Local Subsoil Conditions On The Response Of Buildings To Ground Vibration<br>Manthos Papadopoulos, Stijn François, Geert Degrande, Geert Lombaert | |
| 16:00<br>16:10 | ID: 11136 A Practical Approach Considering Nonlinear Behavior and SSI in Seismic Analysis of Plan Irregular Buildings<br>Athanasios Tzimoulis, Robert Borsutzky | |
| 16:10<br>16:20 | ID: 11327 Centrifuge and Numerical Study of Shallow and Embedded Foundations on Dry Sand Under Combined Loading Conditions<br>Damoun Taeseri, Jan Laue, Rebecca Schindler, Lampros Sakellariadis, Ioannis Anastasopoulos | |
| 16:20<br>16:30 | ID: 11253 Seismic Analysis of the Tunnel-shaft Junction of a Utility Shield Tunnel<br>Jinghua Zhang, Xinbin Tu, Xiaoyang Zhang, Feng Li, Mingqing Xiao, Yong Yuan | |
| **Mo.OS16: Performance-Based Design of Structures (II)**<br>Session Chairs: Daniele Perrone, Georgios Tsionis, Fani Gelagaoti | | M2.8<br>CR1 |
| 14:40<br>14:50 | ID: 10770 Comparing the Effectiveness of Different Dampers Placement in Framed Buildings<br>Michele Palermo, Vittoria Laghi, Stefano Silvestri, Giada Gasparini, Tomaso Trombetti | |
| 14:50<br>15:00 | ID: 11824 Application of a Point Estimate Method for incorporating epistemic uncertainty in the seismic assessment a masonry building<br>Francesco Vanin, Katrin Beyer | |
| 15:00<br>15:10 | ID: 10754 Investigation Of Overstrength In Asymmetric-Plan Structures<br>Kaan Kaatsız, Halûk Sucuoğlu | |
| 15:10<br>15:20 | ID: 10644 New Approach For The Optimal Yield-Force Coefficient Distribution In The Seismic Design Of Buildings<br>Jesus Donaire-Avila, Andrea Lucchini, Amadeo Benavent-Climent, Fabrizio Mollaioli | |
| 15:20<br>15:30 | ID: 10132 Seismic Performance of Shape Memory Alloy Reinforced Concrete Dual Systems<br>Emad Abraik, Maged Youssef | |
| 15:30<br>15:40 | ID: 11087 IDA-based Definition Of Damage States For RC Silo Subjected To Seismic Excitations<br>Marcell Tuska, Evangelos Katsanos, Chiara Latini | |

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| 15:40<br>15:50 | ID: 11276 Sensitivity of Probabilistic Regional Seismic Loss to Hazard and Vulnerability Modelling Options<br>Stylianos Minas, Luis Sousa, Carmine Galasso, Tiziana Rossetto |
| 15:50<br>16:00 | ID: 11973 Effect of the aftershock intensity characteristics on the seismic response of RC frame buildings<br>Ioannis E. Kavvadias, Panagiotis Z. Rovithis, Lazaros K. Vasiliadis, Anaxagoras Elenas |
| 16:00<br>16:10 | ID: 10610 Performance-Based Design and Assessment of the Wellington Town Hall<br>Stuart James Oliver, Hamish Stewart McKenzie, Kiran Makan |
| 16:10<br>16:20 | ID: 10139 Performance Based Seismic Evaluation of a 62 Story RC Tower in Istanbul<br>Erhan Budak, Haluk Sucuoğlu, Fatma Konca, Aslıhan Uludağ |
| 16:20<br>16:30 | ID: 11160 Probabilistic Seismic Assessment of Pounding Forces<br>Domenico Altieri, Enrico Tubaldi, Edoardo Patelli |

**16:40-17:30 Poster Session - Coffee Break**

## 16:40-17:30 POSTER SESSIONS

### Mo.PS01&09: Seismic Design and Analysis of Reinforced Concrete Buildings — M1.2 Poster Foyer & Library

ID: 10105 **Influence of the Use of Coupling Beams on the Seismic Response of Plan Irregular RC Framed Buildings**
Juan Carlos Vielma Perez, María Manuela Mulder Montes de Oca

ID: 10195 **Quantity Estimation of Structural Materials in Reinforced Concrete Buildings Designed for Seismic Effects**
Thiruvengadam V., Thangmuansang Guite, Rishi Kant Thakre, Wason J.C.

ID: 10363 **Evaluation Of The Maximum Momentary Energy Input To A Structure Considering Phase Characteristics Of Ground Motion**
Kenji Fujii, Shuuhei Kida

ID: 10407 **Effect Of Lifetime Cumulative Damage Of Multiple Low Intensity Earthquakes In Reinforced Concrete Buildings**
Ali Nasiri, Abdolreza Sarvghad Moghadam, Pasha Javadi

ID: 10468 **Charts for Rapid and Parametric Assessment of Fundamental Periods of RC MRF Buildings**
Alexandre de la Foye

ID: 10594 **Hysteretic Damping in Reinforced Concrete Members and Structures**
Sofia Grammatikou, Michael Fardis, Dionysis Biskinis

ID: 10634 **Numerical Modeling of One Storey Precast RC Frame with Pinned Beam-to-Column Connection**
Cihan Soydan, Ercan Yüksel, Erdal İrtem

ID: 10819 **Seismic Behavior of a High-Rise RC Building With Different Types of Slabs**
Deniz Uzun, Kadir Guler

ID: 11410 **Optimized Design and Moment-Curvature Diagram Construction for Biaxially Loaded Elements**
Igor Gjorgjiev, Borjan Petreski

ID: 11960 **Experimental Study on RC Frame-Infill Interaction**
Yaw-Shen Tu, Tsung-Chih Chiou, Yi-An LI

### Mo.PS02&10: Seismic Hazard Engineering Seismology and Strong Ground Motion — M1.2 Poster Foyer & Library

ID: 10178 **Operational-Oriented Extreme Ground-Motion Hazard Scenarios for Critical Infrastructures**
Mariano Garcia-Fernandez, Karen Assatourians, Maria-Jose Jimenez

ID: 10370 **Attenuation relations of strong ground motions in the 2016 Kumamoto earthquake sequence**
Tetsushi Kurita

ID: 10406 **De-noising of Seismic Acceleration Records using Short-Time Matrix Pencil Method**
Mostafa Soltaninejad, Siavash Soroushian, Hanif Livani

ID: 10435 **Explaining the Anomalous Damage Pattern of Large (M7+) Intermediate-Depth Earthquakes in the Southern Aegean Sea**
Charalampos Kkallas, Constantinos Papazachos, Andreas Skarlatoudis, Chrisanthi Ventouzi, David Boore, Basil Margaris

ID: 10514 **Aftershock Forecasting Experiment for Bushehr Province of Iran Using the Epidemic-Type Aftershock Sequence (ETAS) Model**
Hamid Reza Tavakoli, Nader Davoodi, Abdollah Jalilian, Mehdi Zare

ID: 10967 **Calibration of Seismic Hazard Map Using Historical Earthquakes—A Case Study in Shanxi Rift System, China**
Danhua Xin, Friedemann Wenzel

ID: 11201 **Region Specific Application of Neo-Deterministic Analysis for Reliable Seismic Hazard Assessment**
Kristina Milkova, Elena Dumova-Jovanoska, Katerina Drogreshka, Dragana Chernih-Anastasovska, Lazo Pekevski, Fabio Romanelli, Franco Vaccari, Giuliano F. Panza

ID: 11247 **Broadband Strong Ground Motion Simulation for Active Faults Around Beppu Bay, Kyushu, Japan**
Masayuki Yoshimi, Shin'ichi Matsushima, Ryosuke Ando, Hiroe Miyake, Kazutoshi Imanishi, Takumi Hayashida, Hiroshi Takenaka, Haruhiko Suzuki, Atsushi Yatagai, Shunpei Manabe, Hisanori Matsuyama

ID: 11248 **Surface Rupture Hazard: Evaluation of New Zealand and California Zonation Strategies**
Clark Henderson Fenton

ID: 12338 **Unknown Strong Earthquake In The Southwest Of The Issyk-Kul Depression**
Svetlana Abdieva, Andrey Korjenkov, Jiao Liu, Andrey Sorokin

## Mo.PS03&11: Laboratory In-Situ Testing and Structural Health Monitoring of Structures

M1.2 Poster Foyer & Library

ID: 10374 **Development of a Multi Modular Platform for Seismic Engineering Courses and Research**
Alessandro Cardoni, Marco Domaneschi, Carmelo Apostoliti, Davide Galdo, Sebastiano Marasco, Gian Paolo Cimellaro

ID: 10664 **A Probabilistic Damage Model for Predicting Plaster Cracks on Unreinforced Masonry Walls**
Giuseppe Abbiati, Marco Broccardo, Max Didier, Katrin Beyer, Bozidar Stojadinovic

ID: 10748 **In-Situ Dynamic Testing and Modeling of a Six-Story Precast Concrete Building**
Ozan Cem Celik

ID: 10888 **Basic Verification on Optical Deformation Measurement Applicability for Structural Materials**
Takasuke Saito, Hiroki Sato

ID: 11040 **A Masonry Catalogue for the Groningen Region**
Beatriz Zapico Blanco, Marco Tondelli, Samira Jafari, Francesco Graziotti

ID: 11706 **Out-Of-Plane Cyclic Performance of Full-Scale Infill Masonry Walls Subjected to Out-Of-Plane Loadings Using Airbags**
Andre Filipe Furtado, Hugo Rodrigues, António Arêde, Humberto Varum

ID: 12140 **Numerical modelling of in situ pushover test of an existing 2-storey RC frame designed for gravity loads**
Simone Peloso, Chiara Casarotti, Alberto Pavese, Filippo Dacarro, Giuseppe Sinopoli

ID: 10356 **Real Aperture Radar. An Interferometric Technique To Assess Earthquake Damaged Structures**
Esteban Marcelo Cabrera Velez, Ramon Gonzalez-Drigo, Guido Luzi, Yeudy Felipe Vargas Alzate, Lluis G. Pujades Beneit

## Mo.PS04&12: Site Effects and Microzonation Studies

M1.2 Poster Foyer & Library

**ID: 10391** Microzoning Study for Seismic Risk Reduction in the Areas Covered Soft Soil Deposit, Japan
Takahisa Enomoto, He Ma, Tsutomu Ochiai

**ID: 10422** Geo-data Modeling An Engineering Tool As Guidelines For Estimating Near-Surface Seismic Effects
Elena-Andreea Calarasu, Cristian Arion, Cristian Neagu

**ID: 10533** Creation of A New Hazard Map Reflecting The Local Ground Characteristics
Tsutomu Ochiai, Tetsushi Inubushi, Takahisa Enomoto, Manuel Navarro

**ID: 10546** Geophysical and Engineering Analysis of the Possible Causes of Different Damage Observed in Pescara del Tronto and Vezzano (Arquata del Tronto Municipality) after the 2016 Central Italy Sequence
Maria Rosaria Gallipoli, Leonardo Chiauzzi, Tony Alfredo Stabile, Sabatino Piscitelli, Luigi Vignola, Jessica Bellanova, Giuseppe Santarsiero, Angelo Masi

**ID: 10548** Assessment of Seismic Site Response Based on Microtremor Measurements
Andre Filipe da Costa Ramos, Rui Carrilho Gomes, António Viana da Fonseca

**ID: 10859** Seismically-Induced Strain Effects In Highly Heterogeneous Deposits: The Fosso Di Vallerano Alluvial Valley (Rome, Italy)
Céline Bourdeau, Luca Lenti, Salvatore Martino, Chiara Varone

**ID: 11246** Effects of the Variation of Groundwater Level on Earthquake Ground Motions
Weihua Li, Chenggang Zhao, Bing Bai

**ID: 11294** Numerical Analyses Of Site Effects And Soil Non-Linearity On Seismic Ground Response Of Xanthi City
Theologos Lazaridis, Olga Stamati, Nikolaos Klimis

**ID: 11352** Preliminary Results On The 3D Structure And Transverse Anisotropy Of The Euroseistest Area (Northern Mygdonia Basin, Greece) From Love Wave Ambient Noise Tomography
Kostas Gkogkas, Costas Papazachos, Marios Anthymidis, Matthias Ohrnberger, Alexandros Savvaidis

**ID: 11620** Shear-wave Velocity Modeling by Inversion of Microseismic Horizontal-to-Vertical Spectral Ratio
Sahar Rahpeyma, Benedikt Halldorsson, Birgir Hrafnkelsson, Orhan Polat

**ID: 11702** Seismic Characterization of The Accelerometric Stations Along An Array in the Sulmona Basin
Miliana De Crescenzo, Lorenza Evangelista, Giovanni Lanzano, Rodolfo Puglia, Anna d'Onofrio, Francesco Silvestri

## Mo.PS05&13: Risk Assessment of Critical Buildings Infrastructures Utility Systems and Industrial Facilities

M1.2 Poster Foyer & Library

**ID: 10522** Development of Seismic Vulnerability Curves for Region Specific Masonry Buildings
Kristina Milkova, Julia Rosin, Christoph Butenweg, Elena Dumova - Jovanoska

**ID: 10647** Seismic Vulnerability of Transportation Networks
Juan Manuel Mayoral, Adriana Badillo, Mauricio Alcaraz, Azucena Roman

**ID: 10658** Rapid Seismic Risk Assessment At Urban Scale
Miroslav Nastev, Ahamd Abo-El-Ezz, Alex Smirnoff, Marie-José Nollet

**ID: 10724** Evaluation of Seismic Performance of Existing RC School Buildings in Abha City, Saudi Arabia
Mohamed Ezzat Sobaih, Mohammed A. Ismaeil

**ID: 10759** Estimating the Impact of Strong Earthquakes on The Romanian Road Network
Dragos Toma-Danila, Carmen Ortanza Cioflan, Elena Florinela Manea

**ID: 11068** Vulnerability Assessment Of RC Buildings And Warehouses Due To Liquefaction Displacements
Stella Karafagka, Stavroula Fotopoulou, Kyriazis Pitilakis

**ID: 11111** Derivation of Fragility Relations With Regard To Poorly Constructed Existing RC Buildings
Ulgen Mert Tugsal, Beyza Taskin

ID: 11199 **Investigation of Seismic Fragilities of Precast Industrial Buildings in Turkey**
Mehmet Palanci, Ali Kalkan, Sevket Murat Senel

ID: 11353 **Probabilistic Seismic Risk Assessment in the Balkan Region**
Venetia Despotaki, Vitor Silva

ID: 12278 **Assessment Method for Critical Aftershock Scenarios using Quantitative Evaluation Criteria**
Sangwook Park, Byung Kwan Oh, Hyo Seon Park

## Mo.PS07&15: Soil-Foundation-Structure Interaction

M1.2 Poster Foyer & Library

ID: 10102 **Structured Soils In Earthquake Engineering**
Stephane Brule, Sebastien Guenneau, Stefan Enoch

ID: 10620 **The Effect of Topographic Irregularities on Seismic Response of Concrete Rectangular Tanks**
Mohammad Hosein Asgari, Mohammad Iman Khodakarami

ID: 10636 **Response Values of Recent Acceleration Records and Time History Analysis of Rocking Motion**
Mizuo Inukai, Tatsuya Azuhata

ID: 10683 **The Effect of Soil Structure Interaction on Seismic Behaviour of Mid and High-Rise Buildings**
Bayram Tanik Cayci, Zeynep Gokcen ICOZ Icoz, Mehmet Inel

ID: 10825 **Vibratory compaction load effects on MSE walls**
Hamzeh Ahmadi, Adam Bezuijen

ID: 11289 **Strong Motion Observation for Evaluating Effects of Dynamic Soil-Structure Interaction to Buildings**
Tatsuya Azuhata, Hajime Okano, Namihiko Inoue, Koichi Morita

ID: 11444 **Assessment of 3D Buildings' Seismic Damage Considering Kinematic and Inertial Soil-Structure-Interaction Effects**
Dimitrios Sotiriadis, Konstantinos E. Morfidis, Konstantinos K. Kostinakis

## Mo.PS08&16: Performance-Based Design of Structures

M1.2 Poster Foyer & Library

ID: 10120 **New Capacity and Energy Based Damage Index**
Sergio A. Diaz, Luis G. Pujades, Alex H. Barbat, Yeudy F. Vargas, Jose R. González-Drigo, Rodrigo E. Alva

ID: 10306 **Fuzzy Inference Systems for Structural Damage Estimation**
Eleni Vrochidou, Petros Fotios Alvanitopoulos, Ioannis Andreadis, Anaxagoras Elenas

ID: 10619 **Damage Index for structures with elements of high flexural stiffness and/or brittle behavior**
Diego A. Hidalgo-Leiva, Luis G. Pujades, Alex H. Barbat, Sergio A. Díaz, Yeudy F. Vargas-Alzate, Luis A. Pinzon

ID: 10694 **Free Vibration Analysis of a Planar Elliptical Beam**
Merve Ermis, Umit Necmettin Aribas, Nihal Eratlı, Mehmet Hakkı Omurtag

ID: 10768 **Performance Based Limit States for Infill Walls in RC Frames**
Ismail Ozan Demirel, Ahmet Yakut, Barış Binici, Erdem Canbay

ID: 10815 **Performance Based Seismic Design of Seattle Civic Square**
Aysegul Gogus

ID: 10907 **Deformation-Based Seismic Design And Verification Of Earth- And Retaining Structures In Switzerland**
Blaise Duvernay, Manuel Alvarez, Heike Fischer, Yuko Yamamoto, Jochem Seifert, Alexandru Marin, Matthias Preisig, Jan Laue, Hansruedi Schneider

ID: 12238 **Evaluation of Maximum Inelastic Displacements of SDOF Structures Subjected to Aftershocks**
Duofa Ji, Changhai Zhai, Weiping Wen, Shuang Li

**Mo.PS14: New Generation Performance and Resilience Based Design of Structures and Systems** — M1.2 Poster Foyer & Library

**ID: 10257 Innovative Solutions for Dry Moment Resisting Beam Column Dowel Connections in Precast Industrial Buildings**
Roberta Apostolska, Veton Pira

**ID: 10340 Development of the Collapse Direction Control Device to Improve the Anti-Catastrophe Performance of a Viaduct**
Akihiro Toyooka, Yoshitaka Murono, Masato Saitoh

**ID: 10427 Developments in Rocking Wall-Frame Systems**
Hadiseh Mohammadi, Mark Grigorian, Shayan Tavousi, Mozhgan Kamizi

**ID: 10510 Proposed Evaluation Curve for Human Sensitivity to Seismic Motion Based on Subject Experiments**
Rie Okazawa, Hiroshi Kambara, Masaaki Saruta

**ID: 10611 Role of eEPS in the seismic design and performance of the European Spallation Source target building**
Giovanni Li Destri Nicosia

## 17:30-19:30 SPECIAL SESSIONS*

**Special Session 01: EU - China cooperation in earthquake engineering and risk** — M1.1 Friends of Music Hall
(organized by Lanmin Wang, Sun Baitao, Jian-Min Zhang, Lu Xilin, K. Pitilakis, A. Pavese, G. Tsionis)

17:30 17:40 **ID: 12101 Research collaboration of Tongji University with European Organizations in Earthquake Engineering**
Xilin Lu, Bin Zhao, Xin Li

17:40 17:50 **ID: 12089 Recent Progresses in Loess Earthquake Engineering and China-EU Cooperation**
Lanmin Wang, Qian Wang, Lin Dong, Zhijian Wu

17:50 18:00 **ID: 11204 The Role Of Near-Field Ground Motion On Damage Assessment In Large Urban Areas**
Ilario Mazzieri, Laura Melas, Chiara Smerzini, Marco Stupazzini

18:00 18:10 **ID: 12150 The Ground Motion Records Selection For Seismic Design Code in China**
Ruizhi Wen, Kun Ji, Yefei Ren

18:10 18:20 **ID: 11617 Towards New Ground-Motion Prediction Equations for Sichuan, China**
Chen Huang, Carmine Galasso, Qiang Ma, Dongwang Tao, Jilong Li

18:20 18:30 **ID: 12000 Seismic hazard model harmonizing in Tienshan Area**
Changlong Li, Marco Pagani, Laurentiu Danciu

18:30 18:40 **ID: 12098 Code for Seismic Design of Underground Structures in China**
Jian-Min Zhang, Rui Wang

18:40 18:50 **ID: 12100 The Distribution of Seismic Capacity of Buildings in Mainland China**
Baitao Sun, Guixin Zhang, Xiangzhao Chen

18:50 19:00 **ID: 12165 Towards A Nonlinear Discrete Model For Site-City Interaction Through A Sino-European Synergy**
Francesca Taddei, Gerhard Müller, Xinzheng Lu

19:00 19:10 **ID: 11671 CROSSH - China Resilience of Schools to Seismic Hazard: a case study in Beichuan Qiang Autonomous County, Sichuan**
Linghui Zhou, Carmine Galasso, Shuang Yan, Zeyue Xue, Dina D'Ayala

19:10 19:20 **ID: 12139 EUCENTRE and seismic emergency: in situ support activities after the central Italy earthquake**
Chiara Casarotti, Alberto Pavese, Simone Peloso

19:20 19:30 **ID: 12166 Seismic Design of Railway Engineering in China**
Hong-Ru Zhang, Bo-Ming Zhao, Hao Li, Zi-Jun Wang

**Poster presentations included in Special sessions are presented during the Poster session taking place on the same day, at the Poster Foyer and Library*

| Special Session 05: Outcomes and challenges of a research & development program (SIGMA) for seismic hazard assessment in low-to-moderate seismicity regions<br>(organized by G. Senfaute, C. Durouchoux) | M2.1<br>Aimilios Riadis |
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| 17:30<br>17:40 | Introduction - SIGMA: Operational Results linked with high level scientific Research<br>Gloria Senfaute |
| 17:40<br>17:50 | ID: 12125 French seismic CATalogue (FCAT - 17)<br>Paola Traversa, Kevin Manchuel, Juan Benjumea, Michel Cara, Gabriele Ameri, David Baumont |
| 17:50<br>18:00 | ID: 10983 Spatial correlation of the systematic site- and path-specific corrections of a GMPE calibrated in Northern Italy<br>Giovanni Lanzano, Sara Sgobba, Francesca Pacor, Lucia Luzi, Rodolfo Puglia, Maria D'Amico, Chiara Felicetta |
| 18:00<br>18:10 | ID: 11060 Seismic Hazard Maps for the French Metropolitan Territory<br>Stephane Drouet, Le Dortz Kristell, Secanell Ramon, Ameri Gabriele, Senfaute Gloria |
| 18:10<br>18:20 | ID: 11990 Extensive Numerical Study On Identification Of Key Structural Parameters Responsible For Site Effects<br>Svetlana Stripajova, Peter Moczo, Jozef Kristek, Pierre-Yves Bard, Fabrice Hollender, Deborah Sicilia |
| 18:20<br>18:30 | ID: 11196 A Multi-Scale Methodology to Compare Seismic Hazard Results with Historical Macroseismic Observations<br>Maria Rota, Annalisa Rosti, Andrea Penna, Emilia Fiorini, Guido Magenes |
| 18:30<br>18:40 | New challenges for research on seismic hazards - SIGMA 2<br>Durouchoux Christophe, Daniel Guillaume, Paola Traversa |
| | ID: 12158 Poster Presentation \| Some advances in the understanding and estimation of high-frequency attenuation (kappa) related to Sigma-1<br>Olga-Joan Ktenidou, Norman A Abrahamson, Fabrice Cotton, John G. Anderson, Robert Darragh, Caroline Holden, Tadahiro Kishida, Tam Larkin, Walter Silva, Chris Van Houtte |

| Special Session 11: Seismic Performance and Risk Communication on Non-Structural Elements<br>(organized by E. Miranda, T. Sullivan, C.S. Oliveira, M. Lopes) | M2.3<br>Maurice Saltiel A |
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| 17:30<br>17:40 | ID: 10169 Assessing the effectiveness of risk communication in Europe<br>Stephen Platt, Gemma Musacchio, Delta Silva, Massimo Crescimbene, Nicola Pino, Mónica Ferreira, Carlos Oliveira, Mário Lopes, Rajesh Rupakhety |
| 17:40<br>17:50 | ID: 10206 Use of Building Information Modelling for the seismic design of non-structural elements<br>Daniele Perrone, Andre Filiatrault |
| 17:50<br>18:00 | ID: 10805 New Approach to the Design of Acceleration-Sensitive Non-Structural Elements in Buildings<br>Eduardo Miranda, Athanasia Kazantzi, Dimitrios Vamvatsikos |
| 18:00<br>18:10 | ID: 10811 In-Plane Fragility Assessment of Masonry Infill Panels<br>Andrea Chiozzi, Eduardo Miranda |
| 18:10<br>18:20 | ID: 10928 Cost-Effective Consideration Of Non-Structural Elements: Lessons From The Canterbury Earthquakes<br>Timothy John Sullivan, Fransiscus Asisi Arifin, Gregory A. MacRae, Masahiro Kurata, Tadahisa Takeda |
| 18:20<br>18:30 | ID: 11176 Effect of Yielding on the Seismic Demands of Nonstructural Elements<br>Athanasia Kazantzi, Dimitrios Vamvatsikos, Eduardo Miranda |
| 18:30<br>18:40 | ID: 11439 Shake Table Tests On Retrofitted Brick Partitions<br>Gennaro Magliulo, Francesca Celano, Alberto Balsamo, Andrea Prota |

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| 18:40<br>18:50 | ID: 11550 KnowRISK tools for preparedness and community resilience: Practical Guide, Short Guide for Students and Portfolio<br>Monica Amaral Ferreira, Stefano Solarino, Gemma Musacchio, Francisco Mota de Sá, Carlos Sousa Oliveira, Mário Lopes, Hugo O'Neill, Lisa Orlando, Marco Maria Faggioli |
| 18:50<br>19:00 | ID: 11561 The KnowRISK Project: Objectives and Achievements<br>Carlos Sousa Oliveira, Mário Lopes, Gemma Musacchio, Delta Sousa Silva, Rajesh Ruphaketi, Mónica Amaral Ferreira |
| 19:00<br>19:10 | ID: 11902 Non-Structural Risk Evaluation: Experiences From Pilot Areas Of The Knowrisk Project<br>Raffaele Azzaro, Salvatore D'Amico, Horst Langer, Fabrizio Meroni, Thea Squarcina, Giusy Tusa, Tiziana Tuvè, Rajesh Ruphaketi, Simon Olafsson, Carlos Oliveira, Monica Ferreira |
| 19:10<br>19:20 | ID: 11992 Seismic risk communication to schools, citizens and professionals: the KnowRISK approach<br>Gemma Musacchio, Delta S. Silva, Mónica A. Ferreira, Susanna Falsaperla, Eva Elena, Giovanna L Piangiamore, Stefano Solarino, Danilo Reitano, Rajesh Rupakhety, Carlos S. Oliveira, Mário Lopes, Marta Vincente, Simon Olafsson, Bjarni Bessason |
| 19:20<br>19:30 | ID: 12027 Approaching Communities to better Communicate Seismic Risk and Protection<br>Mónica Amaral Ferreira, Gemma Musacchio, Delta Sousa Silva, Isabel Pais, Carlos Sousa Oliveira, Mário Lopes, Rajesh Rupakhety, Federica Manzoli, Francisco Mota de Sá, Danilo Reitano |

| **Special Session 04: Borehole vertical arrays: existing sites, new developments, recent results and usefulness for engineering seismology**<br>(organized by P-Y. Bard, F. Hollender, O.J. Ktenidou) | **M2.4**<br>**Maurice Saltiel B** |
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| 17:30<br>17:50 | ID: 10851 Joint Inversion of H/V and Surface-to-Borehole Spectral Ratios to obtain S-wave Velocity Structure and Damping<br>Hiroshi Kawase, Fumiaki Nagashima |
| 17:50<br>18:00 | ID: 11059 How Much Sub-Surface Information Can We Extract From Surface Records?<br>Erdal Safak |
| 18:00<br>18:10 | ID: 12058 Near-surface shear wave attenuation by deconvolution of borehole records: A sensitivity analysis based on synthetic wavefields<br>Evi Riga, Fabrice Hollender, Zafeiria Roumelioti, Pierre-Yves Bard, Kyriazis Pitilakis |
| 18:10<br>18:20 | ID: 11495 A Study Of Site Effect Using Surface-Downhole Seismic Data In A Mining Area<br>Dorota Olszewska, Grzegorz Mutke |
| 18:20<br>18:30 | ID: 12075 Shear Wave Velocity Variations at the CORSSA (Central Greece) Vertical Array<br>Zafeiria Roumelioti, Fabrice Hollender, Philippe Gueguen |
| 18:30<br>18:40 | ID: 11126 Comparing 1D-3C and 1D-1C nonlinear dynamic responses of deep and shallow Japanese sites, considering various assumptions<br>Evelyne Foerster |
| 18:40<br>18:50 | ID: 11582 Seismic Non-linear behavior of soil inferred by analysis of borehole data<br>David Alejandro Castro Cruz, Etienne Bertand, Julie Régnier, Françoise Courboulex |
| 18:50<br>19:00 | ID: 10887 Influence of non-linearity modeling strategy for site response estimation based on measurements and numerical simulations at the KiK-Net KSRH10 site<br>Vinicius Alves Fernandes, Matthieu Caudron, Didrik Vandeputte |
| 19:00<br>19:10 | ID: 12081 Bayesian Estimation of non-linear soil model parameters: Theory and model-scale validation<br>Elnaz Esmaeilzadeh Seylabi, Domniki Asimaki |
| 19:10<br>19:20 | ID: 11704 Downhole array of accelerometers in the vicinity of a two-story building: Numerical simulation of seismic ground response and effect of building vibrations on recorded motions<br>Olga Theofilopoulou, George Athanassopoulos, Panagiotis Pelekis |

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| | ID: 11054 Poster Presentation \| Installation of a borehole vertical array in the Var valley, Nice, France.<br>Nathalie Dufour, Jean-Baptiste Payeur, Etienne Bertrand, Diego Mercerat, Julie Regnier, Vincent Vancraenenbroeck, Morgan Alliaume, Frédéric Capelle, Philippe Langlaude, Michel Pernoud, Hélène Calissano, Laurent Batilliot, Marlène Coudert |
| | ID: 11295 Poster Presentation \| Monitoring of Ground Motions With Surface and Deep Borehole Instrumentation at Swiss NPP Sites<br>Philippe L.A. Renault, Luis A. Dalguer, Skolnik Derek |
| | ID: 11516 Poster Presentation \| Downhole Array of Accelerometers in the City of Patras Greece – Derivation of Vs and Vp Profiles and Ground Response Characteristics from Earthquake Recordings.<br>Panagiotis K. Pelekis, Anastasios V. Batilas, Vassilis S. Vlachakis, Olga Theofilopoulou, George A. Athanasopoulos, Angelos Mongolias |
| | ID: 11974 Poster Presentation \| Site Response Evaluations Through Vertical Arrays in Istanbul<br>Nazife Ozge Fercan, Aslı Kurtulus, Atilla Ansal, Erdal Safak |
| | ID: 12083 Poster Presentation \| The ARGONET (Greece) Seismic Observatory: Site Characterization, Instrumentation and Data<br>Nikolaos Theodoulidis, Fabrice Hollender, Armand Mariscal, Pierre-Yves Bard, Agisilaos Konidaris, Denis Moiriat, Marc Cushing, Kiriaki Konstantinidou, Zafeiria Roumelioti |
| | ID: 12092 Poster Presentation \| Respective Advantages of Surface and Downhole Reference Stations for Site Effect Studies: Lessons Learnt from the Argonet (Cephalonia Island, Greece) and Cadarache (Provence, France) Vertical Arrays<br>Fabrice Hollender, Zafeiria Roumelioti, Julie Régnier, Vincent Perron, Pierre-Yves Bard |
| | ID: 12093 Poster Presentation \| UNCERTAINTIES ON VS PROFILES and site response at a vertical strong motion array<br>Konstantia Makra, Dimitrios Raptakis |
| | ID: 12113 Poster Presentation \| Importance of local scattering in high frequency motion: lessons from InterPacific project sites, application to the KiK-net database and derivation of new hard-rock GMPE<br>Hussein Shible, Aurore Laurendeau, Pierre-Yves Bard, Fabrice Hollender |
| | ID: 12175 Poster Presentation \| Borehole vertical arrays in Japanese Ports<br>Atsushi Nozu, Yosuke Nagasaka |

| **Special Session 06: Risk analysis of major hazard industrial facilities and metamaterials-based shields for enchanced resilience**<br>(organized by O.S. Bursi, F. Paolacci) | **M2.5**<br>**Maurice Saltiel C** |
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| 17:30<br>17:40 | ID: 11064 The Evaluation Of Risk-Targeted Importance Factor And Behaviour Factor For Selected Steel Structures Designed According To Eurocode 8<br>Francesca Celano, Jure Žižmond, Matjaž Dolšek |
| 17:40<br>17:50 | ID: 11107 Seismic Behavior of Membrane and Full Containment Tanks Including Soil Structure Interaction<br>Marcello Cademartori, Claudio Piatti, Paolo Basso, Omar Zanoli, Lorenzo Zuccarino, Catherine Boucard |
| 17:50<br>18:00 | ID: 11150 Fluid-Structure Interaction Problems: An Application To Anchored And Unanchored Steel storage tanks Subjected To Seismic loadings<br>Hoang Nam Phan, Fabrizio Paolacci |
| 18:00<br>18:10 | ID: 11165 A Study On The Seismic Vulnerability Of A Selected Petrochemical Plant Piping System<br>Stefano Caprinozzi, Jure Žižmond, Fabrizio Paolacci, Matjaž Dolšek |
| 18:10<br>18:20 | ID: 11329 Metamaterial-Based Foundation System for the Seismic Isolation of Fuel Storage Tanks<br>Moritz Wenzel, Oreste S. Bursi |
| 18:20<br>18:30 | ID: 11339 Specific Analyses for the Reassessment of Existing Offshore Platforms Under new seismic conditions. The case of Yadana Platforms in Myanmar<br>Jerome Brocherie, Frederic Barbier, Francois Bonhoure |

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| 18:30<br>18:40 | **ID: 12161** Design principles of seismic metasurfaces to control Love waves<br>Antonio Palermo, Farhad Zeighami, Alessandro Marzani |

**Special Session 21: Assessment of earthquake vulnerability and risk at national, regional and global scale** — M2.6 Museum Hall
(organized by V. Silva / Global Earthquake Model Foundation (GEM))

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| 17:30<br>17:40 | **ID: 11310** Derivation of Empirical Fragility Functions from the 2009 L'Aquila Earthquake Data<br>Silvia Bertelli, Tiziana Rossetto, Ioanna Ioannou |
| 17:40<br>17:50 | **ID: 12163** Seismic Vulnerability Assessment of Victoria, British Columbia, Canada: Impact of Long Duration Subduction Zone Ground Motions<br>Armin Bebamzadeh, Carlos E Ventura, Michael Fairhurst, Ann Abraham |
| 17:50<br>18:00 | **ID: 11041** Using OpenQuake to define seismic risk and real time damage scenario in Italy<br>Marta Faravelli, Barbara Borzi, Marco Pagano, Davide Quaroni |
| 18:00<br>18:10 | **ID: 11757** Seismic Hazard and Risk in Central Asia. Outcomes of the EMCA Project<br>Massimiliano Pittore, Kevin Fleming, Vitor Silva, Bolot Moldobekov |
| 18:10<br>18:20 | **ID: 10795** Seismic Risk in the Kyrgyz Republic, Central Asia<br>Matthew Free, Katherine Coates, Damian Grant, Yannis Fourniadis, Thomas Ader, Luis Sousa, Kevin Fleming, Massimiliano Pittore, Bolot Moldobekov, Cholponbek Ormukov |
| 18:20<br>18:30 | **ID: 11130** Development of Iran Earthquake Risk Model<br>Hooman Motamed, Alejandro Calderon, Vitor Silva, Catarina Costa |
| 18:30<br>18:40 | **ID: 11521** Towards a Uniform Earthquake Risk Model for Europe<br>Helen Crowley, Daniela Rodrigues, Vitor Silva, Venetia Despotaki, Xavier Romão, Miguel Castro, Sinan Akkar, Ufuk Hancilar, Kyriazis Pitilakis, Dimitris Pitilakis, Myriam Belvaux, Stefan Wiemer, Laurentiu Danciu, Antonio Correia, Oreste Salvatore Bursi, Moritz Wenzel |

**Special Session 18: Seismic modelling of masonry buildings: present knowledge and open challenges for research and practice** — M2.7 Library Hall
(organized by S. Cattari, G. Magenes, P.B. Lourenço)

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| 17:30<br>17:40 | **ID: 12028** Blind Predictions Of A Cyclic Pushover Test On A Two-Storey Calcium-Silicate Masonry Assemblage: A Comparative Study<br>Francesco Messali, Manimaran Pari, Rita Esposito, Jan G. Rots, Dick den Hertog |
| 17:40<br>17:50 | **ID: 12121** A Comparative Study on a 2-Storey Benchmark Case Study through Nonlinear Seismic Analysis<br>Serena Cattari, Daniela Camilletti, Guido Magenes, Carlo Filippo Manzini, Paolo Morandi, Enrico Spacone, Guido Camata, Corrado Marano, Ivo Caliò, Francesco Cannizzaro, Bartolomeo Pantò, Giuseppe Occhipinti, Bruno Calderoni, Emilia Angela Cordasco, Antonio Sandoli |
| 17:50<br>18:00 | **ID: 11524** Effective Stiffness and Drift Capacity of Modern Unreinforced Masonry Walls<br>Bastian Valentin Wilding, Katrin Beyer |
| 18:00<br>18:10 | **ID: 11570** Tri-linear Model for the Out-of-plane Seismic Assessment of Unreinforced Masonry Walls<br>Michele Godio, Katrin Beyer |
| 18:10<br>18:20 | **ID: 11772** Discrete Element Modeling Of A Two Storey Unreinforced Masonry Scaled Model<br>Francisco Galvez, Marta Giaretton, Abeling Shannon, Jason M. Ingham, Dmytro Dizhur |
| 18:20<br>18:30 | **ID: 12162** A study about optimal stiffening of timber floors in URM buildings<br>Roberto Scotta, Davide Trutalli, Luca Marchi, Luca Pozza |
| 18:30<br>18:40 | **ID: 11593** In Plane Seismic Response of Irregular URM Walls through Equivalent Frame and Finite Element Models<br>Daniela Camilletti, Serena Cattari, Sergio Lagomarsino |
| 18:40<br>18:50 | **ID: 11713** Seismic Soil-Cavity-Structure Interaction: Two Case Studies In Sant'Agata De' Goti, Italy<br>Annalaura Vuoto, Annachiara Piro, Filomena de Silva, Anna Scotto di Santolo, Fulvio Parisi, Francesco Silvestri |

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| 18:50<br>19:00 | ID: 12036 The Hellenistic N.E. Tower Of Aegosthena Fortress: Numerical Modelling Strategies For Its Anastylosis<br>Eleni-Eva Toumbakari |
| 19:00<br>19:10 | ID: 11791 Fractal And Complexity Analysis of Crack Patterns Of Masonry Walls<br>Amir Rezaie, Antoine Mauron, Kiarash Dolatshahi, Katrin Beyer |
| 19:10<br>19:20 | ID: 11489 Predefined Damage Patterns for Limit Analysis on Non-Engineered Masonry Buildings<br>Cemal Icel, Murat Altug Erberik, Mustafa Tolga Yilmaz |
| 19:20<br>19:30 | ID: 10899 Evaluation of the Seismic Behavior of a Modern URM Building During the 2012 Northern Italy Earthquakes<br>Julia Rosin, Christoph Butenweg, Niklas Boesen, Christoph Gellert |
| | ID: 10756 Poster Presentation \| Seismic Behaviour of Traditional Timber Framed Buildings: the Cases of Pombalino and Casa Baraccata<br>Rosanna Parrotta, Helena Meireles, Paolo Lonetti, Jorge Miguel Proença, Rita Bento |
| | ID: 11887 Poster Presentation \| Numerical Investigation Of Masonry Structures On The Micro Level<br>Shenghan Zhang, Nicolas Richart, Katrin Beyer |
| | ID: 12102 Poster Presentation \| How to Assess 25,000 Addresses in Five Years<br>Andrew Baird, Craig Muir, Peter Beazley, Rob Jury, Weng Yuen Kam |

| **Special Session 10: Performance-based earthquake engineering in practice: Is it worth the trouble?**<br>(organized by D. Vamvatsikos, C. Adam, D. Lignos) | **M2.8**<br>**CR1** |
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| 17:30<br>17:40 | ID: 10806 Comparison of Seismic Risk between 1- and 2-story Houses for Performance-Based Earthquake Engineering<br>Eduardo Miranda, Pablo Heresi |
| 17:40<br>17:50 | ID: 11469 Conditional Spectrum based record selection for nonlinear dynamic analysis of 3D structural models<br>Mohsen Kohrangi, Paolo Bazzurro, Dimitrios Vamvatsikos |
| 17:50<br>18:00 | ID: 12181 Improving the Collapse Risk of Steel Structures with High-Performance Steel<br>Yusuke Suzuki, Dimitrios Lignos |
| 18:00<br>18:10 | ID: 10253 On the Practical Estimation of the Distribution of Peak Floor Acceleration Demands<br>Lukas Moschen, Christoph Adam, Dimitrios Vamvatsikos |
| 18:10<br>18:20 | ID: 12170 Proposal Of A New Loss Ratio Performance Matrix In Seismic Design Framework<br>Iolanda Nuzzo, Stefano Pampanin, Nicola Caterino |
| 18:20<br>18:30 | ID: 11373 The Performance-Based Earthquake Engineering paradigm in current seismic safety assessment codes for existing RC buildings: Conceptual and statistical assessment.<br>Nuno Pereira, Xavier Romão |
| 18:30<br>18:40 | ID: 11473 Performance-Based Design Procedures: Beware Uncharted Waters<br>Terrence Paret, Andrew Shuck |

# TUESDAY **19.06.2018**

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| 09:00<br>09:45 | **Tu.KL01: Keynote Lecture \| Atilla Ansal**<br>Session Chair: Mihail Garevski<br><br>ID: 12269 **Implications of Site Specific Response Analysis**<br>Atilla Ansal, Gökçe Tönük, Aslı Kurtuluş | **M1.1**<br>**Friends of Music Hall** |

**09:45-10:05 Coffee Break**

## 10:05-10:35 THEME LECTURES

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| **Tu.TL01: Theme Lecture \| Oreste Bursi**<br>Session Chair: Erdal Safak<br><br>ID: 12334 **Structural Health Monitoring For Seismic Protection Of Structure And Infrastructure Systems**<br>Oreste S. Bursi, Daniele Zonta, Emiliano Debiasi, Davide Trapani | **M1.1**<br>**Friends of Music Hall** |
| **Tu.TL02: Theme Lecture \| Fabrice Cotton**<br>Session Chair: Pierre-Yves Bard<br><br>ID: 12352 **Knowns And Unknowns Of Ground-Motion Variability. Lessons Learned From Recent Analysis And Implications For Seismic Hazard Assesment**<br>Fabrice Cotton, Sreeram Reddy Kotha, Dino Bindi, Sanjay Bora | **M2.1**<br>**Aimilios Riadis** |
| **Tu.TL03: Theme Lecture \| Gopal Madabhushi**<br>Session Chair: Francesco Silvestri<br><br>ID: 12294 **Large Scale Testing Facilities – Use Of High Gravity Centrifuge Tests to Investigate Soil Liquefaction Phenomena**<br>Gopal S P Madabhushi | **M2.4**<br>**Maurice Saltiel B** |
| **Tu.TL04: Theme Lecture \| Aspasia Zerva**<br>Session Chair: Anastasios Sextos<br><br>ID: 12266 **Issues with the Use of Spatially Variable Seismic Ground Motions in Engineering Applications**<br>Aspasia Zerva, Mohammad Reza Falamarz-Sheikhabadi, Masoud Khazaei Poul | **M2.6**<br>**Museum Hall** |

## 10:45-13:00 CONCURRENT ORAL SESSIONS

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| | **Tu.OS01: Seismic Design and Analysis of Reinforced Concrete Buildings (III)**<br>Session Chairs: Stavroula J. Pantazopoulou, Christos Petridis | **M1.1**<br>**Friends of Music Hall** |
| 10:45<br>10:55 | ID: 11504 **Assessing three real RC buildings using different accelerogram selection approaches**<br>Federica Bianchi, Martina Caruso, Antonio Lanza, Rui Pinho | |
| 10:55<br>11:05 | ID: 10447 **A Comparative Study On Design Methods Of Walls And Columns Using Response Spectrum Analysis Results**<br>Maria Vaios Liapopoulou, Ioannis Nikolaos Doudoumis | |
| 11:05<br>11:15 | ID: 10606 **Modelling the Effect of Corrosion on Failure Modes of RC Columns Subject to Lateral Seismic Loading**<br>Ebrahim Afsar Dizaj, Rahmat Madandoust, Mohammad Mehdi Kashani | |
| 11:15<br>11:25 | ID: 11226 **A Simplified Modeling Strategy to Assess the Behavior Factor of Reinforced Concrete Structural Elements**<br>Amina Medjahed, Ahmed Kamel Tedjditi, Mohammed Matallah | |

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| 11:25<br>11:35 | ID: 10778 Three-Dimensional Finite Element Modeling of RC Walls Under Uniaxial and Biaxial Loading<br>Kristijan Kolozvari, Ross Miller, Fethi Gullu, Kutay Orakcal |
| 11:35<br>11:45 | ID: 11149 Seismic Demand Estimates of Mid-Rise RC Building Subjected to Code Compliant Earthquake Records<br>Esra Ozer, Muhammet Kamal, Bayram Tanik Cayci, Mehmet Inel |
| 11:45<br>11:55 | ID: 10864 Modified Spectrum-based Pushover Analysis for Estimating Seismic Demand of Wall-frame Structure<br>Yang Liu, J S Kuang |
| 11:55<br>12:05 | ID: 10816 Nonlinear Seismic Response of RC Buildings Considering Orthogonal Effects<br>Anthony A. Lopez Saucedo, Victor I. Fernández-Dávila Gonzáles |
| 12:05<br>12:15 | ID: 11782 The Seismic Behaviour of Reinforced Concrete Buildings in Different Conditions of Underground Storeys<br>Agim Seranaj, Altin Seranaj |
| 12:15<br>12:25 | ID: 10155 Experimental and Numerical Response of RC Walls with Openings under Cyclic Loading<br>Leonardo Massone, Gonzalo Muñoz, Fabian Rojas |
| 12:25<br>12:35 | ID: 12084 Damage Scenario for L'Aquila Area: A Large-Scale Comparison With 7597 RC Buildings Post-Earthquake Data<br>Carlo Del Gaudio, Paolo Ricci, Gerardo Mario Verderame |
| 12:35<br>12:45 | ID: 11852 Structural Evaluation of Existing Buildings in Turkey<br>Kasim Korkmaz, Tugce Yenice |

| Tu.OS02: Laboratory In-Situ Testing and Structural Health Monitoring of Structures (III)<br>Session Chairs: Stefano Pampanin, Georgios Tsionis, Vasiliki Terzi | M2.1<br>Aimilios Riadis |
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| 10:45<br>10:55 | ID: 10272 Numerical Simulation of Reinforced Concrete Tunnel-Built Structure Tested Bi-Directionally Under Quasi-Static Cyclic Loading<br>Gianmarco Montalbini, Candice Avanes, Serena Alessi, Yuli Huang, Michele Palmieri, Richard Stuart |
| 10:55<br>11:05 | ID: 11809 Evaluation of a Simplified Method for the Estimation of the Lateral Resistance of Infilled RC Frames<br>Jimena Martin, Andreas Stavridis |
| 11:05<br>11:15 | ID: 11797 Experimental Seismic Behaviour of a Two-Storey CLT Platform Building: Design and Shake Table Testing<br>John W van de Lindt, Jace Furley, M. Omar Amini, Shiling Pei, Gabriele Tamagnone, Andre R. Barbosa, Doug Rammer, Philip Line, Massimo Fragiacomo, Marjan Popovski |
| 11:15<br>11:25 | ID: 10266 In-situ Measured and Numerically Predicted Dynamic and Seismic Response of Stone Masonry Bridges<br>George C. Manos, Evaggelos Kozikopoulos, Nikos Simos |
| 11:25<br>11:35 | ID: 10305 Damage Evaluation Method based on Acceleration Measurement on Some Restricted Floors<br>Tomohiko Hatada, Yoshiki Ikeda, Hajime Hagiwara, Yoshihiro Nitta, Akira Nishitani |
| 11:35<br>11:45 | ID: 12311 A Case Study Of Out-Of-Plane Structural Identification Of A Masonry Infill Wall<br>Alessandra De Angelis, Maria Rosaria Pecce |
| 11:45<br>11:55 | ID: 11122 Mechanical Characterisation Of Polymer Fibre-Reinforced Cement-Based Mortar For Masonry Joint Repointing<br>Bojan Damchevski, Sergey Churilov, Elena Dumova-Jovanoska |
| 11:55<br>12:05 | ID: 10286 The Impact of Some Parameters of Mine-induced Rockbursts on the Transmission of Free-Field Vibrations to the office Building Foundation<br>Krystyna Kuzniar, Krystyna Stec, Tadeusz Tatara |
| 12:05<br>12:15 | ID: 10844 Vibration-Based Structural Damage Detection Using a Decentralized Network with Limited Sensors<br>Said Quqa, Luca Landi, Pier Paolo Diotallevi |

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| 12:15<br>12:25 | **ID: 10142 Hybrid Simulation of a Two-Storey Two-Bay Post-Tensioned Timber Frame**<br>Jelena Ogrizovic, Giuseppe Abbiati, Bozidar Stojadinovic, Andrea Frangi |
| 12:25<br>12:35 | **ID: 10801 Experimental Response of T-Shape RC Walls - Effect of Confinement and Discontinuity**<br>Fabian Rojas, Fernando Muñoz, Leonardo Massone, Mario Ruiz, Marcos Silva |
| 12:35<br>12:45 | **ID: 12351 A Time-Domain Hierarchical Bayesian Approach For Model Updating**<br>Omid Sedehi |

**Tu.OS03: Seismic Hazard Engineering Seismology and Strong Ground Motion (III)** — **M2.3 Maurice Saltiel A**

Session Chairs: John Douglas, Zoran Milutinovic, Lambros Kotoulas

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| 10:45<br>10:55 | **ID: 10377 Statistical Treatment of a Comprehensive Set of Isoseismals Observed in France During the XX° Century**<br>Pierre Bernard Labbe |
| 10:55<br>11:05 | **ID: 10227 Homogeneous and Continuous Probabilistic Seismic Hazard Model for Latin America and the Caribbean**<br>Mario Andres Salgado Galvez, Mario Ordaz, Shri Singh, Omar Dario Cardona, Eduardo Reinoso, Alejandro Aguado, Daniela Zuloaga, Benjamin Huerta, Gabriel Bernal |
| 11:05<br>11:15 | **ID: 11447 Towards a New Dataset of Strong Motion Records From Near-Source Regions: Preliminary Analysis**<br>Francesca Pacor, Chiara Felicetta, Giovanni Lanzano, Sara Sgobba, Rodolfo Puglia, Emiliano Russo, D'Amico Maria, Georgios Baltzopoulos, Iunio Iervolino |
| 11:15<br>11:25 | **ID: 11398 Strong Ground Motion Simulation of the Mainshock of the 2016 Kumamoto Earthquakes with Multiple Point Sources and Near Surface Ruptures**<br>Yosuke Nagasaka, Atsushi Nozu |
| 11:25<br>11:35 | **ID: 11102 Drift Spectra from Simulated Records for Earthquakes in South Iceland**<br>Simon Olafsson, Rajesh Rupakhety |
| 11:35<br>11:45 | **ID: 11515 The Co-Seismic Coulomb Stress Changes in The Southeast and Northwest of Iranian Plateau**<br>Behnam Maleki-Asayesh, Hamid Zafarani, Majid Mahood, Saeed Zarei |
| 11:45<br>11:55 | **ID: 10628 Three-Dimensional Earthquake Ground Motion Simulations for the Region of Bogotá, Colombia**<br>Andrea C. Riaño, Juan C. Reyes, Jacobo Bielak, Ricardo Taborda, Doriam L. Restrepo, Luis E. Yamin, Nelson Pulido |
| 11:55<br>12:05 | **ID: 10445 Harmonized Seismic Hazard Maps for the Western Balkan Countries**<br>Radmila Salic, Zeynep Gulerce, Neki Kuka, Snjezana Markusic, Jadranka Mihaljevic, Vladan Kovacevic, Abdullah Sandikaya, Zoran Milutinovic, Llambro Duni, Davor Stanko, Natasa Kaludjerovic, Svetlana Kovacevic |
| 12:05<br>12:15 | **ID: 10552 Modeling of the 1939 Erzincan, Turkey (Ms~7.8) Earthquake: Observations on Anticipated Ground Motions and Felt intensity Distribution**<br>Shaghayegh Karimzadeh Naghshineh, Aysegul Askan |
| 12:15<br>12:25 | **ID: 11404 Assessment of the Performance of a Novel Regional Low-Magnitude GMPE for Southern Italy**<br>Francesca Bozzoni, Elisa Zuccolo, Carlo G. Lai |
| 12:25<br>12:35 | **ID: 10465 The Engineering Strong motion Database: web portal and webservices for engineering seismologists**<br>Lucia Luzi, Francesca Pacor, Rodolfo Puglia, Russo Emiliano, Maria D'Amico, Chiara Felicetta, Giovanni Lanzano, Orfeus Wg |
| 12:35<br>12:45 | **ID: 11969 Mt. Vettore Fault Zone Rupture - LIDAR- and UAS-Based Structure-from-Motion Computational Imaging**<br>Robert Edward Kayen, Stefano Gori, Brett Lingwall, Fabrizzo Galadini, Emanuela Falcucci, Kevin Franke, Jonathan Stewart, Paolo Zimmaro |

## Tu.OS04: Site Effects and Microzonation Studies (III)

Session Chairs: Hiroshi Kawase, Konstantia Makra, Olga-Joan Ktenidou

M2.4
Maurice Saltiel B

10:45 – 10:55 **ID: 11624 2D/1D Aggravation Factors : From A Comprehensive Parameter Study To Simple Estimates With A Neural Network Model**
Ahmed Stambouli, Pierre-Yves Bard, Emmanuel Chaljub, Peter Moczo, Jozef Kristek, Svetlana Stripajova, Capucine Durand, Djawad Zendagui, Boumédiène Derras

10:55 – 11:05 **ID: 11347 Generating 3D Vs Models In Urban Environments From Ambient Noise Tomography And Combined MASW Investigations: The Case Of The City Of Thessaloniki (Northern Greece)**
Marios Anthymidis, Costas Papazachos, Matthias Ohrnberger, Dimitris Oikonomou, Alexandros Savvaidis, Nikos Theodoulidis, George Vargemezis, Panagiotis Tsourlos

11:05 – 11:15 **ID: 12300 Local Effects Of Artificial Dwelling Hills And Canals On Ground Response During Induced Earthquakes**
Elena Bouzoni, Floris Besseling, Siefko Slob

11:15 – 11:25 **ID: 11421 Comparison of 1D Vs 2D Vs 3D Numerical Approaches for Prediction of Seismic Ground Motion and Site Effects in Thessaloniki Urban Area**
Kiana Hashemi, Chiara Smerzini

11:25 – 11:35 **ID: 11322 Site Response Characteristics Of A Deep Sedimentary Basin. The Case Of Kalochori, N. Greece**
Konstantia Makra, Alexandros Savvaidis, Emmanouil Rovithis

11:35 – 11:45 **ID: 11288 Towards Rapid Prediction of Topographic Amplification at Small Scales: Contribution of The Fsc Proxy and Pleiades Terrain Models for the 2016 Amatrice Earthquake (Italy, Mw 6.0)**
Emeline Maufroy, Pascal Lacroix, Emmanuel Chaljub, Christophe Sira, Gerardo Grelle, Laura Bonito, Mathieu Causse, Victor Manuel Cruz Atienza, Fabrice Hollender, Fabrice Cotton, Pierre-Yves Bard

11:45 – 11:55 **ID: 10399 Determination of Site Amplification Based on Nonlinear inversion of Accelerometric Data in Greece**
Ioannis Grendas, Nikolaos Theodoulidis, Panagiotis Hatzidimitriou, Basil Margaris, Stephane Drouet

11:55 – 12:05 **ID: 12190 Can Basin Effects Be Accounted for Using A Single Aggravation Factor in Irregular-Shaped Alpine Valleys?**
Chuanbin Zhu, David Thambiratnam, Joachim Ritter, Jianjing Zhang

12:05 – 12:15 **ID: 11491 Aggravation of Spectral Acceleration Along 2D Symmetrical Trapezoidal Valleys**
Achilleas G. Papadimitriou, Sarantos A. Paraskevopoulos, Athanasios N. Lamprakopoulos

12:15 – 12:25 **ID: 10430 Topographic Amplification Effects on Seismic Motions: The Case of the Large (M=7.4) 1956 Amorgos Earthquake and Its Impact in the Area of Santorini**
Charalampos Kkallas, Costas Papazachos, Andreas Skarlatoudis, Marios Anthymidis, Chrisanthi Ventouzi

12:25 – 12:35 **ID: 11407 Estimate of Local Site Effect with Irregular Seismic Bedrock for Earthquake Engineering Based on Microtremor Measurement**
Kazuya Mitsuji, Susumu Ohno, Masato Motosaka

12:35 – 12:45 **ID: 10915 Probabilistic seismic soil response model for Bogotá**
Gabriel Bernal, Daniela Zuloaga, Omar Darío Cardona

## Tu.OS05: Risk Assessment of Critical Buildings Infrastructures Utility Systems and Industrial Facilities (III)

Session Chairs: Camillo Nuti, Fabrizio Paolacci, Kalliopi Kakderi

M2.5
Maurice Saltiel C

10:45 – 10:55 **ID: 11152 Building Stock Inventory to Assess Seismic Vulnerability Across Europe**
Valentina Palermo, Georgios Tsionis, Maria Luísa Sousa

10:55 – 11:05 **ID: 11015 A Global Database of Vulnerability Models for Seismic Risk Assessment**
Luis Martins, Vitor Silva

11:05 – 11:15 **ID: 10201 Epistemic Uncertainty in Hazard and Fragility Modelling for Earthquake Risk Assessment**
Luis Sousa, Mario Marques, Vitor Silva, Graeme Weatherill

11:15 11:25 **ID: 12213 Comparative Analysis Of Seismic Vulnerability Assessment Methodologies For RC Buildings At Territorial Scale**
Fabio Romano, Maria Zucconi, Barbara Ferracuti

11:25 11:35 **ID: 10395 Scenario-based seismic risk assessment for Malawi using improved information on earthquake sources and local building characteristics**
Katsuichiro Goda, Panos Kloukinas, Raffaele De Risi, Michael Hodge, Innocent Kafodya, Ignasio Ngoma, Juliet Biggs, Adam Crewe, Ake Fagereng, John Macdonald

11:35 11:45 **ID: 10569 Seismic Vulnerability, Damage and Strengthening of Masonry Structures in the Balkans with a Focus on Bosnia and Herzegovina**
Naida Ademovic, Marijana Hadzima-Nyarko

11:45 11:55 **ID: 11221 Uncertainty Quantification for Seismic Risk Assessment Using Latin Hypercube Sampling and Quasi Monte Carlo Simulation**
Christoph Scheingraber, Martin Käser

11:55 12:05 **ID: 11344 Risk Assessment of Rocking Contents in Multistorey Buildings**
Michalis Fragiadakis, Spryridon Diamantopoulos

12:05 12:15 **ID: 10190 The Effects of Implementing Different Ground-motion Logic-tree Frameworks on Seismic Risk Assessment**
Bekir Ozer Ay, Ozkan Kale

12:15 12:25 **ID: 10916 Automatic System for Post-Earthquake Evaluation of City Damage in Bogotá**
Gabriel Bernal, Omar Dario Cardona

12:25 12:35 **ID: 10562 Building-Specific Vulnerability Assessment Of Critical Buildings Using Short Term Field Monitoring Data**
Sotiria Karapetrou, Stavroula Fotopoulou, Ioannis Thomaidis, Evangelia Yfantidou, Maria Manakou, Kyriazis Pitilakis

12:35 12:45 **ID: 10461 Identification of Limit States for Developing Fragility Curves of Concrete Buildings Using Shake Table Testing**
Aman Mwafy, Bashir Almorad

## Tu.OS06: Soil Dynamics

**M2.6 Museum Hall**

Session Chairs: Panos Dakoulas, Anastasios Anastasiadis, Ioanna-Kleoniki Fontara

10:45 10:55 **ID: 10455 Liquefaction Triggering Due to Compressional Waves: Validation Through Field Records**
Vasiliki Tsaparli, Stavroula Kontoe, David M.G. Taborda, David M. Potts

10:55 11:05 **ID: 10848 Mechanical Behavior of Lightweight Soil/Rubber Mixtures In a Wide Shear Strain Range**
Angelos Tsinaris, Anastasios Anastasiadis, Kyriazis Pitilakis

11:05 11:15 **ID: 11577 Monotonic And Cyclic Undrained Behavior Of Kumamoto-Aso Pumice Soil By Triaxial And Torsional Shear Tests**
Muhammad Umar, Gabriele Chiaro, Takashi Kiyota, Hirotoshi Miyamoto

11:15 11:25 **ID: 10452 Cyclic Response Of Skopje Sand By Triaxial And Model Tests**
Julijana Bojadjieva, Vlatko Sheshov, Kemal Edip, Toni Kitanovski, Jordanka Chaneva

11:25 11:35 **ID: 10882 Dynamic Shear Modulus and Damping Ratio of Coral Sand from the Nansha Islands, South China Sea**
Ke Liang, Guoxing Chen, Weiyun Chen, Qi Wu

11:35 11:45 **ID: 11727 Selection Of Physical 2D Probabilistic Realizations Of Shear Wave Velocity Random Field**
Eliane Youssef Youssef, Elias El Haber, Dalia Youssef Abdel Massih, Cecile Cornou, Denis Jongmans, Tamara Al Bittar, Fernando Lopez-Caballero

11:45 11:55 **ID: 10151 Dynamic Properties and Liquefaction Resistance of Gravel-Tire Chips Mixture (GTCM)**
Siavash Manafi Khajeh Pasha, Hemanta Hazarika, Norimasa Yoshimoto

11:55 12:05 **ID: 11465 Response Of Dry Sand - Rubber Tire Shred MIixture To Cyclic Simple Shear Loading**
B.R. Madhusudhan, A. Boominathan, Subhadeep Banerjee

12:05 12:15 **ID: 10613 Effect of Propagation of Excess Pore Water Pressure on the Deformation Behavior of a Timber House**
Keisuke Ishikawa, Susumu Yasuda

12:15 12:25 **ID: 11137 Dynamic Behaviour Of Shredded Rubber Soil Mixtures**
Juan Bernal-Sanchez, John McDougall, Daniel Barreto, Marina Miranda, Aikaterini Marinelli

12:25 12:35 **ID: 10617 Hybrid Asynchronous Absorbing Layers For Seismic Wave Propagation In 2D Unbouded Domains**
Sijia Li, Michael Brun, Irini Djeran-Maigre, Kuznetsov Sergey

12:35 12:45 **ID: 10484 Shear Modulus of Hostun Sand**
Konstantinos Kassas, Orestis Adamidis, Nikola Vasic, Ralf Herzog, Ioannis Anastasopoulos

## Tu.OS07: Lifeline Earthquake Engineering

**M2.7 Library Hall**

Session Chairs: Aspasia Zerva, Michalis Fragiadakis, Grigorios Tsinidis

10:45 10:55 **ID: 10500 Sand-Pipe Interaction at Fault Crossings: Experimental and Numerical Investigation of Uplift Relative Movements**
Yousef Ansari, George Kouretzis, Jubert Pineda

10:55 11:05 **ID: 10368 Monte Carlo Approach to Model the Progressive Failure of Water Distribution Networks: Application to a Virtual City**
Omar Kammouh, Veronica Taurino, Marco Domaneschi, Gian Paolo Cimellaro

11:05 11:15 **ID: 11993 Soil-Pipe-Interaction Phenomena on Slopes Under Asynchronous Earthquake Excitation**
Athanasios A Markou, Amir M Kaynia, Anastasios G Sextos, George D Manolis

11:15 11:25 **ID: 11628 Investigating the Effect of Alluvium Depth on the Response of Steel Buried Pipeline Subjected To Reverse Fault Rupture**
Farnoud Farzanegan Pour, Meysam Fadaee

11:25 11:35 **ID: 10831 Accuracy of Surface Rupture Parameters Determination: How Geologists Can Satisfy Designers' Requirements**
Alexander Strom, Mikhail Temis

11:35 11:45 **ID: 10600 Seismic Impact And Design Of Buried Pipelines**
Timo Schmitt, Julia Rosin, Christoph Butenweg

11:45 11:55 **ID: 11596 Finite Element Model of Buried Pipelines Crossing Strike-Slip Faults by ABAQUS/EXPLICIT**
Hasan Emre Demirci, Subhamoy Bhattacharya, Dimitrios Karamitros, Nicholas Alexander, Rao Martand Singh

11:55 12:05 **ID: 10221 Uplift Resistance of Pipelines Embedded in Stiff Soils and Rocks: Effect of Trench Dimensions**
Taxiarchoula G. Limnaiou, Argiroula G. Housos, Yannis K. Chaloulos, George D. Bouckovalas

12:05 12:15 **ID: 10734 Earthquake Response of Underground Tubular Structures: Exact Formulation of the Problems and Evaluation of Engineering Approaches**
Mukhady Israilov, Shakhzod Takhirov

12:15 12:25 **ID: 11162 Toward the Improvement of the R-F Method for the Seismic Analysis of RectangularTunnels**
Grigorios Tsinidis, Kyriazis Pitilakis

12:25 12:35 **ID: 10175 Overview of Major Seismic Standards for High Voltage Electrical Equipment. Proposal for Harmonization of IEC 62271-207 with IEEE 693**
Christos Kotanidis, Anastasia Palaiochorinou, - Ing. Hermann Koch

**Tu.OS08: Performance-Based Design of Structures (III)** — M2.8 CR1
Session Chairs: Dimitrios Vamvatsikos, Christoph Adam, Georgios Baltzopoulos

10:45 – 10:55 **ID: 11151 Evaluation of Reinforced Concrete Wall-Frame Systems under Beyond Seismic Accelerations**
Adrian Argente del Castillo-Garrido, Aidcer Linalynn Vidot-Vega

10:55 – 11:05 **ID: 11131 Effect of Mass Eccentricity on the Torsional Seismic Response of RC Buildings Designed with DDBD Approach**
Esmaeel Izadi Zaman Abadi, Abdolreza Sarvghad Moghadam

11:05 – 11:15 **ID: 10631 Incremental Dynamic Analysis Of R/C Buildings With Various Distributions Of Masonry Infills**
Konstantinos G. Kostinakis, Vasileios Vasileiadis, Asimina Athanatopoulou

11:15 – 11:25 **ID: 11343 Evaluation of Ductility Demand Distribution in Vertically Irregular Frames Allowed to Uplift**
Hamid Asadi-Ghoozhdi, Reza Attarnejad

11:25 – 11:35 **ID: 11828 A Consistent Integrated Formulation For Fragility Analysis and Comparison with Different Methods**
Charalampos Andriotis, Kostas Papakonstantinou, Yogesh Rathod

11:35 – 11:45 **ID: 11302 Seismic assessment of one-story RC precast buildings with cladding panels**
Marianna Ercolino, Gennaro Magliulo, Gaetano Manfredi

11:45 – 11:55 **ID: 10695 Forced Vibration Analysis of a Planar Elliptical Beam**
Merve Ermis, Umit Necmettin Aribas, Nihal Eratlı, Mehmet Hakkı Omurtag

11:55 – 12:05 **ID: 11747 Utilization of Physics-based Ground Motion Simulations For Tall Building Risk Assessment**
Nenad Bijelic, Ting Lin, Greg Deierlein

12:05 – 12:15 **ID: 11818 Simplified evaluation and design procedure based on displacements for RC buildings with viscous dampers**
Francisco Hector Banuelos Garcia, Amado Gustavo Ayala Milian, Marco Antonio Escamilla Garcia

12:15 – 12:25 **ID: 11232 Efficient Statistical Approximation of Engineering Demand Parameters in Building Structures**
Huda Munjy, Farzin Zareian

12:25 – 12:35 **ID: 10544 Assessment of the Collapse Capacity of P-delta Sensitive Systems Through the DDBA Method**
Hector J. Perez, Stefano Pampanin, Roberto Nascimbene

12:35 – 12:45 **ID: 12328 The Role of Structural Configuration on the Seismic Fragility of Reinforced Concrete Bridges, Considering SSI and Site Effects – a Case Study**
Marios Pazidis, Vassilis Papanikolaou, Dimitris Pitilakis

**13:00-14:00 Lunch Break**

## 14:00-14:30 THEME LECTURES

**Tu.TL05: Theme Lecture | Iunio Iervolino** — M1.1 Friends of Music Hall
Session Chair: Stefano Pampanin

**ID: 12335 What Seismic Risk Do We Design For When we Design Buildings?**
Iunio Iervolino

**Tu.TL06: Theme Lecture | George Gazetas** — M2.1 Aimilios Riadis
Session Chair: Stavroula Kontoe

**ID: 12336 Multistory Building Frames and Shear Walls Founded on "Rocking" Spread Footings**
George Gazetas, Dimitris Dais, Fani Gelagoti, Rallis Kourkoulis

**Tu.TL07: Theme Lecture | Sinan Akkar** — M2.4 Maurice Saltiel B
Session Chair: Zygmunt Adam Lubkowski

**ID: 12282 Implementation of Near-Fault Forward Directivity Effects in Seismic Design Codes**
Sinan Akkar, Saed Moghimi

**Tu.TL08: Theme Lecture | Paulo Lourenço** — M2.6 Museum Hall
Session Chair: Carlos Sousa Oliveira

ID: 12250 **Technologies for Seismic Retrofitting and Strengthening of Earthen and Masonry Structures: Assessment and Application**
Paulo B. Lourenco

## 14:40-16:40 CONCURRENT ORAL SESSIONS

**Tu.OS09: Seismic Design and Analysis of Reinforced Concrete Buildings (IV)** — M1.1 Friends of Music Hall
Session Chairs: Tatjana Isakovic, Vassilis K. Papanikolaou, Olga Markogiannaki

14:40 14:50 — ID: 10538 **Development of Fragility Curves for use in Seismic Risk Targeting**
Athanasios Gkimprixis, John Douglas, Enrico Tubaldi, Daniele Zonta

14:50 15:00 — ID: 11153 **3D Nonlinear FE Assessment Of Plastic Hinges In RC Elements Under Uniaxial And Biaxial Bending**
Maria K. Kardala, Konstantinos V. Spiliopoulos

15:00 15:10 — ID: 10890 **Nonlinear Dynamic Analysis as Seismic Assessment Tool for RC Frame Structures**
Aleksandar Zhurovski, Golubka Nechevska- Cvetanovska, Mihail Garevski

15:10 15:20 — ID: 10870 **Examining the Basis for Viscous Damping in Seismic Analysis**
Andreas Hvidtfelt Nielsen

15:20 15:30 — ID: 11145 **Nonlinear Finite Element Modeling of Low-Rise Shear-Controlled Structural Walls**
M. Fethi Gullu, Kutay Orakcal, Kristijan Kolozvari

15:30 15:40 — ID: 11423 **Assessment Of Inelastic Drift Demands In Multistory Frame Buildings Having Various Strength And Stiffness Capacities**
Ibrahim Oz, Sevket Murat Senel

15:40 15:50 — ID: 11228 **A Rapid Approach for Performance Screening of 1-Story Hinge Connected Precast Buildings**
Mehmet Palanci, Sevket Murat Senel, Ali Kalkan

15:50 16:00 — ID: 10980 **Effects Of The Seismic Incidence Angle On The Response Of Adjacent Buildings Considering Pounding**
Panayiotis Polycarpou, Loizos Papaloizou, Petros Komodromos, Eftychia Mavronicola

16:00 16:10 — ID: 10885 **Assessment of Residual Capacity and Fragility-Based Fatigue of Concrete Structures across Multiple Earthquakes from the Canterbury Earthquakes in New Zealand**
Geoffrey W Rodgers, John B Mander, David Whittaker

16:10 16:20 — ID: 11348 **Design of Earthquake Resistant RC Beam-Column Joints**
Gregoria Kotsovou, Demitrios Cotsovos, Nikos Lagaros

16:20 16:30 — ID: 10701 **Cyclic Vulnerability of RC Knee Connections Under Relatively High Opening Shear Stresses**
Srinivas Mogili, J.S. Kuang

**Tu.OS10: Laboratory In-Situ Testing and Structural Health Monitoring of Structures (IV)** — M2.1 Aimilios Riadis
Session Chairs: George C. Manos, Christos Z. Karakostas, Athanasios Vratsikidis

14:40 14:50 — ID: 11893 **Ambient Vibration Testing and Modal Analysis of an RCC Arched Dam**
Nouredine Bourahla, Abdelghani Sichaib, Mustapha Nouri, Takieddine Menaouer, Idriss Rouaz

14:50 15:00 — ID: 11897 **An Experimental Research on Structural Performance of PC-S Structural Joint Method.**
Shigeru Hyakutake, Ryotaro Kurosawa, Fatih Sutcu, Ryohei Kurosawa, Hitoyuki Takagi

15:00 15:10 — ID: 10949 **Interrogation of 'Big Data' From Shaker Table Testing Using Virtual Reality**
Liam Ross Turton, Adam John Crewe, Panos Kloukinas, Olafur Oddbjornsson, Matt Dietz, Luiza Dihoru, Tony Horseman, Elia Voyagaki, Colin Taylor

15:10 15:20 **ID: 12032 Seismic Performance Of Structure Equipped With Fluid Viscous Dampers And Location Optimization.**
Gaurav Chandrakumar Gurbani, Sachin Bakre, Atulkumar Manchalwar

15:20 15:30 **ID: 10526 Experimental Testing of Solid Brick Masonry Walls**
Mustafa Hrasnica, Senad Medic, Fadil Biberkic

15:30 15:40 **ID: 10388 System Identification of Large Scale Infrastructure Using Decoupled Synchronized Signals**
Ali Norouzi Zarmehri, Touraj Taghikhany

15:40 15:50 **ID: 10318 Bond of Steel Bars Anchored in Strain Resilient Cementitious Composites**
Souzana Tastani, Konstantinos Katsikavelas

15:50 16:00 **ID: 11714 Development of Low-cost Hybrid Measurement System**
Ahmet Anil Dindar, Burak Akpinar, Koray Gurkan, Nedim Onur Aykut, Engin Gulal

16:00 16:10 **ID: 10833 Shake Table Tests to Evaluate Seismic Performance of Floor Mounted Nonstructural Components**
Tal Feinstein, Stephen A Mahin

16:10 16:20 **ID: 12327 Earthquake Business Continuity Using SHM, PBEE Rapid Evaluation, Response, and Novel Communication**
Mauricio Ciudad-Real, Derek A. Skolnik, David Swanson, Erik Bishop

16:20 16:30 **ID: 10545 A New Simple Methodology to Refine Soil Profile during Tunnelling: the Catania Case History**
Glenda Abate, Sebastiano Corsico, Salvatore Grasso, Maria Rossella Massimino, Antonino Pulejo

## Tu.OS11: Seismic Hazard Engineering Seismology and Strong Ground Motion (IV)

M2.3
Maurice Saltiel A

Session Chairs: Eleftheria Papadimitriou, Basil Margaris, Georgios Baltzopoulos

14:40 14:50 **ID: 11511 Progress in the compilation of GEM's global mosaic**
Marco Pagani, Julio Garcia, Robin Gee, Kendra Johnson, Valerio Poggi, Richard Styron, Laurentiu Danciu, Damiano Monelli, Graeme Weatherill

14:50 15:00 **ID: 10780 Evaluation of Event-To-Event Variability In Spatial Correlation Of Elastic Response Spectral Ordinates**
Pablo Heresi, Eduardo Miranda

15:00 15:10 **ID: 10467 Characteristics of the Engineering Strong-Motion flat-file for Ground Motion Prediction Equations selection in Europe**
Giovanni Lanzano, W.-esm Epos, W.-gmpe Epos

15:10 15:20 **ID: 10159 Kernel Smoothing Methods for Non-Poissonian Seismic Hazard Analysis**
Gordon Woo

15:20 15:30 **ID: 11884 Disaggregation of Sequence-Based Seismic Hazard**
Eugenio Chioccarelli, Pasquale Cito, Iunio Iervolino

15:30 15:40 **ID: 10504 Study on the source, path, and site effects in the Wenchuan aftershocks during the years from 2008 to 2013 using nonparametric generalized inversion technique**
Yefei Ren, Hongwei Wang, Ruizhi Wen

15:40 15:50 **ID: 10962 Conditional Probabilities of Earthquake Occurrence in Himalayas**
Mukat Lal Sharma, Shweta Bajaj

15:50 16:00 **ID: 11252 Complex Probabilistic Seismic Hazard Assessment: North Ossetia-Alania Case Study**
Vladislav Zaalishvili, Dmitry Melkov, Boris Dzeranov, Olga Burdzieva

16:00 16:10 **ID: 11616 A One-Stage Estimation Algorithm for Ground-Motion Models with Spatial Correlations**
Deyu Ming, Chen Huang, Gareth W. Peters, Carmine Galasso

16:10 16:20 **ID: 11612 3D Spectral Element Modeling of Near Source Effects Including Kinematic Rupture and Finite-Fault Effects**
Elif Oral, Fernando Lopez-Caballero, Filippo Gatti

## Tu.OS12: Site Effects and Microzonation Studies (IV)

Session Chairs: Dimitrios Raptakis, Nikolaos Theodoulidis, Evi Riga

M2.4 Maurice Saltiel B

14:40 – 14:50 **ID: 11342 Numerical Analysis of the Effect of Surface Topography and Dam-Rock Interaction on Spatial Variability of Seismic Ground Motions**
Eleni Koufoudi, Emmanuel Chaljub, Frédéric Dufour, Nicolas Humbert, Pierre-Yves Bard

14:50 – 15:00 **ID: 10442 Evaluation of Seismic Site Effects by Means of 1D, 2D and 3D Finite Element Analyses. A Case Study**
Angelo Amorosi, Daniela Boldini, Gaetano Falcone

15:00 – 15:10 **ID: 12186 Site Response Study of A Deep Basin Contagious to Active Region- Uttar Pradesh Region, India**
Ketan Bajaj, Anbazhagan P

15:10 – 15:20 **ID: 11094 Quantitative Assessment of Seismic Velocity Profiles at a Hard Rock Site**
Richard Tripe, Paul Taylor, Andrew Thomson, Martin Walsh, Mark Doherty

15:20 – 15:30 **ID: 11168 Open Software for Analysis of MASW Field Data**
Elin Asta Olafsdottir, Sigurdur Erlingsson, Bjarni Bessason

15:30 – 15:40 **ID: 12202 Wave propagation in sandy soil - An experimental and numerical model**
Michele Placido Antonio Gatto, Lorella Montrasio

15:40 – 15:50 **ID: 12340 Spatial Variability of CPT Data for Liquefaction Assessment**
Rose Line Spacagna, Luca Paolella, Alessandro Rasulo, Giuseppe Modoni

15:50 – 16:00 **ID: 10764 Ground Characterization of Canakkale City Center from a Liquefaction Point of View**
Sadik Oztoprak, Ilknur Bozbey, Cihan Oser, Sinan Sargin, Ferhat Ozcep, Namik Aysal, Okan Tezel, Mualla Cengiz Cinku, Kagan Ozdemir, Ekrem Bekin, Mostafa AlMasraf

16:00 – 16:10 **ID: 10800 Liquefaction Assessment of Lenticular Soil Layers by a Geophysical Prospection Method**
Adriana Cubides Cruz, Manuel Roberto Villarraga Herrera

16:10 – 16:20 **ID: 11418 Assessment of Site Effects in the Ankara Region During the December 2007 and March 2008 Bala Earthquakes**
Mustafa Kerem Kockar

16:20 – 16:30 **ID: 11157 A Seismic Source Model for West Africa**
Grace Campbell, Ziggy Lubkowski, Barbara Polidoro, Manuela Villani

## Tu.OS13: Risk Assessment of Critical Buildings Infrastructures Utility Systems and Industrial Facilities (IV)

Session Chairs: Vitor Silva, Antonio A. Correia, Christos Petridis

M2.5 Maurice Saltiel C

14:40 – 14:50 **ID: 11052 Seismic Vulnerability Analysis of Dams: Case Study on Soil-Structure Interaction**
Ioanna-Kleoniki Fontara, Yuri Petryna, Frank Rackwitz, Waldemar Elsesser

14:50 – 15:00 **ID: 10554 Observational Seismic Fragility Curves For Atmospheric On-Grade Steel Storage Tanks Based On Damage States In Terms Of Structural Performance And Release Of Content**
Marta D Amico, Nicola Buratti

15:00 – 15:10 **ID: 10333 Physics-Based Repair Rates for Pipelines Subject to Seismic Excitations**
Leandro Iannacone, Paolo Gardoni

15:10 – 15:20 **ID: 10293 Development of Fragility Functions for Buried Pipelines Based on New Zealand Data**
Xavier Bellagamba, Brendon A. Bradley, Liam M. Wotherspoon, Matthew W. Hughes

15:20 – 15:30 **ID: 10625 Seismic Safety Reassessment of NPP Goesgen After Completion of Site-Specific Probabilistic Seismic Hazard Analysis**
Sunay Staeuble Akcay, Andrii Nykyforchyn, Jens Uwe Kluegel

15:30 – 15:40 **ID: 11641 Evaluation of The Vulnerability of Existing Building Stocks Under Single and Multi Hazard Impact**
Jochen Schwarz, Holger Maiwald, Christian Kaufmann, Beinersdorf Silke

15:40 15:50 **ID: 11660 Seismic Vulnerability Evaluation Of Typical Hospital Cabinets By Shake Table Testing**
Luigi Di Sarno, Gennaro Magliulo, Danilo D'Angela, Edoardo Cosenza

15:50 16:00 **ID: 10986 Statistical Approximations in Earthquake Fragility and their Impact on Loss Estimation**
Luis Sousa

16:00 16:10 **ID: 11836 Fragility Functions for Thin-walled Reinforced Concrete Dwellings in Peru**
Jose Velasquez Vargas, Dina Cotrado, Jose Acero Martinez, Stewart Lopez Otiniano, Carlos Rodriguez Reyna

16:10 16:20 **ID: 11961 A New Approach to Multi-Hazard Analysis**
Ali Zamani Noori, Sebastiano Marasco, Omar Kammouh, Gian Paolo Cimellaro, Alessandro Cardoni

## Tu.OS14: Geotechnical Earthquake Engineering (I)

Session Chairs: Dimitris Pitilakis, Bal Krishna Maheshwari, Angelos Tsinaris

**M2.6 Museum Hall**

14:40 14:50 **ID: 11632 An Experimental and Numerical Study of the Seismic Response of Dual Row Retaining Walls in Dry Sand**
Srikanth S C Madabhushi, Stuart K Haigh

14:50 15:00 **ID: 11999 Wave Induced Liquefaction around the Perimeter of the Pile**
Maryam Massah Fard, Atilla Ansal, Ayfer Erken, Bulent Erkmen

15:00 15:10 **ID: 10448 The Influence Of Soil Deformation Characteristics On The Seismic Site Response Analysis**
Polyxeni Kallioglou, Theodora Tika

15:10 15:20 **ID: 10289 Suitability of Equivalent Linear Soil Models for Analysing the Seismic Response of a ConcreteTunnel**
Georgios Kampas, Jonathan Adam Knappett, Michael John Brown, Ioannis Anastasopoulos, Nikolaos Nikitas, Andres Alonso-Rodriguez, Raul Fuentes

15:20 15:30 **ID: 11898 Influence Of Material Heterogeneity And Reservoir Water Level On The Seismic Response Of An Arch Dam-Water-Foundation System**
Maroua Hammami, Regis Cottereau, Etienne Frossard, Xavier Molin, François Halgand

15:30 15:40 **ID: 10110 Interpretation of Site Specific Seismic Hazard Analysis, in Permanent Shoring Design, A Case Study**
Onur Ekli, Emrah Kılıç, Hilmi Turan Durgunoğlu

15:40 15:50 **ID: 10450 Coupled Approach in Simulation of Earth Dam**
Kemal Edip, Vlatko Sheshov, Julijana Bojadjieva, Toni Kitanovski, Jordanka Chaneva

15:50 16:00 **ID: 11645 Potential Relevance of Differential Settlements in Earthquake-induced Liquefaction Damage Assessment**
Fernando Gomez-Martinez, Maxim D.L. Millen, Pedro Alves Costa, Xavier Romão, António Viana da Fonseca

16:00 16:10 **ID: 10681 3D Numerical Analysis of Tunnel Behaviour in Clayey Soils under Seismic Loads**
Lowell Cabangon, Gaetano Elia, Mohamed Rouainia

16:10 16:20 **ID: 10129 Naturally Deposited Gravelly Soils that Liquefied Following the 2008 Wenchuan Earthquake, China**
Xiaoming Yuan, Longwei Chen, Rui Sun, Weiming Wang

16:20 16:30 **ID: 11830 Estimation of Piles Lateral Capacity from standard PDA and CAPWAP Test Results**
Mohamed Ihab Sherif Elmasry, Tarek Mostafa Abdelaziz, Andrew Guirguis, Mina Mikaeel

## Tu.OS15: Active and Passive Structural Control Systems (I)

Session Chairs: Guoxing Chen, Agathoklis Giaralis, Sotiria Stefanidou

**M2.7 Library Hall**

14:40 14:50 **ID: 11908 Stochastic Response of Hybrid Base Isolation Systems based on Energy Measures**
Athanasios Markou, George Stefanou, George Manolis

14:50 15:00 **ID: 11056 Optimum Energy Based Seismic Design of Energy Dissipation Devices in RC Structures**
Neda Nabid, Iman Hajirasouliha, Mihail Petkovski, David Escolano Margarit

15:00 15:10 **ID: 11654 Optimal Design of The KDamper Concept for Structures On Compliant Supports**
Konstantinos Kapasakalis, Evangelos Sapountzakis, Ioannis Antoniadis

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|---|---|
| 15:10<br>15:20 | ID: 12022 Superstructure Mode Identification In A Base Isolated Building From Push And Sudden Release Tests<br>Anastasia Athanasiou, Oliveto Giuseppe |
| 15:20<br>15:30 | ID: 10414 Including Rim Design In Collapse Analysis Of Buildings On Friction Pendulum Bearings<br>Yu Bao, Tracy C Becker, Takayuki Sone |
| 15:30<br>15:40 | ID: 11672 Dissipative Diaphragm Connections For Precast Structures With Cladding Panels Under Seismic Action<br>Bruno Dal Lago, Silvia Bianchi, Fabio Biondini, Giandomenico Toniolo |
| 15:40<br>15:50 | ID: 10496 Innovative Seismic Isolation of Masonry Infills using Cellular Materials at the Interface with the Surrounding Frames<br>Aristomenis Tsantilis, Thanasis Triantafillou |
| 15:50<br>16:00 | ID: 11224 Seismic Performance of a Building Isolated Using Fiber-Reinforced Elastomeric Isolators<br>Niel Van Engelen, Dimitrios Konstantinidis, Michael Tait |
| 16:00<br>16:10 | ID: 10334 Influence Of The Static Friction On The Seismic Response Of A Building Isolated With Sliding Bearings<br>Virginio Quaglini, Emanuele Gandelli, Paolo Dubini |
| 16:10<br>16:20 | ID: 11478 Efficiency of ALSC Base Isolation System in Reducing Seismic Demand on Structures<br>Lidija Krstevska, Timurhan Timur |
| 16:20<br>16:30 | ID: 10387 Optimum Design of Tuned Mass Damper Under Base Excitation Using Metaheurestic Algorithm<br>Maziar Fahimi Farzam, Babak Alinejad |

| Tu.OS16: Seismic Retrofit and Strengthening of Structures (I)<br>Session Chairs: Christis Chrysostomou, Alexandros Dimitrios Tsonos, Dimitris Mpoufidis | M2.8<br>CR1 |
|---|---|
| 14:40<br>14:50 | ID: 11415 Behavior of shear critical RC columns repaired with HPFRCC<br>Marta Del Zoppo, Marco Di Ludovico, Alberto Balsamo, Andrea Prota |
| 14:50<br>15:00 | ID: 10325 Experimental and Numerical Study of Novel Anchoring Devices for FRP Strips Under Shear forces<br>Konstantinos Katakalos, George Manos, George Mpalaskas |
| 15:00<br>15:10 | ID: 11001 Seismic Assessment and Retrofit of 15 Storey RC Structure<br>Fariborz Nateghi-A, Mohammad Hossein Ahmadi |
| 15:10<br>15:20 | ID: 10961 Method for Seismic Upgrading of Masonry Infills in RC Buildings<br>Golubka Necevska Cvetanovska, Roberta Apostolska, Jordan Bojadziev, Aleksandar Zurovski |
| 15:20<br>15:30 | ID: 10782 Ambient Vibration Testing of A Damaged Substandard RC Frame At Each Structural Repair Steps With CFRPs<br>Burak Duran, Onur Tunaboyu, Onur Kaplan, Özgür Avşar |
| 15:30<br>15:40 | ID: 11510 Reducing the Cost of Seismic Retrofit Using Advanced Structural Assessment Techniques – Case Study<br>Manya Georgieva Deyanova, Anton Andonov, Ming Tan, Paul Diebel, Maurice Gidwani |
| 15:40<br>15:50 | ID: 10523 Analytical Study on Behavior of Restraining Devices Installed in between Construction Joints of Plain Concrete Piers<br>Tatsuya Doi, Akihiro Toyooka |
| 15:50<br>16:00 | ID: 10736 Nonlinear Seismic Response of a Seven-Story Steel Reinforced Concrete Condominium Retrofitted with Low-Yield-Strength-Steel Damper Columns<br>Kenji Fujii, Kazuaki Miyagawa |
| 16:00<br>16:10 | ID: 11771 Seismic Rehabilitation Of An RC Building Through Seismic Isolation<br>Christos Giarlelis, Dimitrios Koufalis, Panagiotis Antoniadis |
| 16:10<br>16:20 | ID: 10355 Technical feasibility of seismic retrofit on an existing Peruvian hospital by Seismic Isolators<br>Paola Ita, Mario Pino, Alejandro Muñoz, Nicola Tarque, Nicola Liguori |

16:20
16:30 **ID: 12307 Evaluation of fragility of infilled frame structures subject aftershocks by means of Double Incremental Dynamic Analysis approach**
Fabio Di Trapani, Marzia Malavisi, Gabriele Bertagnoli, Liborio Cavaleri

**16:40-17:30 Poster Session - Coffee Break**

## 16:40-17:30 POSTER SESSIONS

### Tu.PS01&09: Seismic Design and Analysis of Reinforced Concrete Buildings — M1.2 Poster Foyer & Library

**ID: 10869 Design Methods for Low Rise Reinforced Concrete Buildings in Moderate Seismicity Areas**
Jonas Thor Snaebjörnsson, Eythor Rafn Thorhallsson

**ID: 10168 The Effect of Openings on Out-of-Plane Capacity of Masonry Infilled Reinforced Concrete Frames**
Filip Anić, Davorin Penava, Ivica Guljaš, Vasilis Sarhosis, Lars Abrahamczyk, Christoph Butenweg

**ID: 10359 Simulation of Coupling Beams Cyclic Response through Smeared Crack Finite Element Models**
Oriol Arnau, David Murià-Vila

**ID: 10446 Sensitivity Analysis for The Seismic Assessment of an Existing Old Frame-Wall RC Building in Lisbon**
Claudia Caruso, Rita Bento

**ID: 10530 The Effect of Different Stiffness and Strength Distributions on the Seismic Performance of Plan-Asymmetric Single-Story RC Shear Wall-Frame Buildings**
Hamzeh Shakib, Sahar Mohammadzadeh Osalu

**ID: 10660 Influence Of Complex Site Effects On Seismic Response Of R/C Buildings With Various Masonry Infills' Distributions**
Konstantinos G. Kostinakis, Ioanna-Kleoniki Fontara, Sofia Moschou, Asimina Athanatopoulou

**ID: 10807 Case Study of Mid-Story Seismic Isolation to the New Upper RC Frame Structure on the Existing RC Frame Platform**
Liu Guan, Dai Junwu, Liu Yongbin, Ning Xiaoqing

**ID: 10917 Comparative seismic study of typical RC buildings according to a new RPA99 based approach**
Mohamed Beneldjouzi, Nasser Laouami

**ID: 11292 Analysis-Based Seismic Design for Generally Irregular RC Frame Buildings Achieving Minimum Total Reinforcing Steel Weight**
Oren Lavan, Philip J. Wilkinson

**ID: 11411 Influence of plan shape on collapse resistance capacity of RC moment frame structures**
Huanjun Jiang, Yong Wang, Yuan Liu

**ID: 11464 Effectiveness Of Using Rocking Walls As Window Piers In Multi-Story Reinforced Concrete Buildings**
Rejina Joshi, Anil Christopher Wijeyewickrema, Taku Obara, Hidekazu Watanabe, Susumu Kono

**ID: 12066 New Dynamic Decoupling Criteria For Secondary Systems**
Pierre-Vivien Fouquiau, Frédéric Barbier, Charisis Chatzigogos

### Tu.PS02&10: Laboratory In-Situ Testing and Structural Health Monitoring of Structures — M1.2 Poster Foyer & Library

**ID: 11034 Interpretation of In-situ Shear Test for Brick Masonry: a Benchmark Study**
Vincenzo Bonura, Beatriz Zapico Blanco, Samira Jafari, Francesco Graziotti

**ID: 10254 Shaking-Table Tests And Comparative Numerical Investigation Of Various Upgrade Systems On Existing RC Structures**
Viktor Hristovski, Bruno Dujic, Mihail Garevski, Nikola Naumovski

ID: 10294 **Dynamic Tensile Test of Dam Concrete with Fully-graded Cylindrical Specimens**
Haibo Wang, Deyu Li, Chunlei LI

ID: 10478 **Experimental Study on Behavior of Reinforced Concrete Beam Subjected to Cyclic Loading**
Senad Medic, Edhem Zivalj, Fadil Biberkic, Muhamed Zlatar, Mustafa Hrasnica

ID: 10558 **The Base Isolation Of The New Trieste Harbor Logistic Platform**
Mauro Sartori, Giulio Camossi, Ivica Zivanovic

ID: 10645 **Structural Health Monitoring of Buried Pipelines Under Seismic Hazard: A Review of Damage Scenarios and Sensing Techniques**
Nisrine Boulos Makhoul, Maria Pina Limongelli, Rita Abou JAOUDE

ID: 10763 **Performance Of Framed Structures With Adjustable Steel Plate Infill Walls**
Hsieh-Lung Hsu, Bo-Yi Wu

ID: 10847 **Photogrammetry Techniques for Object-Based Building Crack Detection and Characterization**
Efstratios Karantanellis

ID: 10849 **A Seismic Design Of The Underground Box-Type RC Structure Considering The Three-Dimensionality**
Hideki Nagai, Tadashi Kawai, Motoki Kazama

ID: 10853 **Exploring the Potential for Progressive Failure of Graphite in an Advanced Gas Cooled Reactor Core**
Adam J Crewe, Tony R Horseman, William Gardner, Oliver Rayner, Alice Dauriac, Luiza Dihoru, Matt S Dietz, Olafur Oddbjornsson, Panos Kloukinas, Elia Voyagaki, Colin A Taylor

ID: 11592 **Experimental study of three retrofitting techniques for typical school buildings in Peru**
Miguel Diaz, Carlos Zavala, Luis Lavado, Jorge Gallardo, Roy Reyna

## Tu.PS03&11: Seismic Hazard Engineering Seismology and Strong Ground Motion

M1.2 Poster Foyer & Library

ID: 10231 **Preliminary Analysis on Bizarre Waveforms in Strong Motion Records**
Baofeng Zhou, Lili Xie, Haiying Yu, Yongqiang Yang, Jinjun Hu

ID: 10369 **Focal mechanism in correlation with seismotectonics features of earthquake-prone areas in Romania**
Mircea Radulian, Andrei Bala, Emilia Popescu, Dragos Toma-Danila

ID: 10380 **An Updated Seismic Model for Northwestern Africa**
Jose A. Pelaez, Jesus Henares, Mohamed Hamdache, Carlos Sanz de Galdeano

ID: 10384 **PERSIA, a novel time-dependent seismic hazard model for Iran, preliminary results for the Greater Tehran and surrounding areas**
Hamid Zafarani, Seyed Mostafa Jalalalhosseini

ID: 10429 **Geometric- and Non-Geometric Mean Sensor-Orientation-independent Seismic intensities. Application to The Italian Strong Motion Database**
Luis Alejandro Pinzon, Luis Gonzaga Pujades, Diego Antonio Hidalgo

ID: 10474 **The Impact of Griva Earthquakes on Structures Damage**
Dragi Dojcinovski, Zivko Bozinovski, Marta Stojmanovska, Dragana Cernih, Biserka Dimiskovska, Irena Gjorgjeska, Goran Chapragoski, Nikola Kuljic

ID: 10731 **Influence of Source Zoning Approach on Seismic Hazard Estimates**
Alkis Daskaloudis, Stella Koulianopoulou

ID: 10793 **Hybrid-Source Strong-Motion Attenuation Model for Colombia**
Gabriel Bernal, Omar Cardona

ID: 10913 **Seismotectonics And Seismic Hazard Of The North-Western Caucasus (Southwest Of Russia)**
Valery Vasilievich Stogny, Galina Aleksandrovna Stogny

ID: 11127 **Why Weren't Seismic Hazard Maps Successful in Predicting Next Earthquake Occurrences?**
Mehdi Zare

ID: 11759 **Sensitivity Analysis of Earthquake Hazard in Húsavík, North Iceland From Variable Seismicity and Ground Motion Models**
Milad Kowsari, Benedikt Halldorsson, Nasrollah Eftekhari, Jónas Th. Snæbjörnsson

ID: 12240 **The Pulse-Like Ground Motion Identification Based on the Singular Spectrum Analysis**
Kun Liu, Jing Guo

## Tu.PS04&12: Site Effects and Microzonation Studies — M1.2 Poster Foyer & Library

ID: 10420 **Estimation of soil structure characteristics of damaged areas due to the 2016 Kumamoto earthquake by using microtremor observation**
He Ma, Takahisa Enomoto, Tetsushi Inubushi, Tsutomu Ochiai, Shigeki Senna

ID: 10678 **A Method for Setting Engineering Bedrock Using Records of Miniature Array Microtremor Observation**
Shigeki Senna

ID: 10687 **Effect of Statistical Variation in Soil Dynamic Properties on Local Site Response: The Case of Lotung**
Yusuf Guzel, Gaetano Elia, Mohamed Rouainia

ID: 10877 **Estimation of Shear-wave Velocity Profiles by Joint Inversion of Earthquake Ground Motion Data and Microtremor Array Dispersion Data**
Hiroyuki Miura, Atsuko Matsuo, Tatsuo Kanno, Michiko Shigefuji, Tetsuo Abiru

ID: 11118 **Role of the Soil Thickness in The Site Response Analysis: A Parametric Study**
Marco Tanganelli, Davide Forcellini, Stefania Viti

ID: 11255 **Estimation of S-wave Velocity Profiles from Microtremor and Borehole Surveys in Damaged Area during the 2016 Kumamoto Earthquakes, Japan**
Hiroshi Arai, Hisatoshi Kashiwa

ID: 11381 **Influence of Bedrock Depth On Site Amplification for Strong Motion Stations of Northern India**
Bhavesh Pandey, Ravi S Jakka, Ashok Kumar

ID: 11785 **Topographic Effects in Amatrice Suggested From The SISERHmap Predictive Model, Seismic Data and Damage**
Gerardo Grelle, Laura Bonito, Rosalba Maresca, Emeline Maufroy, Paola Revellino, Francesco Maria Guadagno, Giuseppe Sappa

ID: 11829 **Influence of Thickness of Unsaturated Soil Profile on Site Dynamic Response From a Unidimensional Elastic Model**
Natalia Cristina Pete-Vargas, Jorge Arturo Pineda-Jaimes

ID: 12324 **Earthquake damage of site effect and soil liquefaction in Kaohsiung Earthquake**
Zhaoyan Li

## Tu.PS05&13: Risk Assessment of Critical Buildings Infrastructures Utility Systems and Industrial Facilities — M1.2 Poster Foyer & Library

ID: 10153 **Suggested Normalized Spectral Accelerations for Seismic Margin Assessments of Nuclear Power Plants**
Yushi Wang, Xiaojun Li, Riqing Lan

ID: 10397 **Seismic Fragility Development for Both Acceleration and Drift Sensitive Piping Systems**
Ali Beitollahi, Siavash Soroushian, Manos Maragakis

ID: 10411 **Methodology of Risk Assessment in Earthquake Fire with Spreading Fire Analysis**
Osamu Tsujihara, Terumasa Okamoto

ID: 10444 **Finite Element Model for Seismic Performance Assessment of Nonstructural Partition Walls**
Hamidreza Salmasi Javid, Siavash Soroushian, Esmaeel Rahmanishamsi

ID: 10486 **Assessment of Earthquake Resistance of Components in High Voltage Switchyards**
Rainer Flesch, Hansjörg Schmid

ID: 10521 **Interactive Web-Based Software for the Seismic Safety Assessment of Special Importance Buildings: ASSEE**
Janira Irizarry Padilla, Jose A. Jara, Xavier Goula

ID: 10728 **The Comparison of Different Fragility Curve Generation Techniques to Estimate Observed Damage Distributions**
Shaghayegh Karimzadeh Naghshineh, Koray Kadas, Aysegul Askan, Murat Altug Erberik, Ahmet Yakut

ID: 11267 **Loss Assessment of Lifeline Networks Considering the Effect of Damage Spatial Correlation**
Alireza Garakaninezhad, Morteza Bastami

ID: 11886 **Fire-after-earthquake Behavior of Industrial Facilities with Fire Protected Steel Structural System**
Kalliopi Zografopoulou, Daphne Pantousa, Euripidis Mistakidis

ID: 11901 **Risk assessement of an existing bridge taking acount Soil-Structure Interaction (SSI)**
Mohammed Rachedi, Mohammed Matallah, Panagiotis Kotronis, Mustapha Djafour

ID: 11984 **Determination and Development of Fragility Curves for Buried Pipelines Regarding Pipe-Soil interaction Effects**
Mahsa Shamsaei, Mohamad Iman Khodakarami, Mohamad Reza Manshoori

ID: 12274 **Seismic Risk Analysis of Data Communication Networks: A Feasibility Study**
Simona Esposito, Alessio Botta, Melania De Falco, Iunio Iervolino, Antonio Pescapè, Antonio Santo

## Tu.PS06: Soil Dynamics — M1.2 Poster Foyer & Library

ID: 10150 **Physical and Mechanical Properties of Gravel-Tire Chips Mixture (GTCM)**
Siavash Manafi Khajeh Pasha, Hemanta Hazarika, Norimasa Yoshimoto

ID: 10177 **Undrained Shear Strength of Saturated Soft Clay Under Repeated Impact Loading**
Bing Bai, Wei-hua Li, Zhi-guang Guo, Nan Wu

ID: 10191 **Test Errors of the Dynamic Shear Modulus Ratios and Damping Ratios of Sand in the Resonant Column**
Rui Sun, Xiaofei Li, Xiaoming Yuan

ID: 10252 **Spectral/Finite Elements Subdomain Decomposition For Elastodynamic Wave Propagation And Soil/Structure Interaction**
Loic Zuchowski, Michael Brun, Florent De Martin

ID: 10760 **Strain and Strain Rate Effects on the Rocking Response of Footings Subjected to Machine Vibrations**
Elpida Katsiveli, Dimitris Karamitros, Paul Joseph Vardanega, George Mylonakis

ID: 11020 **Twin Boundary Method for Dynamic Soil Modeling**
Samyar Sarraf, Sadyar Sarraf, Kiarash M. Dolatshahi, Reza Rafiee-Dehkharghani

ID: 11148 **Dynamic Properties Measurement of Roorkee Using Geophysical Methods**
Priyanka Sharma, M. L. Sharma, V. A. Sawant

ID: 11229 **1D Vs Models by Single-Station Noise Data Inversion and Joint Interpretation with Independent Data**
Nikolaos Chatzis, Costas Papazachos, Nikolaos Theodoulidis, Nikolaos Klimis, Marios Anthymidis

ID: 11688 **Optimization of MASW Field Acquisition Parameters – A Case Study in the Skopje Urban Area**
Irena Gjorgjeska, Violeta Mircevska, Miroslav Nastev

ID: 12055 **Solution of Far Field Problems In Time Domain By Direct Infinite Element Procedure**
Yacine Bakhtaoui, Abdelkrim Chelghoum

## Tu.PS07: Lifeline Earthquake Engineering — M1.2 Poster Foyer & Library

ID: 10258 **Seismic Protective Measures for Electric Utilities in Switzerland - Implementation of the ESTI Guideline 248**
Sven Heunert, Martin Koller, Urs Huber, Heinz Krauer

ID: 10501 **Seismic Estimation Study of Ratio of Damage to Telecommunication Conduits During Past Earthquakes**
Qiusong Zhang, Masato Wakatake, Masaru Okutsu, Takanobu Suzuki, Gaku Shoji

ID: 10655 **Assessment of Pipelines Crossing Seismic Fault**
Ali Sari

ID: 10835 **'A Seismic Damage Evaluation Method for Water Supply Pipelines Based on Spatial Gradient of PGV'**
Hisakazu Sakai, Koichi Hasegawa, Nelson Pulido, Yasuko Kuwata

ID: 10939 **Study on Seismic Performance of Reactor for High Voltage Substation Based on Shaking Table Test**
Liping Liu, Wei Tang, Yingmin Li, Pu Yang, Nina Zheng

ID: 11413 **Effects of Aftershocks on the Behavior and Structural Integrity of Water Tanks**
Fotini Konstandakopoulou, George Hatzigeorgiou

ID: 11485 **Design Method For Pipelines To Withstand Longitudinal Slope Movement**
Nobuhisa Suzuki, Takekazu Arakawa

ID: 11534 **Ground strain and buried pipeline damage due to the 2008 Mw 6.3 Ölfus Earthquake: a case study in Hveragerði**
Aldis Sigfusdottir

ID: 11846 **Seismic Performance Evaluation of Elevated Liquid Storage Tanks**
Hitesh Kumar, Sandip Kumar Saha

ID: 10117 **Natural Gas Pipelines in Seismically-prone Regions: Interaction Effects**
Alexandros Athanasiou, George D. Manolis

## Tu.PS08: Performance-Based Design of Structures — M1.2 Poster Foyer & Library

ID: 10362 **Assessment of Dynamic Behavior and Seismic Performance of a High-Rise RC Coupled Wall Building**
Kristijan Kolozvari, Vesna Terzic, Ross Miller, Daniel Saldana

ID: 10926 **Impact of Non Stationary Frequency Content of Seismic Ground Motions on Nonlinear Structural Response**
Irmela Zentner, Zheng Li, Ludivine Saint Mard, Panagiotis Kotronis, Catherine Berge-Thierry

ID: 11026 **Seismic Performance Assessment of RC Structures Exposed to the Corrosion Aggressive Environment of the Persian Gulf**
Hamed Roohbakhsh, Afshin Kalantari

ID: 11065 **A Seismic Design Method and Response Analysis for Step-terrace RC Frames with Viscous Dampers**
Pu Yang, Fangzhou Du, Gang Liu, Liping Liu, Zongming Huang, Jianping Fu

ID: 11541 **Displacement-Based Seismic Design of Buildings with Thin Reinforced Concrete Structural Walls**
Mario E. Rodriguez, Dandy Roca

ID: 11651 **Fibre-Based Capacity Model For URM Piers Subjected To Combined In-Plane And Out-Of-Plane Actions**
Fulvio Parisi, Elia Acconcia

ID: 11653 **Target Spectra for Estimating Nonlinear Seismic Demands and Reducing Computational Effort**
Juan C. Reyes, N. Simon Kwong, Juan E. Acosta

ID: 12242 **A Framework on Seismic Design of Structures: Robust Structural Design and Loss Estimation**
Shuang Li, Changhai Zhai, Lili Xie

## Tu.PS14: Geotechnical Earthquake Engineering — M1.2 Poster Foyer & Library

ID: 10583 **A Probabilistic Framework For Assessing Liquefaction Damage In Urban Areas: Application To Christchurch (NZ)**
Nikolaos Ntritsos, Misko Cubrinovski

ID: 10743 **Optimising Resolution and Improvement Strategies for Emerging Geodatabases in Developing Counties**
Charlotte Gilder, Raffaele De Risi, Flavia De Luca, Paul Joseph Vardanega, Elizabeth Holcombe, Peyman Ayoubi, Domniki Asimaki, Rama Mohan Pokhrel, Anastasios Sextos

ID: 11022 **Interpreting the height of liquefaction ejection following the 2008 Wenchuan earthquake, China**
Weiming Wang, He Wu, Longwei Chen

ID: 11484 **Effects of Foundation Isolation with Geosynthetics on Seismic Performance of Low-Rise Buildings**
Ayse Edincliler, Murat Calikoglu

ID: 11567 **A Hazard Map For Liquefaction-induced Road Subsidence**
Takashi Kiyota, Kazuhiro Kajihara, Hiroki Okuda

ID: 11826 **Numerical Modeling of Algiers Port Sand Layer Reinforced with Stone Columns**
Mohamed Chikhaoui, Lynda Djerbal, Mohamed Amokrane Mehenni, Walid Boulifa

**Tu.PS15: Active and Passive Structural Control Systems** — M1.2 Poster Foyer & Library

ID: 10247 **Seismic Isolation Systems in Indian Perspective**
Ashish Gupta, Matsutaro Seki, Toshihide Kashima

ID: 10667 **Seismic Isolation Strategies For Major Buildings**
Charles Cynober, Mauro Sartori, Burak Türkdönmez, François Tronel

ID: 10902 **Nonlinear Seismic Response of R.C. Seismically-Isolated Structures with Reduced Mechanical Properties after Fire Exposure**
Fabio Mazza, Fabio Alesina

ID: 10950 **Nonlinear Dynamic Analysis of Base-Isolated R.C. Framed Structures with in-Elevation Irregular Masonry infills Subjected to Near-Fault Earthquakes**
Fabio Mazza, Mirko Mazza, Alfonso Vulcano

ID: 11493 **Analysis And Experiment Of A Pier With Steel Pipe Piles Using Supplemental Damping Devices**
Shingo Awazu, Eiji Kohama, Yousuke Ohya, Yoshio Shiozaki

**Tu.PS16: Seismic Retrofit and Strengthening of Structures** — M1.2 Poster Foyer & Library

ID: 10438 **Evaluating the performance and effect of the number of FRP composite wrapping on strength and ductility for low strength concrete.**
Seiyed ali Haj seiyed taghia, Hamidreza Darvishvand, Masood Ebrahimi, Haleh sadat Nabavi razavi

ID: 10479 **On the Seismic Assessment and Retrofit of Infilled RC Frame Structures**
Gerard OReilly, Timothy Sullivan, Ricardo Monteiro

ID: 10725 **Proposed Methodology for Strengthening of Existing RC School Buildings in Abha City, Saudi Arabia**
Mohamed Ezzat Sobaih, Mohammed A. Ismaeil

ID: 11029 **Numerical Simulation of the Experimental Results of the Seismic Strengthening of Existing Structures**
Elpida S. Georgiou, Nicholas C. Kyriakides, Christis Z. Chrysostomou, Panagiotis Kotronis, Christiana A. Filippou

ID: 11174 **Local FRP-Retrofitting of Exterior Reinforced Concrete Beam-Column Joints under Cyclic Lateral Loading**
Chris G. Karayannis, Emmanuil A. Golias, Constantin E. Chalioris

## 17:30-19:30 SPECIAL SESSIONS*

**Special Session 22: Induced seismicity in Groningen area** (organized by H. Krijgsman, J. White, I.E. Bal, E. Smyrou) — M1.1 Friends of Music Hall

17:30 17:50 ID: 12114 **Fragility and Consequence Models for Probabilistic Seismic Risk Assessment in the Groningen Gas Field**
Helen Crowley, Barbara Polidoro, Rui Pinho, Jan van Elk

17:50 18:10 ID: 12090 **A Multilevel Methodology for the Seismic Assessment of Unreinforced Masonry Church Inventories in the Groningen Area**
Matteo Moratti, Federica Gaia, Sara Martini, Chrysanthi Tsioli, Giulia Grecchi, Gian Michele Calvi, Dick Den Hertog, Paolo M. Calvi, Giorgio T. Proestos

*Poster presentations included in Special sessions are presented during the Poster session taking place on the same day, at the Poster Foyer and Library*

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| 18:10<br>18:30 | ID: 12069 **A multiscale experimental characterization of Dutch unreinforced masonry buildings**<br>Francesco Messali, Rita Esposito, Samira Jafari, Geert Ravenshorst, Paul Korswagen, Jan Rots | |
| 18:30<br>18:40 | ID: 11995 **Promoting efficiency of NLTHA using an indirect soil-structure interaction modelling approach**<br>Huan He, Sander J.H. Meijers, Rene A. Vonk | |
| 18:40<br>18:50 | ID: 11530 **Full-Scale Shake-Table Test of URM Buildings Subjected to Induced Ground Motions**<br>Francesco Graziotti, Umberto Tomassetti, António A. Correia, Gabriele Guerrini, Andrea Penna, Guido Magenes | |
| 18:50<br>19:00 | ID: 11132 **Investigation of the post shear failure behaviour of reinforced concrete piles in the Groningen area**<br>Agostino Lampariello, Rupert Gibson, Michail Kalogerakis, Rory McCully, Nikos Laourakis, Kubilay Hicyilmaz | |
| 19:00<br>19:10 | ID: 11602 **Dynamic Performance Assessment Of The Eemskanal Levee In Groningen**<br>Panagiota Tasiopoulou, Vasileios Drosos, Amalia Giannakou, Panagiotis Georgarakos, Jacob Chacko, Sjoerd de Wit, Nelleke Zuideveld-Venema | |
| 19:10<br>19:20 | ID: 12096 **Analysis Methods For Assessing 23,000 Non-seismically Designed Buildings, In Search For The Most Effective And Efficient Methods**<br>Han Krijgsman, Joe White, Rudi Roijakkers | |
| 19:20<br>19:30 | ID: 12109 **"Differences" Between Induced and Natural Seismic Events**<br>Ihsan Engin Bal, Dimitrios Dais, Eleni Smyrou | |
| | ID: 11178 Poster Presentation \| **Parameterization of Geological Models For Regional Site Response And Liquefaction Potential Indicators**<br>Pauline P. Kruiver, Ger de Lange, Mandy Korff, Ane Wiersma, Ronald Harting, Fred H. Kloosterman, Jan Stafleu, Jan L. Gunnink, Jan van Elk, Dirk Doornhof | |
| | ID: 11430 Poster Presentation \| **Groningen Region Ground Response Study Part I: Site Characterisation and Ground Model Development**<br>Areti Koskosidi, Michael Vasileiadis, George Anatolakis, Rory McCully, Yannis Fourniadis, James Go, Ziggy Lubkowski | |
| | ID: 12091 Poster Presentation \| **Seismic Assessment of Unreinforced Masonry Terraced and Semi-Detached Houses in the Groningen Area, A Knowledge Based Support System**<br>Matteo Moratti, Federica Gaia, Sara Martini, Alessandro Tomasi, Chrysanthi Tsioli, Chiara Casotto, Giulia Grecchi, Sevgi Ozcebe, Gian Michele Calvi, Dick Den Hertog, Paolo M. Calvi, Giorgio T. Proestos | |
| | ID: 12104 Poster Presentation \| **Seismic Monitoring and Event Detection System for the Power Plant Site Eemshaven**<br>Jochen Schwarz, Christian Golbs, Christian Kaufmann, Arjen Westerterp | |
| | ID: 12103 Poster Presentation \| **Practical Seismic Assessment Methodologies – NPR 9998:2018 – Annex G and H**<br>Craig Muir, Weng Yuen Kam, Peter Beazley, Rob Jury | |
| **Special Session 20: Integrated renovation strategies targeting sustainability, safety and resilience of existing buildings**<br>(organized by P. Negro, A. Marini) | | **M2.1**<br>**Aimilios Riadis** |
| 17:30<br>17:40 | ID: 12108 **Renovating the existing building stock: a Life Cycle Thinking approach**<br>Chiara Passoni, Simone Labo, Alessandra Marini, Andrea Belleri, Paolo Riva | |
| 17:40<br>17:50 | ID: 11801 **The Sustainable Structural Design (SSD): applicability at urban, regional and national level**<br>Maria Chiara Caruso, Marco Lamperti Tornaghi, Paolo Negro | |
| 17:50<br>18:00 | ID: 12142 **Combined Seismic Plus Energy Retrofitting for the Existing RC Buildings: Economic Feasibility**<br>Monica Mastroberti, Dionysios Bournas, Marco Vona, Benedetto Manganelli, Valentina Palermo | |
| 18:00<br>18:10 | ID: 12099 **The Integrated Structural, Energetic and Architectural Approach for a Sustainable Requalification of Reinforced Concrete Buildings.**<br>Camilla Lops, Sergio Montelpare, Guido Camata | |

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| 18:10<br>18:20 | **ID: 11935 Innovative Integrated Seismic and Energy Retrofitting System for Masonry Walls using Textile Reinforced Mortars Combined with Thermal Insulation**<br>Thanasis Triantafillou, Kyriakos Karlos |
| 18:20<br>18:30 | **ID: 12112 The design of seismic repair interventions of a school in accordance to a Life Cycle Thinking approach**<br>Simone Labo, Andrea Belleri, Chiara Passoni, Alessandra Marini, Sonia Longo, Maurizio Cellura |

**Special Session 02: Resilient cities - Civil protection** — **M2.3 Maurice Saltiel A**
Session Chairs: Maria Yeroyanni, Mario Ordaz, Vitor Silva, Stella Karafagka

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| 17:30<br>17:40 | **Guest Lecture EU R&I Latest Developments to Achieve Innovating Cities which are Truly Smart and Sustainable**<br>Maria Yeroyanni |
| 17:40<br>17:50 | **ID: 11586 Mitigating Risk through R&D+Innovation: Chile's National Strategy for Disaster Resilience**<br>Juan Carlos de la Llera, Felipe Rivera, Magdalena Gil, Ursula Schwarzhaupt |
| 17:50<br>18:00 | **ID: 12080 Long-Term Evaluation of Post-Disaster Reconstruction - The Case Study of Aigio, Greece**<br>Andre Schwarz, Jochen Schwarz, Maria Oikonomou |
| 18:00<br>18:10 | **ID: 12015 Seismic loss estimation of Byblos City: a contribution to the "100 Resilient Cities" strategy**<br>Nisrine Boulos Makhoul |
| 18:10<br>18:20 | **ID: 11198 A New Integrated Tool for Urban Seismic Resilience Planning - Case Study for Schools in Metro Manila**<br>Jack Guo, Kevin Jeswani, Constantin Christopoulos |
| 18:20<br>18:30 | **ID: 12164 Enhancing Resilience by Altering Our Approach to Earthquake and Flooding Assessment: Multi-Hazards**<br>Deirdre E. Hart, Sonia Giovinazzi, Do-Seong Byun, Craig Davis, Su Young Ko, Christopher Gomez, Kerryn Hawke, Derek Todd |
| 18:30<br>18:40 | **ID: 11293 Decision-making Based on Holistic Seismic Risk Assessment, Including Socioeconomic, Resilience and Governance Risk Drivers**<br>Omar Dario Cardona, Martha Liliana Carreno, Gabriel Bernal, Dora Suarez, Alex H. Barbat |
| 18:40<br>18:50 | **ID: 11693 Providing An indicator-Based Model for Quantification of Seismic Urban Resilience; Pilot Study: Kish Island of Iran**<br>Mohammad Atrachali, Mohsen Ghafory-Ashtiany |
| | **ID: 11298 Poster Presentation \| Seismic risk evaluation including the social context for the city of Mérida, Venezuela**<br>Martha Liliana Carreno, Nayive Jaramillo Santana, Nieves Lantada Zarzosa |
| | **ID: 12021 Poster Presentation \| A Conceptual Framework for The Seismic Resilience Assessment of Complex Urban Systems**<br>David Koren, Vojko Kilar, Katarina Rus |

**Special Session 16: Seismic risk and resilience of critical infrastructure** — **M2.4 Maurice Saltiel B**
(organized by A. Sextos, F. Cavalieri, S. Argyroudis)

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| 17:30<br>17:40 | **ID: 10821 Multi-Level Risk-Based Stress Test Methodology for Critical Non-Nuclear Infrastructure Systems**<br>Simona Esposito, Bozidar Stojadinovic, Anze Babic, Matjaz Dolsek, Sarfraz Iqbal, Jacopo Selva, Arnaud Mignan, Domenico Giardini |
| 17:40<br>17:50 | **ID: 11963 A Multi-Level Stress Test Methodology: Application to Six Critical Infrastructures in Europe**<br>Kyriazis Pitilakis, Sotiris Argyroudis, Stavroula Fotopoulou, Stella Karafagka, Kalliopi Kakderi, Jacopo Selva, Ernesto Salzano, Anna Basco, Helen Crowley, Daniela Rodrigues, José P. Matos, Anton J. Schleiss, Wim Courage, Johan Reinders, Sinan Akkar, Yin Cheng, Eren Uckan, Mustafa Erdik |

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| 17:50<br>18:00 | ID: 12122 **EXCHANGE-Risk: Experimental & Computational Hybrid Assessment of Natural Gas Pipelines Exposed to Seismic Risk**<br>Anastasios Sextos, Stathis Bousias, Oh-Sung Kwon, Luigi Di Sarno, Amir Kaynia, George Manolis, Adam Crewe, Peter Furtner, Helmut Wenzel, Iunio Iervolino, George Baltzopoulos, Frank Wuttke, Carsten Koenke, Volkmar Zabel, Robert Borsutzky, George Deodatis |
| 18:00<br>18:10 | ID: 12177 **Experimental Identification of Stiffness and Ultimate Resistance of Buried Soil-Pipe Systems**<br>Adam Crewe, Anastasios Sextos, Rebecca Stubbs, George Mylonakis |
| 18:10<br>18:20 | ID: 10860 **Use of Bayesian Networks as a Decision Support System for the Rapid Loss Assessment of Infrastructure Systems**<br>Pierre Gehl, Francesco Cavalieri, Paolo Franchin, Caterina Negulescu, Kristel Meza Fajardo |
| 18:20<br>18:30 | ID: 10794 **Seismic Risk to Roads and Bridges in the Kyrgyz Republic, Central Asia**<br>Matthew Free, Katherine Coates, Yannis Fourniadis, Thomas Ader, Luis Sousa, Kevin Fleming, Massimiliano Pittore, Bolot Moldobekov, Cholponbek Ormukov |
| 18:30<br>18:40 | ID: 11472 **Role of the Earthquake Scenario on Life-cycle Seismic Resilience of Aging Bridge Networks**<br>Luca Capacci, Fabio Biondini |
| 18:40<br>18:50 | ID: 10978 **3D Physics-based Numerical Modeling as a Tool for Seismic Risk Assessment of Urban Infrastructural Systems: the Case of Thessaloniki, Greece**<br>Chiara Smerzini, Francesco Cavalieri, Sotiris Argyroudis, Kyriazis Pitilakis |
| 18:50<br>19:00 | ID: 10895 **Broad-band 3-D Physics-based Simulation of Earthquake-induced Wave-field at the Kashiwazaki-Kariwa Nuclear Power Plant (Japan): an all-Embracing Source-to-site Approach**<br>Filippo Gatti, Sara Touhami, Lúcio De Abreu Corrêa, Fernando Lopez-Caballero, Didier Clouteau, Roberto Paolucci |
| 19:00<br>19:10 | ID: 10923 **Seismic Vulnerability Assessment for Liquid Storage Tank Farms**<br>Konstantinos Bakalis, Dimitrios Vamvatsikos |
| 19:10<br>19:20 | ID: 10854 **Discrete Model for SSSI between Critical Structures under Strong Ground Motion**<br>Felipe Vicencio, Nicholas Alexander |
| | ID: 11606 Poster Presentation \| **New Models for Estimating Interdependencies and Recovery of Infrastructure Systems**<br>Mauricio Monsalve, Juan Carlos de la Llera |
| | ID: 11888 Poster Presentation \| **Probabilistic Risk Appraisal and Mitigation of Critical Infrastructures for Seismic Extreme Events**<br>Alon Urlainis, Igal M Shohet |
| | ID: 11285 Poster Presentation \| **Motions and Liquefaction in the 2011 off the Pacific coast of Tohoku earthquake**<br>Gaku Shoji, Reina Kobayashi, Masahiro Hara |
| | ID: 11225 Poster Presentation \| **Infrastructure Failure Propagations and Recovery Strategies from an Alpine Fault Earthquake Scenario**<br>Conrad Zorn, Alistair Davies, Tom Robinson, Raghav Pant, Liam Wotherspoon, Scott Thacker |
| | ID: 11568 Poster Presentation \| **Optimized Non-Parametric Fragility Curve Estimation Based on Intensity Measure Data Clustering and Parametric Model Averaging**<br>Konstantinos Trevlopoulos, Cyril Feau, Irmela Zentner |
| | ID: 11334 Poster Presentation \| **Failure Mode Investigation for High Voltage Porcelain Insulators**<br>Tansu Gokce, Engin Orakdogen, Ercan Yuksel |

| Special Session 17: Religious monumental masonry structures in seismic areas: assessment, retrofit, numerical and experimental evaluation (organized by C. Spyrakos, M. Corradi) | M2.6 Museum Hall |
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| 17:30 17:40 | ID: 12119 Damage, Casualty, and Loss Scenarios for New Zealand's North Island Churches<br>Shannon Rochelle Abeling, Tatiana Goded, Nick Horspool, Sonia Giovinazzi, Jason Ingham |
| 17:40 17:50 | ID: 11078 Earthquake Performance of Stone Masonry Post-Byzantine Churches in Greece including Wall Detachment and Foundation Deformability<br>Evaggelos Kozikopoulos, George Manos, Lambros Kotoulas, Olympia Felekidou, Vassilios Soulis |
| 17:50 18:00 | ID: 12082 Damage assessment and seismic vulnerability analysis of S. Agostino church in Amatrice<br>Alessandro Grazzini, Filiberto Chiabrando, Sebastiano Foti, Andrea Lingua, Antonia Teresa Spanò |
| 18:00 18:10 | ID: 11882 Historical dilapidations at Acheiropoietos Basilica – Analytical Approach of Failure Mechanism<br>Thomas Nikolas Salonikios, Kostantinos Morfidis, Nikolas Theodoulidis, Georgia Zacharopoulou, Konstantinos Raptis |
| 18:10 18:20 | ID: 11807 Damage Evolution in Churches due to Repeated Earthquake Shocks<br>Maria Adelaide Parisi, Claudio Chesi, Gessica Sferrazza-Papa |
| 18:20 18:30 | ID: 12145 Pounding Phenomena Affecting Seismic Response of a Historic Byzantine Church<br>Charilaos Maniatakis, Constantine Spyrakos, Panagiotis Kiriakopoulos, Kiriakos – Panayiotis Tsellos |
| 18:30 18:40 | ID: 12111 The Permanent Post-Earthquake Monitoring of the Basilica St. Nicholas of Tolentino in Central Italy<br>Takayoshi Aoki, Daniele Costanzo, Renato Lancellotta, Adriana Pascale, Antonino Quattrone, Donato Sabia |
| **Special Session 13: Advances and applications of inertial, viscous, and regenerative damping devices for the seismic protection of structures** (organized by A. Giaralis, A. Taflanidis) | **M2.7 Library Hall** |
| 17:30 17:40 | ID: 10263 Curved Surface Sliders with Passive Friction, Bow Tie Friction, Controlled Friction, Linear Viscous Damping<br>Felix Weber, Florian Obholzer, Peter Huber, Leopold Meier, Johann Distl, Christian Braun |
| 17:40 17:50 | ID: 10541 The Effect Of A Tuned-Inerter-Damper On The Seismic Response Of Base-Isolated Structures<br>Predaricka Deastra, David J. Wagg, Neil D. Sims |
| 17:50 18:00 | ID: 10871 Cost-Based Design and Performance of Supplemental Viscous Dampers Attached to Non-Consecutive Floors<br>Felipe Saitua, Diego Lopez-Garcia, Alexandros Taflanidis |
| 18:00 18:10 | ID: 10997 The Impact of Vibration-Controlled Systems in Catastrophe Modelling<br>Alin Radu, Irina F. Lazar |
| 18:10 18:20 | ID: 11142 Seismic Protection of Cross-Laminated Timber Buildings with Supplemental Inertia Devices<br>Rodrigo Thiers Moggia, Christian Malaga-Chuquitaype |
| 18:20 18:30 | ID: 11456 Seismic Retrofit of RC Buildings with Nonlinear Viscous Dampers: Design Method and Case Study<br>Rajeswaran Gobirahavan, Anil Christopher Wijeyewickrema |
| 18:30 18:40 | ID: 11658 Seismic Retrofit of Steel Tall Buildings With Bilinear Oil Dampers<br>Sarven Akcelyan, Dimitrios Lignos |
| 18:40 18:50 | ID: 11922 Frequency- and Time-Response Functions of Simple Inertoviscoelastic Models<br>Nicos Makris |
| 18:50 19:00 | ID: 12056 A Vibrating Barrier with Grounded Inerter for Non-invasive Seismic Protection of Existing Structures<br>Pierfrancesco Cacciola, Alessandro Tombari, Agathoklis Giaralis |

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| 19:00<br>19:10 | **ID: 12061 Multi-Objective Optimal Design of The Tuned-Mass-Damper-Inerter (TMDI) for Stochastically Support Excited Building Structures**<br>Alexandros Taflanidis, Agathoklis Giaralis |
| 19:10<br>19:20 | **ID: 12076 Vibration Suppression Using a Passive Reaction Mass Device Incorporating Inerters in a Multi-Storey Building**<br>Yi-Yuan Li, Ying Zhang, Zheng Jiang, Simon Neild |
| 19:20<br>19:30 | **ID: 12127 Multi-criteria optimization of seismic protective devices and application to the desing of the tuned mass damper inerter for buildings in Chile**<br>Rafael Ruiz, Alexandros Taflanidis, Giarallis Agathoklis, Diego Lopez-Garcia |
| **Special Session 14: Recent advances in earthquake protection technologies**<br>(organized by H. Sucuoğlu, M. Calvi) | **M2.8 CR1** |
| 17:30<br>17:40 | **ID: 10777 Damping Properties of Variable Friction Base Isolation Systems**<br>Sandip Timsina, Paolo Martino Calvi |
| 17:40<br>17:50 | **ID: 10874 Fragility Curves for Post-Tensioned Timber Frames**<br>Gabriele Granello, Marco Broccardo, Alessandro Palermo, Stefano Pampanin |
| 17:50<br>18:00 | **ID: 11018 Innovative Underground Earthquake Isolation System – Geo-Isolator**<br>Samyar Sarraf, Sadyar Sarraf, Kiarash M. Dolatshahi, Reza Rafiee-Dehkharghani |
| 18:00<br>18:10 | **ID: 11403 Effects of Near Fault Ground Motion Characteristics on Structural Energy Response of RC Buildings**<br>Fatih Sutcu, Zeynep Tuna Deger, Hiroshi Akiyama |
| 18:10<br>18:20 | **ID: 12136 Comparison of the Experimental Response of Curved and Flat Sliding Motions**<br>Marco Furinghetti, Alberto Pavese |
| 18:20<br>18:30 | **ID: 12137 Hybrid Testing of Seismic Isolated Structures: Facing Time and Geometry Scaling Issues**<br>Igor Lanese, Alberto Pavese, Marco Furinghett |
| 18:30<br>18:40 | **ID: 12071 Shake Table Tests on Frames Made with Normal and FRP-Confined Rubberised Concrete**<br>Imad EL Khouri, Reyes Garcia, Nicolae Taranu, Petru Mihai, Ionut Ovidiu Toma, Mihai Budescu, Maurizio Guadagnini, David Escolano Margarit, Kypros Pilakoutas, Iman Hajirasouliha |

**20:00-22:00 EAEE General Assembly (M2.1_Aimilios Riadis)**

**21:30 Young Researchers Party (Porto Palace Hotel)**

# WEDNESDAY **20.06.2018**

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| 09:00<br>09:45 | **We.KL01: Keynote Lecture \| Michael N. Fardis**<br>Session Chair: Philippe Bisch<br><br>**ID: 12245 From Force- to Displacement-based Seismic Design of Concrete Structures and Beyond**<br>Michael N. Fardis | **M1.1**<br>**Friends of Music Hall** |

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| 09:30-13:30 | **40 Years Commemoration of Thessaloniki 20/6/1978 Earthquake**<br>**Session Chair: George Penelis** |

09:45-10:05 **Coffee Break**

| 10:05-10:35 | **THEME LECTURES** | |
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| | **We.TL01: Theme Lecture \| Andreas Kappos**<br>Session Chair: M. Saiid Saiidi<br><br>**ID: 12331 Seismic Design of Bridges: Present and Future**<br>Andreas J. Kappos | **M1.1**<br>**Friends of Music Hall** |
| | **We.TL02: Theme Lecture \| Raffaele Landolfo**<br>Session Chair: Xilin Lu<br><br>**ID: 12279 Seismic design of steel structures: new trends of research and updates of Eurocode 8**<br>Raffaele Landolfo | **M2.1**<br>**Aimilios Riadis** |
| | **We.TL03: Theme Lecture \| Roberto Paolucci**<br>Session Chair: Jean-Francois Semblat<br><br>**ID: 12259 3D physics-based numerical simulations: advantages and current limitations of a new frontier to earthquake ground motion prediction. The Istanbul case study.**<br>Roberto Paolucci, Maria Infantino, Ilario Mazzieri, Ali Guney Ozcebe, Chiara Smerzini, Marco Stupazzini | **M2.4**<br>**Maurice Saltiel B** |
| | **We.TL04: Theme Lecture \| Tiziana Rossetto**<br>Session Chair: Susumu Yasuda<br><br>**ID: 12322 Advances in the Assessment of Buildings Subjected to Earthquakes and Tsunami**<br>Tiziana Rossetto, Crescenzo Petrone, Ian Eames, Camilo De La Barra, Andrew Foster, Joshua Macabuag | **M2.6**<br>**Museum Hall** |

| 10:45-13:00 | **CONCURRENT ORAL SESSIONS** | |
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| | **We.OS01: Seismic Design and Analysis of Reinforced Concrete Buildings (V)**<br>Session Chairs: Adamantia Athanasopoulou, Athanasios Karabinis, Timurhan Timur | **M1.1**<br>**Friends of Music Hall** |
| 10:45<br>10:55 | **ID: 11088 Pushover Analysis using suitable Dynamic Eccentricities On Asymmetric Single-Storey Buildings**<br>Triantafyllos K. Makarios, Athanasios P. Bakalis | |
| 10:55<br>11:05 | **ID: 10205 Seismic demand on non-structural elements: Influence of masonry infills on floor response spectra**<br>Daniele Perrone, Andre Filiatrault | |
| 11:05<br>11:15 | **ID: 11525 Assessment of the Mainshock-Aftershock Collapse Vulnerability of RC Structures Considering The in-Plane and Out-of-Plane Behaviour**<br>André Furtado, Hugo Rodrigues, Antonio Arêde, Humberto Varum | |

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| 11:15<br>11:25 | **ID: 11345 Out-of-Plane instability of Thin Single-Layered Members: Advancements in the Characterization of the Mechanism**<br>Angelica Rosso, Lisandro Jimenez, João P. Almeida, Katrin Beyer |
| 11:25<br>11:35 | **ID: 10624 Seismic Reliability of Tunnel form Concrete Buildings Subjected to Accidental Torsion: A Case Study**<br>Vahid Mohsenian, Soheil Rostamkalaee, Abdolreza S. Moghadam |
| 11:35<br>11:45 | **ID: 10789 Seismic Performance Evaluation of RC Structures Considering Shallow Crustal Mainshock-Aftershocks Sequences**<br>Mohammad Reza Salami, Mohammad Mehdi Kashani, Katsuichiro Goda |
| 11:45<br>11:55 | **ID: 10371 Comparative Study of Some Seismic Codes for Building Design Regarding Criteria for Non-linear Methods of Analysis**<br>Sergio Hampshire de C. Santos, Christos Giarlelis, Marina Traykova, Silvio de Souza Lima, Carmen Bucur, Walter Francisco Hurtares Orrala |
| 11:55<br>12:05 | **ID: 10740 Effect of Damping Models on The Simulation of Seismic Axial forces in a Reinforced Concrete Bridge Pier**<br>Joao Pacheco de Almeida, Manuel Jordan, Beyer Katrin |
| 12:05<br>12:15 | **ID: 11851 Numerical Study on the Ultimate Deformation of RC Structural Walls with Confined Boundary Regions**<br>Rafik Taleb, Hidekazu Watanabe, Susumu Kono |
| 12:15<br>12:25 | **ID: 11409 Incremental Dynamic Analysis of Infilled Frames with Open Ground Floor**<br>Koce Todorov, Ljupco Lazarov |
| 12:25<br>12:35 | **ID: 10787 Numerical Investigations on the Macro-modelling Alternatives for Reinforced Concrete Coupling Beams**<br>Emre Toprak, Ihsan Engin Bal, Fatma Gulten Gulay |
| 12:35<br>12:45 | **ID: 11581 The Effect of the angle of seismic incidence when defining a statistical model for structural demand**<br>Despoina Skoulidou, Xavier Romão, Nuno Pereira |

**We.OS02: Geotechnical Earthquake Engineering (II)** — **M2.1 Aimilios Riadis**

Session Chairs: Panos Dakoulas, Emilios M. Comodromos, George Papathanassiou

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| 10:45<br>10:55 | **ID: 11422 Seismic Performance Of A Novel Guyed System For The Support Of Offshore Wind-Turbines**<br>Maria Antoniou, Fani Gelagoti, Ioannis Anastasopoulos |
| 10:55<br>11:05 | **ID: 10470 Seismic Demand Models for Estimating the Pseudo-Static Factor of Safety for Slope Failure**<br>Burak Akbaş, Zeynep Gülerce, Volkan Kalpakcı, M. Lütfi Süzen |
| 11:05<br>11:15 | **ID: 11858 The Importance of Compressional Deformation in Three Dimensional Site Response Analysis**<br>Stavroula Kontoe, Bo Han, Lidija Zdravkovic, David Taborda |
| 11:15<br>11:25 | **ID: 11589 Shake Table Test and Numerical Analysis on Seawall with Composed Wall of Deep and Shallow Sheet Piles**<br>Eiji Kohama, Takahiro Sugano, Yoshihiko Yonehara, Hiroshi Soeda, Sadaharu Ogi, Kenta Akashi, Shigeru Satoh |
| 11:25<br>11:35 | **ID: 11368 Observed Data Analysis of Earth Pressure During Earthquake of Retaining Wall of a Base-isolated Building**<br>Kazuya Mitsuji, Susumu Ohno, Masato Motosaka |
| 11:35<br>11:45 | **ID: 11234 Numerical Simulation Of Soil Liquefaction During The 20 May 2012 M6.1 Emilia Earthquake In Northern Italy: The Case Study Of Pieve Di Cento**<br>Anna Chiaradonna, Ali Ozcebe, Francesca Bozzoni, Antonino Fama, Elisa Zuccolo, Carlo Giovanni Lai, Alessandro Flora, Renato Maria Cosentini, Anna d'Onofrio, Emilio Bilotta, Francesco Silvestri |
| 11:45<br>11:55 | **ID: 11400 Calibration of Global Empirical Models for Real-Time Liquefaction Prediction in Switzerland**<br>Carlo Cauzzi, Donat Fäh, John Clinton, Stefan Wiemer |

11:55 12:05 **ID: 10246 Impact of Liquefied Soil on Shallow Footings**
Gaonzalo Barrios, Xioyang Qin, Tam Larkin, Nawawi Chouw

12:05 12:15 **ID: 10727 Effects of Irregularity and Nonlinearity of the Soil on the Damage of Pile Foundations during an Earthquake**
Shoichi Nakai, Hiroto Nakagawa

12:15 12:25 **ID: 10296 Resin Injection As A Ground Improvement Technique For Seismic Liquefaction Mitigation**
Nick Traylen, Rick Wentz, Sjoerd Van Ballegooy, Liam Wotherspoon, Theo Hnat, Russell Deller

12:25 12:35 **ID: 10938 Probabilistic Seismic Loss Estimation due to Ground Failure**
Cigdem Yilmaz, Vitor Silva, Graeme Weatherill, Ellen Rathje

12:35 12:45 **ID: 10884 Estimating earthquake-induced pore pressure in Urayasu city during the 2011 East Japan Earthquake.**
Ziad Kteich, Pierre Labbé, Jean-François Semblat, Emmanuel Javelaud, Abdelkrim Bennabi

## We.OS03: Laboratory In-Situ Testing and Structural Health Monitoring of Structures (V)

M2.3 Maurice Saltiel A

Session Chairs: Mehmet Celebi, Volkmar Zabel, Athanasios Vratsikidis

10:45 10:55 **ID: 10685 Vibration-Based Damage Identification In A Scaled Asymmetric Building**
Gianmarco Bosco, Maria Giuseppina Limongelli, Mathieu Corus, Frederic Bourquin

10:55 11:05 **ID: 11769 Experimental Investigation on the Behaviour of Lap Splices under Uniaxial Cyclic Loading**
Danilo Tarquini, Joao Almeida, Katrin Beyer

11:05 11:15 **ID: 11740 Z24 Bridge Fem Update Based On Temperature Dependent Concrete and Asphalt Elasticity Moduli**
Iason Iakovidis, Vassilios Lekidis

11:15 11:25 **ID: 11840 Shake-Table Test of a 4-Story Precast Concrete Building: Test Results and Design Implications**
Sofia Gavridou, John Wallace

11:25 11:35 **ID: 11386 Experimental Testing of Physical Model of Telecommunication Tower at Vodno, Skopje**
Zoran Rakicevic, Aleksandra Bogdanovic, Angela Poposka, Dimitar Jurukovski, Predrag Gavrilovic

11:35 11:45 **ID: 12038 Lateral Cyclic Mechanical Response of A Glazed Curtain Wall: An Experimental investigation**
Carolina Aiello, Nicola Caterino, Giuseppe Maddaloni, Antonio Bonati, Antonio Occhiuzzi

11:45 11:55 **ID: 10416 Performance of Centre-Sheathed Cold-Formed Steel Framed Shear Walls**
Vincent Briere, Veronica Santos, Colin Rogers

11:55 12:05 **ID: 10464 C1SMA Project: A Mechanical Device Meant to Excite Buildings Slated for Demolition**
Alexandre de la Foye

12:05 12:15 **ID: 10653 Experimental Studies on An Original Fuse-Type Mechanical Coupler**
Erkan Senol, Ercan Yuksel

12:15 12:25 **ID: 11242 A Compact Biaxial Earthquake Shaking Table for Imposing Horizontal and Vertical Motions**
Adrian Russell, Mojtaba Kan

12:25 12:35 **ID: 10341 Numerical Simulation of Shaking Table Tests on a Reinforced Concrete Waffle-flat Plate Structure**
David Galé Lamuela, Jesús Donaire Ávila, Amadeo Benavent Climent

## We.OS04: Seismic Design and Analysis of Steel Structures (I)

M2.4 Maurice Saltiel B

Session Chairs: Dimitrios Lignos, Xiaoming Yuan, Konstantinos Skalomenos

10:45 10:55 **ID: 11636 Influence of Ground Motion Duration on the Seismic Response of Steel Moment Frames**
Miguel Bravo-Haro, Ahmed Elghazouli

10:55 11:05 **ID: 10271 Horizontal and Vertical Acceleration Demand on Moment-Resisting Steel Frames**
Nadia Gremer, Lukas Moschen, Christoph Adam, Ricardo A. Medina

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| 11:05<br>11:15 | **ID: 10210 Estimating the Seismic Responses of Tall Buildings Using a Non-adaptive Displacement-based Pushover Procedure**<br>Mehdi Poursha, Mohamad Amin Amini |
| 11:15<br>11:25 | **ID: 11079 Earthquake-Induced Losses of Steel Frames Designed to Eurocode 8**<br>Antonio Silva, Luis Macedo, José Miguel Castro, Ricardo Monteiro |
| 11:25<br>11:35 | **ID: 12183 Nonlinear Analysis of Square CFT Columns with Fiber Beam/Column Element**<br>Nikola Blagojevic, Svetlana M. Kostic |
| 11:35<br>11:45 | **ID: 12263 Nonlinear Dynamic Analysis of Framed Structures with an Energy-momentum Conserving Co-rotational Formulation: Generalized Plastic Hinge Model versus Distributed Plasticity Approach**<br>Sophy Chhang, Mohammed Hjiaj, Jean-Marc Battini, Carlo Sansour |
| 11:45<br>11:55 | **ID: 10193 Design Study of a Moderate Story Steel Structure Based on Chinese and Japanese Building Codes**<br>Demin Feng, Longjun Liu, Wenguang Liu, Takafumi Miyama, Lijun Wang |
| 11:55<br>12:05 | **ID: 10751 Influence of Embedded Steel Column Base Strength on Earthquake-induced Residual Deformations**<br>Hiroyuki Inamasu, Dimitrios Lignos, Amit Kanvinde |
| 12:05<br>12:15 | **ID: 10185 Seismic design of over-track steel buildings in urban areas - Application of novel isolated pile foundations -**<br>Keisuke Watanabe, Yukihiro Harada, Yuko Shimada |
| 12:15<br>12:25 | **ID: 10976 Recommendations for the Design Of CBFS Tailored to Low-to-Moderate Seismicity**<br>Alper Kanyilmaz, Herve Degee, Jose Henriques, Carlo Andrea Castiglioni, Pierre Olivier Martin |
| 12:25<br>12:35 | **ID: 10602 Collapse Assessment of a Steel Frame with High Post-Yield Stiffness Stainless Steel Devices in Abaqus**<br>Marco Baiguera, George Vasdravellis, Theodore L. Karavasilis |
| 12:35<br>12:45 | **ID: 12180 Investigating Limit States for Butterfly-shaped and Straight Shear Links**<br>Alireza Farzampour, Mattehew Eatherton |

**We.OS05: Soil-Foundation-Structure Interaction (III)** — M2.5 Maurice Saltiel C

Session Chairs: Oh-Sung Kwon, Dimitris Pitilakis, Romeo Tomeo

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| 10:45<br>10:55 | **ID: 11230 Resonance-dependent Winkler moduli for laterally-loaded piles under inertial and kinematic loading**<br>George Anoyatis, Anne Lemnitzer |
| 10:55<br>11:05 | **ID: 10862 Higher-Order Winkler Solutions for Laterally-Loaded Piles**<br>Eva Agapaki, Xenia Karatzia, George Mylonakis |
| 11:05<br>11:15 | **ID: 10592 Seismic Design of Pile Foundations: Kinematic Interaction in Layered Soils**<br>Aslan S. Hokmabadi, Erin Leung, Jack Yiu, Jack Pappin |
| 11:15<br>11:25 | **ID: 10144 Impedance Functions of Adjacent Embedded Strip Foundations**<br>Vasiliki Terzi |
| 11:25<br>11:35 | **ID: 10732 Seismic Response Of Soil-Pile-Structure Systems With Foundation Uplift**<br>Amir Vafaei, Kiarash Mohtasham Dolatshahi, Ashkan Baqeri |
| 11:35<br>11:45 | **ID: 10251 Evaluation of Seismic Behavior of a Building with Insulated Pile Foundation based on the Shaking Table Test**<br>Hiroto Nakagawa, Hisatoshi Kashiwa, Shoichi Nakai |
| 11:45<br>11:55 | **ID: 12264 Macro-Model for Rigid Pile Foundation In Cohesive-Frictional Soils: Determination Of The Failure Surface**<br>Noussaiba Graine, Mohammed Hjiaj, Kristian Krabbenhoft |

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| 11:55<br>12:05 | **ID: 11283 Significant Seismic Ground Motion Parameters for The Macroelement Based Design of Shallow Foundations**<br>Youssef Abboud, Sébastien Burlon, Jean-François Semblat |
| 12:05<br>12:15 | **ID: 11279 Macroelement Based Seismic Analysis Of A Raft Foundation**<br>Youssef Abboud, Sébastien Burlon, Jean-François Semblat |
| 12:15<br>12:25 | **ID: 11035 Seismic Response of a 10MW Offshore Wind Turbine: Performance Comparison between a Monopile and a Jacket Foundation**<br>Irene Georgiou, Fani Gelagoti, Rallis Kourkoulis, George Gazetas |
| 12:25<br>12:35 | **ID: 10434 Probing The Conservatism Of Analysis Methods For Linear And Nonlinear Soil-structure Interaction**<br>Theodora Makrypidi, Charisis Chatzigogos, Alex Nieto - Ferro, Nicolas Greffet |
| 12:35<br>12:45 | **ID: 12349 Seasonal Effects on Seismic Performance of High Rise Buildings Considering Soil-Structure Interaction**<br>Navid Yeganeh, Behzad Fatahi |

## We.OS06: Seismic Design and Analysis of Bridges (I)

M2.6
Museum Hall

Session Chairs: Rainer Flesch, Constantine Spyrakos, Grigorios Tsinidis

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| 10:45<br>10:55 | **ID: 10982 Motorway Bridges Subjected to Strike-Slip Faulting: 3D Numerical Analysis**<br>Max Silvio Sieber, Athanasios Agalianos, Ioannis Anastasopoulos |
| 10:55<br>11:05 | **ID: 10666 Vertical Hanger Replacement Influence on Structural Response of the Bosphorus Bridge to Multi-Point Earthquake Motion**<br>Selcuk Bas, Nurdan Apaydin, Alper Ilki, Fikret Necati Catbas |
| 11:05<br>11:15 | **ID: 11169 A Study On Vertical Component Of Earthquake Ground Motion And Its Effects On A Bridge**<br>Vishvendra Bhanu, Ali Guney Ozcebe, Chiara Smerzini |
| 11:15<br>11:25 | **ID: 10469 Comparison of Nonlinear Time History and Pushover Analyses for the Assessment of Stone Arch Bridges**<br>Emre Aytulun, Serdar Soyöz, Esen Karcioglu |
| 11:25<br>11:35 | **ID: 12350 Ductility Displacement Ratio In Damage Analysis Of RC Curved Bridges**<br>Radomir Folic, Nina Serdar |
| 11:35<br>11:45 | **ID: 11861 Seismic Behavior of Multi-Span Continuous Reinforced Concrete Bridges**<br>Mohamed Cherif Djemai, Mahmoud Bensaibi |
| 11:45<br>11:55 | **ID: 11359 Spatial Variability Effects on Long-Span Cable-Stayed Bridges**<br>Eleftheria-Anthi {Elina} Efthymiou, Alfredo Camara |
| 11:55<br>12:05 | **ID: 11982 Appropriate Intensity Measures in Seismic Performance Evaluation of Irregular Bridges**<br>Soheil Soltanieh, Mohammad mahdi Memarpour |
| 12:05<br>12:15 | **ID: 10984 Seismic Fragility of 3-Span RC-Slab Overpass Bridges According to Pushover and Response Spectra Analysis**<br>Marian Ralbovsky, Alois Vorwagner, Maciej Kwapisz |
| 12:15<br>12:25 | **ID: 12008 The Effect of Deck Prestress Actions on the Seismic Performance of R/C Bridges**<br>Eleftheria D. Goutzika, Sotiria P. Stefanidou, Vassilis K. Papanikolaou |
| 12:25<br>12:35 | **ID: 12194 Ductility Optimization Based Collapse Resistance Design of Multi-span Bridges Considering Spatially Variable Ground Motions**<br>Ning Li, Zhongxian Li, Xiaoqiong Li |

## We.OS07: Active and Passive Structural Control Systems (II)

Session Chairs: Radomir Jovo Folic, Alexandros Taflanidis, Sotiria Stefanidou

M2.7
Library Hall

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|---|---|
| 10:45<br>10:55 | ID: 12034 **Performance of A Building With Dissipative Bracing System Under Strong Earthquakes**<br>Fabrizio Comodini, Alessandro Fulco, Marco Mezzi |
| 10:55<br>11:05 | ID: 10673 **Failure Probability Model for Coupled Mass Damper and Rigid Block-Like Element System on Deformable Soil**<br>Alessandro Contento, Paolo Gardoni, Andrea de Leo, Angelo Di Egidio |
| 11:05<br>11:15 | ID: 10989 **Robustness Of Base-Isolated Systems**<br>Paolo Castaldo, Giuseppe Mancini |
| 11:15<br>11:25 | ID: 10345 **Seismic Response Control Using Elastoplastic Tuned Mass Damper**<br>Payal Gwalani, O. R. Jaiswal |
| 11:25<br>11:35 | ID: 10322 **Active Control Methods to Improve the Seismic Response of Slender Rigid Block-Like Structures**<br>Angelo Di Egidio, Giorgia Simoneschi, Andrea M. de Leo |
| 11:35<br>11:45 | ID: 10415 **Seismic Test of a Vertical Isolation System with Property of High-static and Low-dynamic Stiffness**<br>Lyan-Ywan Lu, Ko-Cheng Chen, Kun-An Hsiao, Kuan-Wen Pong |
| 11:45<br>11:55 | ID: 10236 **3D Seismic Base Isolation for Responsible Structures. Optimization and Testing**<br>Victor Kostarev, Peter Vasilyev, Peter Nawrotzki, Viacheslav Beliaev |
| 11:55<br>12:05 | ID: 11752 **Seismic Response of Base-Isolated Structures wth Insufficient Gaps**<br>Mostafa Masoudi, Mona Ghalehnoee |
| 12:05<br>12:15 | ID: 10165 **Experiments of Tuned Liquid Column Damper (TLCD) on the Reduced Shear Frames Under Harmonic Loads**<br>Ersin Aydin, Baki Ozturk, Huseyin Cetin, Maciej Dutkiewicz, Ozan Okkay, Ugur Ohancan, Yunus Emre Sirin |
| 12:15<br>12:25 | ID: 10167 **Extreme Dynamic Testing of Friction Pendulum Bearings with Various Restraining Rim Designs**<br>Yu Bao, Tracy C Becker, Takayuki Sone, Hiroki Hamaguchi |
| 12:25<br>12:35 | ID: 11703 **Pre-Sizing Criteria for Base-Isolated Buildings and Verification with Accelerograms of Peru**<br>Rafael Salinas-Basualdo, Cleiver Ayala |
| 12:35<br>12:45 | ID: 12273 **Seismic Design and Assessment of Resilient Steel Frames with Visco-Plastic Dampers**<br>Jaehoon Bae, Theodore L. Karavasilis, Young Ju Kim, Taesang Ahn |
| 12:45<br>12:55 | ID: 10393 **A New Method for Nonlinear Dynamic Analysis of Base Isolated Structures.**<br>Hamid Moharrami, Navid Nikdoost |

## We.OS08: Seismic Retrofit and Strengthening of Structures (II)

Session Chairs: Iman Hajirasouliha, Konstantinos Katakalos, Marios Pazidis

M2.8
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| 10:45<br>10:55 | ID: 11185 **Seismic Assessment and Retrofit Scenarios for the Administration Building of Kalamata**<br>Stavros Anagnostopoulos, Vassilios Lekidis, Konstantinos Skalomenos, Kostas Morfidis, Christos Karakostas, Thomas Salonikios |
| 10:55<br>11:05 | ID: 10292 **Testing Of Reinforced Concrete External Beam-column Joints Retrofitted With Shape Memory Alloys**<br>Raj Suhail, Daniel McCrum, Giuseppina Amato, Jian-Fei Chen |
| 11:05<br>11:15 | ID: 11031 **Finite Element Model of Masonry-Infilled RC Frame**<br>Christiana Filippou, Nicholas Kyriakides, Christis Chrysostomou, Elpida Georgiou |
| 11:15<br>11:25 | ID: 11730 **Seismic Upgrading of two existing Bridges: from Conceptual Design to Construction**<br>Christos Katsaras, Theodoros Psychogios, Telemachos Panagiotakos |
| 11:25<br>11:35 | ID: 11227 **A Seismic Capacity Evaluation and Priority Setting for Seismic Retrofit for Existing RC Buildings with Masonry Infill in Developing Countries**<br>Masaki Maeda, Md Shafiul Islam, Hamood Alwashali, Md Rafiqul Islam, Matsutaro Seki, Kiwoong Jin |

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| 11:35<br>11:45 | ID: 10627 **Plastic Hinge Relocation in RC joints using Flange-bonded FRP Sheets**<br>Mahmoud Reza Maheri, Ramin Azarm, Sahar Zarandi |
| 11:45<br>11:55 | ID: 10573 **Nonlinear Dynamic and Static Analysis of a Soft-first-story RC Building Retrofitted by Steel Braced Frame**<br>Shahriar Vahedi, Pasha Javadi, Mirhamid Hosseini |
| 11:55<br>12:05 | ID: 10225 **Study For New Seismic Retrofit System Of Suspended Ceiling Without Brace**<br>Akira Oba, Keisuke Watanabe |
| 12:05<br>12:15 | ID: 10179 **Seismic Rehabilitation of Damaged Shear-Critical Columns of RC Frame Using CFRP Jacketing**<br>Birendra Karaiya, Romanbabu M Oinam, Dipti Ranjan Sahoo, Ashok Gupta, Vikram Sahoo |
| 12:15<br>12:25 | ID: 10638 **Optimal Damper Connected Control Technique For Similar Buildings Subjected to Earthquake**<br>Rajasugantha Anparasan, Mohan S C, Ramakrishna Uppari |
| 12:25<br>12:35 | ID: 11527 **Evaluation of Retrofitting RC Structures with Externally Applied FRP for Dynamic Loadings**<br>Yong Lu, Jianwu Wei, Jiaming Xu |
| 12:35<br>12:45 | ID: 11868 **Seismic Axial Failure Vulnerability of Beam-Column Joints in Older Construction under High Axial Loads**<br>Wael Hassan, Fatima Al Zahraa Refaie, Amal Belal |

**13:00-14:00 Lunch Break**

| 14:00-14:30 | THEME LECTURES | |
|---|---|---|
| **We.TL05: Theme Lecture \| Philippe Bisch**<br>Session Chair: Edmund Booth<br><br>ID: 12254 **EUROCODE 8 - Evolution or revolution?**<br>Philippe Bisch | | **M1.1**<br>**Friends of Music Hall** |
| **We.TL06: Theme Lecture \| Alper Ilki**<br>Session Chair: Stavroula J. Pantazopoulou<br><br>ID: 12312 **Seismic Performance of a Full-scale FRP Retrofitted Sub-standard RC Building**<br>Alper Ilki, Erkan Tore, Cem Demir, Mustafa Comert | | **M2.1**<br>**Aimilios Riadis** |
| **We.TL07: Theme Lecture \| Amir Kaynia**<br>Session Chair: Lanmin Wang<br><br>ID: 12260 **Earthquake Geotechnics in Offshore Engineering**<br>Amir M. Kaynia | | **M2.4**<br>**Maurice Saltiel B** |
| **We.TL08: Theme Lecture \| Dimitris Beskos**<br>Session Chair: George D. Manolis<br><br>ID: 12251 **Seismic Analysis and Design of Composite Steel/Concrete Building Structures Involving Concrete-Filled Tubular Columns**<br>Konstantinos A. Skalomenos, George D. Hatzigeorgiou, Dimitri E. Beskos | | **M2.6**<br>**Museum Hall** |

## 14:40-16:40 CONCURRENT ORAL SESSIONS

### We.OS09: Seismic Design and Analysis of Reinforced Concrete Buildings (VI)

Session Chairs: Christoph Butenweg, Angelos A. Liolios, Ioannis Nikolaos Doudoumis

**M1.1 Friends of Music Hall**

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| 14:40<br>14:50 | **ID: 11626 Development of Fragility Functions for Reinforced Concrete Buildings in Sichuan, China**<br>Linghui Zhou, Carmine Galasso, Dina D'Ayala |
| 14:50<br>15:00 | **ID: 10865 Modelling Sub-Standard Reinforced Concrete Frames Accounting for Shear Failure Localisation**<br>Dimitrios K. Zimos, Panagiotis E. Mergos, Andreas J. Kappos |
| 15:00<br>15:10 | **ID: 10607 Experimental Evaluation of Confinement and Ground Motion Characteristics Effects on RC Bridge Piers**<br>Xiao Ge, Nicholas A. Alexander, Mohammad Mehdi Kashani |
| 15:10<br>15:20 | **ID: 11401 Seismic Fragility Analysis of RC Frames on Steep Slopes under Near-Fault and Far-Field Ground Motions**<br>Yingmin Li, Jun Xu, Guojue Wang |
| 15:20<br>15:30 | **ID: 12042 Comparison of Refined Numerical Modeling for Substandard Beam-Column Joints**<br>Ozgur Yurdakul, Ciro Del Vecchio, Marco Di Ludovico, Ozgur Avsar |
| 15:30<br>15:40 | **ID: 11320 Experimental study on Seismic Performance of Overlapped Precast Concrete Wall Panels Jointed with Distributed Bolts under Pure Shear Loadings**<br>Bin Zhao, Yan Wang, Xilin Lu |
| 15:40<br>15:50 | **ID: 11333 Experimental Study on the Seismic Behavior of Multi-layer Energy Efficient Sandwich Wall Panels**<br>Bin Zhao, Kai Zhang, Xilin Lu |
| 15:50<br>16:00 | **ID: 11903 Pushover Analysis of Flat Slab Buildings with Shear Studs Punching Reinforcement**<br>Brisid Isufi, António M. P. Ramos, Válter J. G. Lúcio, Ildi Cismasiu |
| 16:00<br>16:10 | **ID: 10350 Numerical Investigation on Punching Shear of Slab-Column Connections Subjected to Seismic Loading**<br>Andri Setiawan, Robert Vollum, Lorenzo Macorini |
| 16:10<br>16:20 | **ID: 11067 Does The Angle of Seismic Incidence Affect Inelastic Seismic Demand? A Probabilistic Point of View**<br>Despoina Skoulidou, Xavier Romao, Nuno Pereira |
| 16:20<br>16:30 | **ID: 11212 Performance Assessment of a Four-Story RC Structure Through Full-Scale Tests and Numerical Analysis**<br>Cem Yenidogan, Takuya Nagae, Ryo Yokoyama, Kenichi Kajiwara, Luis Ibarra |

### We.OS10: Geotechnical Earthquake Engineering (III)

Session Chairs: Ioannis Anastasopoulos, Nikolaos Gerolymos, Angelos Tsinaris

**M2.1 Aimilios Riadis**

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| 14:40<br>14:50 | **ID: 11717 The Response of Unreinforced Highway Embankment Due to Underlying Normal Fault Rupture**<br>Eleni Petala, Nikolaos Klimis, Emmanouil Psaroudakis |
| 14:50<br>15:00 | **ID: 11239 Instability And Liquefaction In A Loose Glacial Till Under Isotropic And Anisotropic Stress States**<br>Denis LeBoeuf |
| 15:00<br>15:10 | **ID: 11159 Numerical Modeling of Liquefaction Under Sloped Ground Condition Using PM4Sand and UBCSand Models**<br>Mario Martinelli, Ahmed Elkadi |
| 15:10<br>15:20 | **ID: 11340 Basic Deformation Characteristics of Wharf Remodeled Using Existing Structures**<br>Akihiko Kondo, Eiji Kohama, Toshio Endo, Yasuhiro Takahashi, Kenji Watanabe, Hayato Kokusyo, Tohru Yoshihara, Kazuo Kubota |

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| 15:20<br>15:30 | **ID: 11594 A Plasticity Model for 1D Site Response Analysis accounting for Liquefaction-Induced Ground Movements**<br>Nikos Gerolymos, Maria Anthi, Panagiota Tasiopoulou |
| 15:30<br>15:40 | **ID: 11692 Numerical Analysis on the Effect of Liquefaction on Structures**<br>Stefania Gobbi, Davide Forcellini, Fernando Lopez-Caballero |
| 15:40<br>15:50 | **ID: 10131 The Effects of Nonlinear Dam-Foundation Interaction on the Seismic Response of Earth Dams**<br>Loizos Pelecanos, Stavroula Kontoe, Lidija Zdravkovic |
| 15:50<br>16:00 | **ID: 11269 Seismic Response of Overpressured Submarine Slopes**<br>Andreas Stoecklin, Balz Friedli, Alexander M. Puzrin |
| 16:00<br>16:10 | **ID: 11014 Liquefaction-induced Damage to Wooden Houses in Hiroshima and Tokyo during Future Earthquakes**<br>Susumu Yasuda, Keisuke Ishikawa |
| 16:10<br>16:20 | **ID: 11200 Seismic Response of Flexible Walls Retaining Homogeneous Viscoelastic Soil**<br>Christos Koutsantonakis, George Mylonakis, Scott Brandenberg, Jonathan Stewart |
| 16:20<br>16:30 | **ID: 10572 Earthquake Induced Landslide Hazard Assessment of Chamoli District, Uttarakhand, India Using Weighted Overlay Method**<br>Sangeeta Prajapati, B.K. Maheshwari |

**We.OS11: Seismic Design and Analysis of Masonry Buildings (I)** — M2.3 Maurice Saltiel A

Session Chairs: Humberto Varum, Aristidis Papachristidis, Filomena de Silva

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| 14:40<br>14:50 | **ID: 10689 Structural Classification System for Load Bearing Masonry School Buildings**<br>Rohit Kumar Adhikari, Dina D'Ayala, Carina Fonseca Ferreira, Fernando Ramirez Cortes |
| 14:50<br>15:00 | **ID: 12039 Database Collecting In-Plane Test Results Of URM Piers With Bricks And Blocks**<br>Luca Albanesi, Paolo Morandi, Francesco Graziotti, Tiziano Li Piani, Andrea Penna, Guido Magenes |
| 15:00<br>15:10 | **ID: 11188 Vulnerability Analysis, Post-Seismic and Structural Diagnosis and Retrofitting Solutions for Historical Masonry Structures: The Case of the Lighthouse "Bengut" of Dellys in Algeria**<br>Karima Amari, Amina Abdessmed Foufa, Giuseppina Uva |
| 15:10<br>15:20 | **ID: 11477 Experimental and Numerical Investigations of Reinforced Concrete Frames with Masonry Infills under Combined In- and Out-of-plane Seismic Loading**<br>Christoph Butenweg, Marko Marinkovic, Ekkehard Fehling, Pfetzing Thomas, Thomas Kubalski |
| 15:20<br>15:30 | **ID: 11841 Parametric Study for Capacity Diagonal Shear Formulations for Piers in Existing Stone Masonry Structures**<br>Hasan Ayouby, Ashutosh Bagchi, Lucia Tirca |
| 15:30<br>15:40 | **ID: 10313 The Effect of Geometric Imperfections on the Buckling Response of a Thin Masonry Shell Structure Subjected to Earthquake Loads**<br>Eftychia Dichorou, Matthew J. DeJong |
| 15:40<br>15:50 | **ID: 12005 A Novel Discontinuum Finite Element Modelling Approach For The Structural Evaluation Of Masonry Structures**<br>Davide Rapone, Giuseppe Brando, Enrico Spacone |
| 15:50<br>16:00 | **ID: 11210 The Interaction of an Infill Wall with A Surrounding Frame During an Earthquake**<br>Alex Brodsky, Oded Rabinovitch, David Z. Yankelevsky |
| 16:00<br>16:10 | **ID: 10745 Equivalent Truss Model for Non-Linear Static Analysis of Confined Masonry Walls Subjected to Lateral Loading**<br>Nikita Rankawat, Svetlana Brzev, Sudhir Kumar Jain, Juan Jose Perez Gavilan |
| 16:10<br>16:20 | **ID: 11171 Reduced Integration In The Finite Element Elastoplastic-Damage Analysis Of Ancient Masonry Constructions**<br>Héctor Rodrigo Amezcua, Cesar Paniagua, Amado Gustavo Ayala |

16:20 16:30 **ID: 11988 Ongoing Studies on Ephesus Ancient Theatre within the Scope of Safeguarding Cultural Heritage through Technical and Organizational Resources Management (STORM) Project**
Eren Uckan, Gulum Tanircan, Mine Betul Degirmenci, Hakan Alcik, Ferit Cakir, Bulent Akbas

16:30 16:40 **ID: 10280 The Seismic Vulnerability Assessment of a Stone Masonry Building Enclosed in Aggregate**
Chiara Bernardini, Rui Andre Maio, Sonia Boschi, Tiago Miguel Ferreira, Romeu Vicente, Andrea Vignoli

## We.OS12: Seismic Design and Analysis of Steel Structures (II)

Session Chairs: Dimitri Beskos, Theodore L. Karavasilis, Gregory Penelis

**M2.4 Maurice Saltiel B**

14:40 14:50 **ID: 10421 Influence of Non-Structural Components on the Seismic Response of Cold - Formed Steel Structures**
Violetta Nikolaidou, Colin Rogers, Dimitrios Lignos

14:50 15:00 **ID: 10508 Numerical Analysis on Seismic Behavior of Roof Joint**
Yao Cui, Xiaoyu Gao, Hongtao Liu, Satoshi Yamada

15:00 15:10 **ID: 10166 Design, Numerical Simulation, and Experimental Evaluation of a Rocking Damage-Free Steel Column Base with Friction Devices**
Fabio Freddi, Christoforos Dimopoulos, Theodore Karavasilis

15:10 15:20 **ID: 10761 Behavior of Column to Foundation Connections in Low-Rise Metal Buildings Under Simulated Seismic Loading**
Florentia Kavoura, Bora Gencturk, Mina Dawood, Farshid Hosseini

15:20 15:30 **ID: 10595 Evaluation Of Fuel Station Canopy Structures Subjected To Seismicity**
Trevor Neville Haas

15:30 15:40 **ID: 10529 Sliding and Rocking Response of Multi-Storeyed Steel Frame Equipped with Friction Damper at Base Under Strong Earthquake**
Aya Tateno, Kouki Iwamoto, Minoru Yamanari

15:40 15:50 **ID: 10239 Enhancement Of Ductility In Shallow Floor Composite Beams**
Panagiotis Kiriakopoulos, Simo Peltonen, Ioannis Vayas, Constantine Spyrakos, Maria-Eleni Dasiou

15:50 16:00 **ID: 12345 Experimental Study on the behavior of EBFs with Reduced Link Sections**
Ali Naserifar, Fakhreddin Danesh

16:00 16:10 **ID: 10295 Braces with Intentional Eccentricity and Partial Cross-Section Strength Enhancement by Quenching**
Konstantinos Skalomenos, Masahiro Kurata, Hironari Shimada, Minehiro Nishiyama

16:10 16:20 **ID: 11385 Development of Cold-Formed Steel Moment-Resisting Frames Using Optimum Beams In Seismic Applications**
Seyed Mohammad Mojtabaei, Ioannis Papargyriou, Iman Hajirasouliha, Jurgen Becque, Kypros Pilakoutas

## We.OS13: Soil-Foundation-Structure Interaction (IV)

Session Chairs: Carlo Lai, Rajesh Ranjan Rele, Christos Petridis

**M2.5 Maurice Saltiel C**

14:40 14:50 **ID: 10550 Dynamic Response Of A Structure With A Basement Sited In Liquefiable Soil**
Fiona Elizabeth Hughes, Gopal Santana Phani Madabhushi

14:50 15:00 **ID: 10410 Preliminary Displacement-based Assessment Procedure For Buildings On Liquified Soil**
Maxim Damian Luke Millen, Antonio Viana da Fonseca, Xavier Romão

15:00 15:10 **ID: 11904 Soil-structure Interaction Effect On Earthquake Vulnerability Assessment of Moment Resisting Frames: The Role Of The Soil**
Dimitris Pitilakis, Christos Petridis

15:10 15:20 **ID: 11167 Dynamic response characteristics of an instrumented steel water tank in Kalochori, N. Greece**
Emmanouil Kirtas, Emmanouil Rovithis, Konstantia Makra, Ioannis Papaevangelou

15:20 15:30 **ID: 11379 The Effect of the Soil layer's Eigenfrequency to Soil-Structure Interaction**
Zsuzsa Borbala Pap, László P. Kollár

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| 15:30<br>15:40 | **ID: 11763 Comparison Of Soil-Structure-Interaction In Time Domain Versus Frequency Domain**<br>Sander Meijers, René Vonk |
| 15:40<br>15:50 | **ID: 11440 Frequency Dependent Impedance Analysis of the Foundation-Soil-Systems of Onshore Wind Turbines**<br>Philipp Michel, Christoph Butenweg, Sven Klinkel |
| 15:50<br>16:00 | **ID: 11523 A Simplified Cone Model For An Embedded Foundation**<br>Kensuke Shimane, Toshiro Maeda, Junpei Suzuki, Takamoto Muneta |
| 16:00<br>16:10 | **ID: 12310 A Comprehensive Approach to SSI of a Reactor Building Supported by A Large Pile Foundation**<br>Peter Rangelow, Tobias Richter, Vladimir Nincic, Manuel Pellissetti, Hans te Lintelo, Philip Somers |
| 16:10<br>16:20 | **ID: 10609 Stiffness, Strength, and Deformation Capacity of Rocking Foundations**<br>J. Paul Smith-Pardo |
| 16:20<br>16:30 | **ID: 11598 Leaning Tower of Pisa: Recent Advances On Dynamic Response And Soil Structure Interaction**<br>Gabriele Fiorentino, Davide Lavorato, Giuseppe Quaranta, Alessandro Pagliaroli, Giorgia Carlucci, Nunziante Squeglia, Bruno Briseghella, Giorgio Monti, Camillo Nuti, George Mylonakis |

**We.OS14: Seismic Design and Analysis of Bridges (II)** — **M2.6 Museum Hall**

Session Chairs: Mehmet Nuray Aydinoglu, Stergios Mitoulis, Olga Markogiannaki

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| 14:40<br>14:50 | **ID: 11966 Multicriteria Analysis for the Selection of the Type of Earthquake Resistant Concrete Highway Bridges**<br>Nikolaos Tegos, Olga Markogiannaki |
| 14:50<br>15:00 | **ID: 12216 New Athens-Thessaloniki High Speed Railway Line: Seismic Isolation Design of a Tied-Arch Bridge**<br>Eleftheria D. Goutzika, Georgios I. Mavrakis, Ioannis G. Mavrakis |
| 15:00<br>15:10 | **ID: 10553 Isolated Long Overhead Viaducts: A Solution for Improve Citizens' Mobility in High Seismic Countries**<br>Mauro Sartori, Charles Cynober, Carlos Correa, Victor Hugo Salinas Vallejo, José Antonio Lopez Meza, Tri Suryadi |
| 15:10<br>15:20 | **ID: 11729 Los Caras Isolated Bridge in the 2016, Muisne Ecuador Earthquake: Performance of Synchronizing Devices**<br>Enrique Abel Morales, Marcelo Romo, Jerome O'Connor, Pedro Mosquera, Sissy Nikolaou, Guillermo Diaz-Fanas |
| 15:20<br>15:30 | **ID: 10705 Seismic Response of Large Span Bridges Using the MBN Optimal Control System**<br>Themistoklis Nikolaidis, Skarmoutsos George, Baniotopoulos Charalampos |
| 15:30<br>15:40 | **ID: 11492 Seismic Behavior Of Chilean Bridges With External Sacrifice Shear Keys In High Seismic Hazard Zones**<br>José Wilches Estan, Hernan Santa Maria, Rafael Riddell, Carlos Arrate |
| 15:40<br>15:50 | **ID: 11822 Seismic Performance of Bridge Piers Made with Recycled Concrete Aggregate-an Experimental Investigation**<br>Maher AL-Hawarneh, M. Shahria Alam |
| 15:50<br>16:00 | **ID: 10256 Shaking Table Test Of Large Scale Bridge Model Constructed With New Adaptive Imso-System For Seismic Protection**<br>Jelena Ristik, Viktor Hristovski, Danilo Ristic |
| 16:00<br>16:10 | **ID: 11825 A Multi-Level Comparison between Plastic Hinges and Dissipative Controlled Rocking for Bridges – the Awatere River Bridge Case Study**<br>Ana Isabel Sarkis Fernandez, Brandon McHaffie, Alessandro Palermo |
| 16:10<br>16:20 | **ID: 10657 Difficulties on earthquake design due to Standards limits on an extensive Offshore Bridge, Sheikh Jaber Al-Hamad Al-Sabah Causeway in Kuwait**<br>Aurelie Vivier, Georges Mauris, Mohamed Akraa, Serge Montens |

**We.OS15: Active and Passive Structural Control Systems (III)** — M2.7 Library Hall
Session Chairs: Anastasios Sextos, Telemachos Panagiotakos, Charisis Chatzigogos

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| 14:40<br>14:50 | **ID: 11533 Seismic Retrofitting of In-Elevation Irregularly Infilled R.C. Framed Structures by Hysteretic Damped Braces**<br>Fabio Mazza, Mirko Mazza, Alfonso Vulcano |
| 14:50<br>15:00 | **ID: 10485 Distribution of damper properties along the height and the plan for the seismic retrofit of plan-asymmetric RC frames**<br>Luca Landi, Andrea Molari, Pier Paolo Diotallevi |
| 15:00<br>15:10 | **ID: 11222 Data-driven Performance Assessment of Tuned Mass Dampers in Tower Structures**<br>Kosmas Dragos, Maria Steiner, Volkmar Zabel, Kay Smarsly |
| 15:10<br>15:20 | **ID: 11027 Methodology to support the design of Tall buildings' seismic protection using viscous dampers**<br>Luis Guerreiro, Isabel Brás, Micaela Gonçalves |
| 15:20<br>15:30 | **ID: 10682 Design Spectra For Seismic Isolation Systems In Turkey**<br>Aslıhan Yolcu, Cüneyt Tüzün, Gülüm Tanırcan |
| 15:30<br>15:40 | **ID: 12308 Enhancing The Seismic Performance Of Adjacent Pounding Structures Using Viscous Dampers**<br>Farzin Kazemi, Benyamin Mohebi, Mansoor Yakhchalian |
| 15:40<br>15:50 | **ID: 10262 New Adaptive Curved Surface Slider for Enhanced Structural Isolation, Reduced Displacement Capacity**<br>Felix Weber, Florian Obholzer, Peter Huber, Manfred Hartinger, Leopold Meier, Johann Distl, Christian Braun |
| 15:50<br>16:00 | **ID: 10585 Design of Nonlinear Passively-Controlled Structures Using Pole Assignment Active Control Algorithm**<br>Alireza Zare, Mehdi Ahmadizadeh |
| 16:00<br>16:10 | **ID: 10744 A Seismic Retrofit Method for Steel Frames with Viscous Dampers**<br>George Papagiannopoulos, George Hatzigeorgiou, Nikos Pnevmatikos |
| 16:10<br>16:20 | **ID: 10505 Study on An Energy-robust Nonlinear Energy Sink for Building Structure Response Reduction**<br>Jingjing Wang, Zhibin Liu, Haobo Li |

**We.OS16: Seismic Retrofit and Strengthening of Structures (III)** — M2.8 CR1
Session Chairs: Radomir Jovo Folic, Georgia E. Thermou, Konstantinos Katakalos

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|---|---|
| 14:40<br>14:50 | **ID: 11736 Numerical Modelling and Full-Scale Experimental Validation of the Gapped-Inclined Bracing System**<br>Jeffrey Guy Salmon, Hossein Agha Beigi, Constantin Christopoulos |
| 14:50<br>15:00 | **ID: 11063 A Novel Method for Seismic Retrofitting of Substandard RC columns using Steel-Reinforced Grout Jacketing**<br>Georgia E. Thermou, Vassilis K. Papanikolaou, Iman Hajirasouliha |
| 15:00<br>15:10 | **ID: 10259 Experimental Study on Retrofit Technologies for RC Frames with Infilled Brick Masonry Walls in Developing Countries**<br>Matsutaro Seki, Viorel Popa, Eugen Lozinca, Andreea Dutu, Andrei Papurcu |
| 15:10<br>15:20 | **ID: 11135 Skopje 11th September 2016 Earthquake: Post-earthquake Visual Screening On Cultural Heritage Buildings**<br>Veronika Shendova, Aleksandar Zlateski, Elena Delova |
| 15:20<br>15:30 | **ID: 10879 Seismic Retrofit of High-Rise Frame Buildings Using Single-Input-Multiple-Output System Configuration**<br>Assaf Shmerling, Robert Levy |
| 15:30<br>15:40 | **ID: 10892 Methodology for Obtaining Equivalent Linearly-elastic to Inelastic Shear-type Models and Vice-Versa**<br>Assaf Shmerling, Robert Levy |

15:40 15:50 **ID: 11405 Collapse-Probability-Based Compliance Factors For Seismic Evaluation Of Existing Structures**
Anastasios Tsiavos, Nathan Bender, Bozidar Stojadinovic

15:50 16:00 **ID: 11650 Numerical Modeling of Shear Behavior of URM Strengthened with FRP or FRCM Subjected to Seismic Loading**
Athanasia Thomoglou, Theodoros Rousakis, Athanasios Karabinis

16:00 16:10 **ID: 10458 On the Use of Interstorey Velocity for the Seismic Retrofit of Steel Frames With Viscous Dampers**
Dimitris L. Karabalis, George Papagiannopoulos, Vasileia Logotheti, Theoni Kafetzi

16:10 16:20 **ID: 11442 Practical Experience on Seismic Performance Assessment and Retrofit in Five Different Countries**
Hazim Yilmaz, Thomas Hachmann

16:20 16:30 **ID: 10230 Optimized Retrofit of Steel-Concrete Composite Buildings Against Progressive Collapse Using Steel Cables**
Georgios S. Papavasileiou, Nikolaos G. Pnevmatikos

**16:40-17:30 Poster Session - Coffee Break**

## 16:40-17:30 POSTER SESSIONS

**We.PS01&09: Seismic Design and Analysis of Reinforced Concrete Buildings** — M1.2 Poster Foyer & Library

**ID: 10698 Evaluation of a multimode pushover procedure for torsionally flexible R/C buildings under biaxial seismic excitation**
Grigorios Elias Manoukas

**ID: 10914 Ductility Levels Examination for Structures Constructed with Industrialized Reinforced Concrete Walls**
Rina Farhat, Nicolae Gluck, Rami Eid

**ID: 10999 Vibration Characteristic Of A Typical Residential Building In Kathmandu: Operational Modal Analysis And Finite Element Modelling**
Yoshio Sawaki, Rajesh Rupakhety, Símon Ólafsson

**ID: 11154 Comparison of Equivalent SDOF and 2D Models for Nonlinear Seismic Displacement Demand Estimates**
Muhammet Kamal, Esra Ozer, Bayram Tanık Cayci, Mehmet Inel

**ID: 11181 Effects of Various Parameters on Nonlinear Dynamic Response of Infilled RC Buildings with Open Ground Story**
Emre Akın

**ID: 11738 Seismic Response of high and Slender Structures under Translational-Rocking Seismic Excitations**
Piotr Bońkowski, Zbigniew Zembaty, Maciej Minch

**ID: 11894 Cyclic Pushover Method for Seismic Performance Assessment Under Multiple Earthquakes.**
Alexander Kagermanov, Robin Gee

**ID: 11911 Seismic-Parameter-Based Statistical Procedures for the Estimation of Structural Damage**
Anaxagoras Elenas

**ID: 11923 Automated Optimum Seismic Design of Reinforced Concrete Frames With Nonlinear Response-history Analysis**
Panagiotis Mergos

**ID: 12191 Safety assessment of gravity loads designed ten-story RC buildings under earthquake loads**
Ahmed Mostafa El-Kholy, Hoda Sayed Said, Ayman Ahmed Shaheen

**ID: 12223 A Discrete Macro-Node for Modeling the Seismic Behaviour of R/C Beam To Column Joints**
Bartolomeo Pantò, Salvatore Caddemi, Ivo Caliò, Enrico Spacone

**ID: 12325 Nonlinear Response of an RC Building with Seismic Isolators and Dissipators**
Aggelos Liolios, Radomir Folic, Milovan Ljubomir Stanojev

## We.PS02&10: Geotechnical Earthquake Engineering

M1.2 Poster Foyer & Library

**ID: 10163 Soil Liquefaction Evaluation for Alluvial Plain of Bejaia using Geotechnical and Geophysical Test**
Mohamed Khiatine, Ramdane Bahar

**ID: 10351 Seismic Response and Damage Mechanism of Underground Structures of Subway Transfer Stations**
Zhong-Yang Yu, Hong-Ru Zhang, Chao-Qun Huang, Chun-Sheng Qiao

**ID: 10525 Effects of Colloidal Silica Grouting on the Dynamic Properties Of Sandy Soils**
Anastasios Batilas, Ioannis Pantazopoulos, George Athanasopoulos

**ID: 10591 Estimated Versus Measured Vs Profiles And Vs30 At A Pilot Site In The Lower Tagus Valley, Portugal**
Cristiana Ferreira, António Viana da Fonseca, Ana Sofia Saldanha, Catarina Ramos, Sara Amoroso, Luca Minarelli

**ID: 10622 Empirical Prediction Models for the Seismic Response of Pile Foundations**
Berna Unutmaz, Zeynep Gulerce, Abdullah Sandikkaya, N. Kartal Toker

**ID: 10637 Impact of the Soil Constitutive Model on the Seismic Soil Structure Response**
Marwan Sadek, Louay Khalil, Fadi Hage Chehade, Ahmed Arab

**ID: 10803 Seismic Performance of a Retaining Wall System Considering Liquefaction and Scour Potential**
Dimitra Tsiaousi, Alfredo Fernandez, Thaleia Travasarou, Jerko Kocijan

**ID: 10894 Numerical Investigation of Improving the Seismic Response of Retaining Structures by Using Lightweight Mixtures as Backfill Material**
Angelos Tsinaris, Anastasios Anastasiadis, Kyriazis Pitilakis

**ID: 11182 Improvement Schemes for Anchored Sheet-Pile Bulkheads Under Strong Shaking**
Evangelia Garini, George Gazetas, Panagiota Tasiopoulou, Anne Fagot, Cecile Prum

**ID: 11325 Large Scale Shake Table Model Test On Industrial Facilities In Coastal Reclaimed Area**
Hirotaka Itoh, Eiji Kohama, Haruki Nishi, Ryuji Terada, Yohsuke Kawamata, Takahiro Sugano, Kazuhiro Tsurugasaki, Junji Miyamoto

**ID: 11700 The Response of Unreinforced Highway Embankment Due to Underlying Reverse Fault Rupture**
Eleni Petala, Nikolaos Klimis, Emilios Comodromos

**ID: 11958 Numerical Evaluation of Undrained Seismic Limiting Pressure behind Soil Gaps in Contiguous Pile Walls**
Bharathi M., Dhiraj Raj, Ramanand Dubey

**ID: 12347 Low Pressure Grouting With Nanosilicates To Reduce The Liquefaction Susceptibility Of Sand**
Erminio Salvatore, Maria Cristina Mascolo, Davide Grassi, Diletta Traldi, Roberta Proia, Paolo Croce, Giuseppe Modoni

## We.PS03: Laboratory In-Situ Testing and Structural Health Monitoring of Structures

M1.2 Poster Foyer & Library

**ID: 10154 Experimental Behavior of Reinforcement Concrete Beam with Hybrid Bars**
Farzad Hatami, Homayoon Yousefdehi, Farshad Hatami

**ID: 10564 Monitoring-based Performance Parameters For Assessment Of Bridges Under Scour And Seismic Hazards**
Luke James Prendergast, Naida Ademovic, Maria Pina Limongelli, Ken Gavin, Mariano Angelo Zanini, Flora Faleschini

**ID: 10713 Seismic Performance of Timber-steel Hybrid Structural System via Shaking Table Test**
Qi Luo, Hanlin Dong, Zheng Li, Minjuan He

**ID: 11187 Identification of minaret mode shapes at old orthodox Christian Cathedral at Veroia town, Greece**
Vassilios Lekidis, Triantafylos Makarios, Christos Karakostas, Kostas Morfidis, Thomas Salonikios

**ID: 11378 Experimental "IN-SITU" Testing Of Historical Monument**
Aleksandra Bogdanovic, Zoran Rakicevic, Marta Stojmanovska, Dejan Filipovski

**ID: 11611 Performance of Rubberised Reinforced Concrete Members Under Cyclic Loading**
A.Y. Elghazouli, D.V. Bompa, B. Xu, A.M. RuizTeran, P.J. Stafford

ID: 11674 **A Novel Video-Based Displacement Measurement Approach Used In Shake Table Experiments**
Ferit Yardimci, Cem Yalçın, Ercan Yüksel

## We.PS04&12: Seismic Design and Analysis of Steel Structures

M1.2 Poster Foyer & Library

ID: 10100 **The Behaviour of Steel Structures to Earthquakes**
Andrei Balgiu, Pierre-Olivier Martin

ID: 10270 **Study on a New Type of Frictional Plastic Hinge**
Xiaodong Li, Qitai Wang

ID: 10460 **Effect of Plastic Hinge Length on Seismic Response of High Rise Steel Frames**
Mohamed Omar Mohamed Hussein, Shehata Eldabie Abdelraheem, Toshiro Hayashikawa

ID: 10527 **A Study on the Number of Columns Fixed in a Multispan Frame with Friction Dampar**
Daiki Hirata, Dong Yang, Minoru Yamanari

ID: 10528 **Development of Learning Support System Aimed at Design of Truss Beam in Steel Frame**
Yushi Matsuda, Hikaru Shirasaka, Minoru Yamanari

ID: 10718 **Evaluation of Seismic Demand of Columns and Beams in Two- Story X Special Concentrically Braced Frames**
Seyed Mehdi Dehghan, Majid Peymanimanesh, Mohammad Amir Najafgholipour

ID: 11311 **Inverted-V (Chevron) Concentrically Braced Frames – Comparative Study and Verification Analysis**
Jack English, Jamie Goggins, Suhaib Salawdeh

ID: 11603 **Studies on the Behavior of Steel Beam-to-Column Joints Realized by Using Laser Cutting Technology**
Andrea Piscini, Francesco Morelli, Alper Kanyilmaz, Carlo Andrea Catiglioni, Walter Salvatore

ID: 11716 **Three Dimensional Progressive Collapse Analysis of Steel Moment Resisting Frames with Different Ductility**
Hamidreza Khedmat, Behrouz Asgarian, Farshad HashemiRezvani

ID: 12272 **Investigating the P-Delta effects on the collapse capacity of adjacent structures**
Benyamin Mohebi, Farzin Kazemi, Mansoor Yakhchalian

ID: 10700 **Seismic Response and Collapse Behavior of Multi-story CFT Frame**
Katsuhiko Goto

## We.PS05&13: Soil-Foundation-Structure Interaction

M1.2 Poster Foyer & Library

ID: 10245 **Seismic Wall Stresses of Liquid Storage Tanks considering soil-structure interaction**
Diego Hernandez-Hernandez, Tam Larkin, Nawawi Chouw

ID: 10757 **Influence of Structure-Soil-interaction on Impedance Functions: Analysis, Quantification, Design Proposals**
Carole Pineau, Frédéric Barbier, Jean-Mathieu Rambach, Julien Clément, François Tarallo, Jean-Philippe Tardivel

ID: 11010 **Basic Characteristics of Dynamic interaction Between A Railway Viaduct and Adjacent Buildings on The Basis of FEM Analysis and Microtremor Observation**
Kazunori Wada, Yoshitaka Murono, Yudai Hochi, Meguru Onodera, Seiji Yamada

ID: 11158 **Evaluation of Local Nonlinear Effect around Pile Foundation on Seismic Response of Building during Very Large Earthquakes**
Hisatoshi Kashiwa, Hiroshi Arai, Hiroto Nakagawa

ID: 11476 **Response Spectrum Considering Soil-Structure Interaction For Buildings With Shallow Foundation**
Reine Fares, Maria Paola Santisi d'Avila, Anne Deschamps

ID: 11556 **Modal characterization of structure and soil-structure interaction using accelerometric data of the french permanent network (RAP-RESIF): application to a french Indies structure in Basse-Pointe, Martinique**
Julie Regnier, Anne Duchez, Nathalie Dufour, Philippe Gueguen

ID: 11712 **Influence of SSI on the Seismic Response of a Framed Structure with Geo-isolation layer**
J S Dhanya, A Boominathan, Banerjee Subhadeep

**ID: 11985 Caisson Foundations: Key Aspects And Procedure In 3D F.E.M. Modeling**
Michele Mucciacciaro, Nikos Gerolymos, Stefania Sica

**ID: 12182 Experimental & Numerical Simulation of Soil Boundary Conditions under Dynamic Effects**
Omar Shareef Qaftan, Laurence Weekes, Tahsin Toma Sabbagh, Levingshan Augusthus-Nelson

## We.PS06&14: Seismic Design and Analysis of Bridges

M1.2 Poster Foyer & Library

**ID: 10130 Elastic and Inelastic Seismic Design of an Irregular Bridge in Kashmir, India**
Simon Mathias Gren, Niko Karamichalis, John Elnegaard Hansen

**ID: 10338 Analysis Of Dynamic Bridge Response And The Effects Of Seasonal Freezing**
Anastasiia Plotnikova, Liam Wotherspoon, Sherif Beskhyroun

**ID: 10906 Pushover Analysis for Seismic Assessment of RC Nišava Bridge**
Mira Petronijevic, Miroslav Marjanovic, Dusan Milojevic

**ID: 11008 Evaluation of Pulse Models to Predict the Response of Isolated Bridges Subjected to Near-Fault Motions**
Afshin Kalantari, Hamid Zafarani, Reza Baghbani

**ID: 11746 Los Caras Bridge in Muisne Earthquake: Design, Testing and Performance of Large Displacement Seismic Joints**
Marcelo Romo, Jorge Gomez, Enrique Morales, Jerome O'Connor, Pedro Mosquera, Sissy Nikolaou, Guillermo Diaz-Fanas, Jorge Martinez, Cristian Romo, Adrian Jarrin

**ID: 11972 Robustness of Seismic Retrofit Isolation Strategy of Existing Multi-Span Simply Supported Bridges**
Luigi Petti, Angelo Mammone, Antonio Ansalone

**ID: 12160 Time-dependent Behavior of Balanced Cantilever Light-weight Concrete Bridges**
Alireza Rahai, Ali Abasi

**ID: 12225 Earthquake Resistance Design-Construction And Testing Of Two Models Of Timber Footbridges**
Thomas Athanasiou Tsigkos, Panayiotis Demosthenous, Milton Aristos Demosthenous

**ID: 12298 Development of The Criteria of Iranian Earthquake Code for Highway Bridges to Apply Near-Fault Effect**
Mohammad Ghasem Vetr, Nima Nick, Hooman Nick

**ID: 11303 Modeling and Seismic Response Analysis of the Fully Jointless Semi-integral Bridge**
Yongchun Mav

## We.PS07&15: Active and Passive Structural Control Systems

M1.2 Poster Foyer & Library

**ID: 10125 FE-Modelling of Dynamic Behavior of Seismic Elastomeric Isolators**
Edgar Navarrete, J. Luz Rivera, Alfredo Reyes-Salazar, Marco Torres, Eden Bojórquez

**ID: 10335 Accrual of Displacements for Sliding Isolators with Curved Surfaces**
Virginio Quaglini, Emanuele Gandelli, Paolo Dubini

**ID: 10507 Dynamic Characteristics of a Seismically Isolated Building on Soil with Inclined Bedrock using Ambient Vibration and Strong Motion Records**
Yoshinori Tobita, Masayuki Nagano, Haruyuki Kitamura, Toshiaki Sato, Kento Suzuki, Yoriyuki Matsuda, Toyohide Yamauchi, Hirotoshi Uebayashi

**ID: 10586 Analysis of the Outrigger System with Rotation Inertia Damper**
Ping Tan, Liangkun Liu, Haitao Ma

**ID: 10898 Optimally Located Wave Barriers for Reducing Horizontal Vibrations Induced by Earthquake**
Amir Rezaie, Reza Rafiee-Dehkharghani, Kiarash M. Dolatshahi, Seyed Rasoul Mirghaderi

**ID: 10951 Shear Modelling of Beam-Column Joints for the Nonlinear Seismic Analysis of R.C. Framed Structures Retrofitted with Damped Braces**
Fabio Mazza

ID: 11361 **Optimizing the Dynamic Performance of Friction Pendulum Isolators in Liquid Fuels Tanks**
Alexandros Tsipianitis, Yiannis Tsompanakis

ID: 11681 **Linked Columns With Rotational Friction Dampers As A Technique For Passive Seismic Protection Of Existing Steel Structures**
Georgi Bonchev Georgiev, Borislav Tzvetkov Belev, Imad Mualla

ID: 11970 **Constant Ductility Inelastic Spectra For Structures Equipped With Viscous Dampers**
Ioannis E. Kavvadias, Kosmas Bantilas, Lazaros K. Vasiliadis

ID: 11080 **A Comparative Study on the Performance of Semi-active and Passive Control Systems for Multi-span Bridges**
Neethu B, Diptesh Das

## We.PS08&16: Seismic Retrofit and Strengthening of Structures — M1.2 Poster Foyer & Library

ID: 10287 **Seismic Retrofit of Bridges for Earthquake Resilient Society**
Mehmed Causevic, Mladen Bulic

ID: 10326 **Retrofitted One-Bay Single-Story R/C Frame With Encased R/C Panel Under Seismic-Type Loading**
George Manos, Vasileios Soulis, Konstantinos Katakalos, George Koidis, Marios Theofanous

ID: 10519 **Impacts of Damage to Hospitals on Performance after in the 2016 Kumamoto Earthquake in Japan**
Ryosuke Noguchi, Masakatsu Miyajima

ID: 10966 **The Seismic Behaviour of a Pre-Cast R/C Industrial Complex Sub-Jected to the 1999 Athens-Greece Earthquake**
Dimitris Mpoufidis, George Manos, Thomas Zafiriou

ID: 11002 **Analytical Study of Masonry-Infilled RC Frames Retrofitted with ECC**
Fariborz Nateghi-A, Mohammad Hossein Ahmadi, Ayoub Dehghani

ID: 11117 **Numerical Model of Biaxially Loaded Reinforced Concrete Strengthened with Fiber Reinforced Polymers**
Vladimir Vasil Vitanov

ID: 11889 **Numerical Study of The Strengthening Techniques of Prefabricated R/C Aqueduct**
Vassilios Soulis, Randa Hattab, Kostas Katakalos

ID: 11968 **Observed Behavior of Rectangular RC Columns Confined with CFRP Jackets and Anchors**
José Luis Jiménez Ulloa, Hernán Santa María

ID: 12188 **The Use Carbon Fiber and Carbon Mesh To increase the Seismic Resistance of Masonry Buildings**
Arcadiy Granovsky

## We.PS11: Seismic Design and Analysis of Masonry Buildings — M1.2 Poster Foyer & Library

ID: 10347 **Probabilistic seismic assessment of a high-rise URM building**
Jorge Arturo Avila-Haro, José Ramón González-Drigo, Lluis Pujades, Alex Barbat

ID: 10354 **Seismic Vulnerability of Existing Masonry Structures, Project SeismoWall**
Elena Dumova-Jovanoska, Grozde Aleksovski, Liljana Denkovska, Sergey Churilov, Kristina Milkova, Simona Bogoevska, Stefan Micevski

ID: 10382 **Timber, Tin And Masonry: Early Lessons In Seismic Risk Mitigation In Whanganui, New Zealand**
Stacy Ann Vallis, Jason Ingham

ID: 10412 **Seismic Vulnerability Assessment Methodology for Vernacular Architecture**
Javier Ortega, Graça Vasconcelos, Hugo Rodrigues, Mariana Correia

ID: 10565 **Nonlinear seismic soil-structure interaction analysis of masonry buildings - Part II: Substructure**
Negin Yousefpour, Marc Tatarsky, Pablo Vega-behar, Eden Almog, Greg Congdon, Emre Toprak

ID: 10810 **Dynamic Time History Analysis of Stone Arch**
Ambareesh Kumar, Kumar Pallav

**ID: 12248 An Original Discrete Macro-Element Method For The Analysis Of Historical Stuctures**
Salvatore Caddemi, Ivo Caliò, Francesco Cannizzaro, Cesar Chàcara, Domenico D'Urso, Sandro Liseni, Paulo B. Lourenço, Giuseppe Occhipinti, Bartolomeo Pantò, Davide Rapicavoli

| 17:30-19:30 | SPECIAL SESSIONS* |
|---|---|

**Special Session 03: Development of the 2nd generation Eurocode 8** — M1.1 Friends of Music Hall
(organized by P. Bisch, A. Correia)

17:30 – 17:55 **ID: 11952 Outlines of the revision of the Eurocode 8, Part 1, generic sections**
Pierre Bernard Labbe

17:55 – 18:15 **ID: 10921 The evolution of Eurocode 8 – Part 3: Main challenges and key changes**
Andreas J. Kappos

18:15 – 18:30 **ID: 10741 Key Aspects in the Revision of Material Dependent Sections of Eurocode 8**
Andre Rene Plumier

18:30 – 18:45 **ID: 11863 Key aspects in the revision of the geotechnical part of Eurocode 8**
Alain Pecker

18:45 – 18:55 **ID: 12184 A General Model of Resistance Partial Factors for Seismic Assessment and Retrofit.**
Paolo Franchin, Tommaso Pagnoni

18:55 – 19:05 **ID: 11587 Site Classification Derived From Spectral Clustering of Empirical Site Amplification Functions**
Sreeram Reddy Kotha, Fabrice Cotton, Dino Bindi

**Special Session 08: New technologies for seismic-resistant bridge columns** — M2.1 Aimilios Riadis
(organized by K. Mackie, A. Kappos)

17:30 – 17:42 **ID: 10156 Shake Table Studies of Seismic Performance of a Segmental Bridge Pier**
M. Saiid Saiidi, Fatemeh Kavianipou

17:42 – 17:54 **ID: 10762 Seismic Response of Bridge Columns with High-Performance Materials**
Farshid Hosseini, Bora Gencturk

17:54 – 18:06 **ID: 10891 KDamper with Inverted Pendulum for Seismic Effects Mitigation on Bridge Structures**
Panagiota Syrimi, Evangelos Sapountzakis, Ioannis Antoniadis

18:06 – 18:18 **ID: 11037 Design and Testing of a Low Damage Post-Tensioned Multi-Joint Rocking Pier**
Royce Liu, Alessandro Palermo

18:18 – 18:30 **ID: 12009 Substructure Connection in High Seismic Zones Utilizing Ultra-High Performance Concrete**
Titchenda Chan, Kevin R. Mackie

18:30 – 18:42 **ID: 12040 Seismic Capacity And Limit State Definition In Fragility Analysis Of Retrofitted Bridge Piers**
Sotiria Stefanidou, Andreas Kappos

18:42 – 18:51 **ID: 12043 Hybrid Bridge Bent For Accelerated Bridge Construction Using Post-tensioned Columns And BRB**
Anurag Upadhyay, Chris Pantelis Pantelides

18:51 – 19:00 **ID: 12044 Experimental And Analytical Study Of Seismically Repaired RC Bridge Column-To-Cap Beam Connections**
Chris Pantelis Pantelides, Ruoyang Wu

19:00 – 19:12 **ID: 12054 A Proposal for Improving Regularity of Bridges with the Rocking Response of Precast Piers**
Olga Markogiannaki, Ioannis Tegos

19:12 – 19:24 **ID: 12068 Numerical analysis of innovatively strengthened rectangular RC columns with deficient lateral reinforcement**
Andrej Anžlin, Tatjana Isaković

**Poster presentations included in Special sessions are presented during the Poster session taking place on the same day, at the Poster Foyer and Library*

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|---|---|---|
| | ID: 11787 Poster Presentation \| **Repair and Seismic strengthening of RC structural elements by UHPFRC concretes**<br>Davide Lavorato, Alessandro Bergami, Camillo Nuti, Bruno Briseghella, Junqing Xue, Angelo Tarantino, Giuseppe Marano, Silvia Santini | |
| | ID: 11815 Poster Presentation \| **Seismic Retrofit of a Reinforced Concrete Bridge Using Bucklink Restrained Braces**<br>Yuandong Wang, Luis Francisco Ibarra, Chris Pantelides | |
| **Special Session 19: New trends on evaluation and retrofitting of infilled frames under seismic demands**<br>(Organized by E. Vintzileou, F. Da Porto, H. Varum, P. Ricci) | | **M2.3**<br>**Maurice Saltiel A** |
| 17:30<br>17:37 | ID: 11123 **Experimental Study on RC frames with masonry infill considering parameters influencing its backbone curve**<br>Hamood Al-Washali, Yuta Torihata, Kiwoong Jin, Masaki Maeda | |
| 17:37<br>17:43 | ID: 11286 **Shaking-table dynamic test on a two-storey RC framed structure with innovative infills with sliding joints**<br>Carlo Filippo Manzini, Paolo Morandi, Riccardo Raimondo Milanesi, Guido Magenes | |
| 17:43<br>17:49 | ID: 11290 **Out-of-plane Shaking-table tests of an Innovative Masonry Infill with Sliding Joints**<br>Paolo Morandi, Riccardo Raimondo Milanesi, Carlo Filippo Manzini, Guido Magenes | |
| 17:49<br>17:56 | ID: 11812 **Experimental Investigation of the In-Plane Performance of Infilled RC Frames with Horizontal Sliding Subpanels**<br>Xuan Gao, Andreas Stavridis | |
| 17:56<br>18:03 | ID: 11859 **Using Textile Reinforced Mortar (TRM) Technique for Strengthening of Infilled Frames**<br>Farhad Akhoundi | |
| 18:03<br>18:10 | ID: 12014 **Use of Textile-Reinforced Mortar Jackets to Improve the Out-of-plane Performance of Masonry Infill Walls**<br>Lampros Koutas, Dionysios Bournas | |
| 18:10<br>18:17 | ID: 12141 **Experimental Investigation On The Out-Of-Plane Behaviour Of Masonry Infill Walls**<br>Paolo Ricci, Mariano Di Domenico, Gerardo Mario Verderame | |
| 18:17<br>18:24 | ID: 12329 **In-Plane and Out-of-Plane Response of the currently constructed Masonry Infills**<br>Vasiliki Palieraki, Christos Zeris, Elizabeth Vintzileou, Chrissy-Elpida Adami | |
| 18:24<br>18:31 | ID: 11133 **Effects of the irregular distribution in elevation of masonry infills in RC buildings**<br>Andrea Rossi, Paolo Morandi, Luca Albanesi, Guido Magenes | |
| 18:31<br>18:38 | ID: 11374 **Local effects due to AAC masonry infill - RC frame interaction through simulation of in-plane tests with FEM analyses**<br>Riccardo R. Milanesi, Paolo Morandi, Guido Magenes | |
| 18:38<br>18:45 | ID: 12174 **Mechanical Interpretation of Infills-to-Frame Interaction: Contributions to the Global Base Shear for Strut-Based Models**<br>Roberto Gentile, Giuseppina Uva, Stefano Pampanin | |
| 18:45<br>18:52 | ID: 12129 **Testing Analytical Models for Assessing the Out-of-Plane Capacity of Infill Masonry Walls**<br>André Furtado, Mariano Di Domenico, Paolo Ricci, Hugo Rodrigues, Maria Teresa De Risi, António Arêde, Gerardo M. Verderame, Humberto Varum | |
| 18:52<br>18:59 | ID: 10901 **Structural Performance Levels for Masonry Infilled Frames**<br>Tanja Kalman Šipoš, Marijana Hadzima-Nyarko, Ivana Miličević, Marin Grubišić | |
| 18:59<br>19:06 | ID: 12065 **Influence Of Masonry Steel Reinforcement On The In-Plane Behavior Of Infilled RC Frames**<br>Anastasios Drougkas, Chrissi Elpida Adami, Elizabeth Vintzileou, Vasiliki Palieraki | |

ID: 10933 Poster Presentation | **Simplified modelling of in-plane behaviour of masonry infilled RC frames under seismic loading: advantages and barriers**
Hossameldeen Mohamed, Xavier Romao

ID: 10952 Poster Presentation | **Seismic Fragility Analysis of RC Frames with Masonry Infills**
Hossameldeen Mohamed, Xavier Romão

ID: 11085 Poster Presentation | **Masonry-Infilled R/C Frame Behaviour Under Horizontal SeismicType Loads - Measurements and Numerical Predictions**
Vassilios Soulis, George Manos

ID: 12057 Poster Presentation | **Influence Of Masonry Infills On Dynamic Behaviour Of Reinforced Concrete Framed Structures**
Emilio Schiavo, Luca Martinelli, Claudio Chesi

ID: 12059 Poster Presentation | **Numerical Evaluation Of Masonry Infill Walls Behaviour Under Out-Of-Plane Loads**
Monica Pasca, Laura Liberatore, Claudia Marson, Omar AlShawa, Luigi Sorrentino

ID: 12117 Poster Presentation | **In-Plane Behaviour And Damage Assessment Of Masonry Infills With Hollow Clay Bricks In RC Structures**
Maria Teresa De Risi, Carlo Del Gaudio, Paolo Ricci, Gerardo Mario Verderame, Gaetano Manfredi

## Special Session 07: Residual risk in earthquakes: are current protection levels appropriate?

(organized by F. Wenzel, M. Koller)

**M2.4 Maurice Saltiel B**

17:30 – 17:40 ID: 10767 **The top 100 fatal earthquakes: Examining fatality risk reduction globally with respect to seismic code implementation**
James Edward Daniell, Antonios Pomonis, Hing-Ho Tsang, Friedemann Wenzel, Rashmin Gunasekera, Andreas Maximilian Schaefer

17:40 – 17:50 ID: 10863 **Is the residual risk related to the Swiss seismic code provisions acceptable?**
Blaise Duvernay, Ehfried Kölz, Navid Jamali, Clotaire Michel

17:50 – 18:00 ID: 11138 **Seismic Design Code Calibration Based on Individual and Societal Risk**
Helen Crowley, Vitor Silva, Luis Martins

18:00 – 18:10 ID: 10747 **Seismic Performance Requirements Based On Individual And Societal Fatality Risk**
Hing-Ho Tsang, James E. Daniell, Friedemann Wenzel

18:10 – 18:20 ID: 11017 **Residual Risk and the Earthquake Insurance Protection Gap**
Oliver Kuebler, Simona Esposito, Lucia Bevere

## Special Session 12: Dynamics and seismic response of rocking and self-centering structures

(organized by M. DeJong, E. Dimitrakopoulos, M. Fragiadakis, M. Vassiliou)

**M2.5 Maurice Saltiel C**

17:30 – 17:45 ID: 10140 **Seismic Response of Yielding Frames Coupled with Restrained Rocking Walls**
Mehrdad Aghagholizadeh, Nicos Makris

17:45 – 18:00 ID: 11699 **Soil Effects on the Response of Free-Standing Dry Storage Casks**
Sharad Dangol, Luis Francisco Ibarra, Steven Bartlett, Chris Pantelides, David Sanders

18:00 – 18:15 ID: 12050 **A Material Point Method for Studying Rocking Systems**
Emmanouil Kakouris, Manolis Chatzis, Savvas Triantafyllou

18:15 – 18:30 ID: 12342 **Re-centering Response of Low-yielding Base Plate Joints With Friction Dampers**
Massimo Latour, Gianvittorio Rizzano, Aldina Santiago, Luis Simoes Da Silva

18:30 – 18:45 ID: 12173 **Numerical and Experimental investigation on low damage steel-timber post-tensioned beam-column connection**
Murilo Jose Mancini, Stefano Pampanin

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| 18:45<br>19:00 | ID: 11139 **Experimental Identification Of Frequency Content for a Rocking Structure On Dense Sand**<br>Iason Pelekis, Gopal S. P. Madabhushi, Matthew J. DeJong |
| 19:00<br>19:15 | ID: 10927 **Full-Scale Shake Table Test of A Two-Story Mass-Timber Building With Resilient Rocking Walls**<br>Shiling Pei, John van de Lindt, Andre Barbosa, Jeffrey Berman, Hans-Erik Blomgren, James Dolan, Eric McDonnell, Reid Zimmerman, Douglas Rammer, Massimo Fragiacomo |
| 19:15<br>19:30 | ID: 11910 **Simulating The Rocking Response Of Rigid Bodies Using General-Purpose Finite Element Software**<br>Ioannis Thomaidis, Alfredo Camara, Andreas Kappos |
| | ID: 10708 Poster Presentation \| **Seismic Evaluation of Steel Moment Frame-Rigid Rocking Walls with a View to Collapse Prevention, Self-Alignment and Reparability**<br>Mahya S.Moghadasi, Mark Grigorian, Abdolreza S. Moghadam, Mohamad Hossein Ahmadi, Zeynab Moradi |
| | ID: 11030 Poster Presentation \| **Comparison between Seismic Responses and Free Vibrations of a Uniform Shear-beam Allowed to Uplift**<br>Tadashi Ishihara, Tatsuya Azuhata, Hisatoshi Kashiwa, Mitsumasa Midorikawa |
| | ID: 11531 Poster Presentation \| **Design of Rocking columns and arches subjected to earthquake excitation**<br>Tamas Ther, Laszlo P. Kollar |
| | ID: 11941 Poster Presentation \| **Rocking of a Masonry Wall: Analysis and Experiment**<br>Enrico Cappelli, Angelo Di Egidio, Fabrizio Vestroni |
| | ID: 12012 Poster Presentation \| **Seismic Analysis Of Free Standing Museum Contents**<br>Ioannis E. Kavvadias, Lazaros K. Vasiliadis, Anaxagoras Elenas, Konstantinos Koutsoupakis |
| | ID: 12016 Poster Presentation \| **Structure-Specific Intensity Measures Calculated By The Rocking Spectra**<br>Ioannis E. Kavvadias, Lazaros Vasiliadis, Anaxagoras Elenas |
| | ID: 12067 Poster Presentation \| **Rocking Motion: Chaos and Seismic Design**<br>Jonas A Bachmann, Mathias Strand, Michalis F Vassiliou, Marco Broccardo, Bozidar Stojadinovic |
| | ID: 12157 Poster Presentation \| **In Quest of Optimal Intensity Measures of Rocking Behavior**<br>Anastasios I. Giouvanidis, Elias G. Dimitrakopoulos |
| | ID: 10947 Poster Presentation \| **Numerical Investigation on the Non-linear Dynamic Response of Self-Centring Rocking Steel Frames**<br>Leena Kibriya, Christian Málaga-Chuquitaype, Mohammad Mehdi Kashani, Nicholas A. Alexander |

**Special Session 23: Software for loss estimation: developments and applications** — M2.6 Museum Hall
(organized by N. Makhoul, S. Argyroudis, M.P. Limongelli, J. Lee)

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| 17:30<br>17:38 | ID: 12115 **The Interdependent Networked Community Resilience Modeling Environment (IN-CORE)**<br>Paolo Gardoni, John W van de Lindt, Bruce R Ellingwood, Jong Sung Lee, Harvey Cutler, Walt Peacock, Dan Cox |
| 17:38<br>17:43 | ID: 12045 **Ergo: Open Source Platform for Multi-Hazard Assessment, Response and Planning**<br>Jong Sung Lee, Christopher Navarro, Nathan Tolbert |
| 17:43<br>17:48 | ID: 12189 **Development of a Risk Assessment for Korean High-rise Mixed-use Buildings**<br>Dongjun Suh, Jong Sung Lee, Suseong Chai, Sumi Shin, Christopher Navarro, Yong Baek |
| 17:48<br>17:53 | ID: 11845 **Next Generation CAPRA Software**<br>Gabriel Bernal, Omar Dario Cardona |
| 17:53<br>17:58 | ID: 12062 **After 10 years of CAPRA**<br>Eduardo Reinoso, Mario Ordaz, Omar Dario Cardona, Gabriel Bernal, Marcial Contreras |
| 17:58<br>18:06 | ID: 10959 **Assessment of Urban Disaster Resilience by Spatiotemporal Analysis of Demand and Supply**<br>Eujeong Choi, Max Didier, Junho Song, Bozidar Stojadinovic |
| 18:06<br>18:14 | ID: 11723 **EaRL – Toolbox for Earthquake Risk and Loss Assessment of Building Assets**<br>Ahmed Elkady, Seong-Hoon Hwang, Dimitrios G. Lignos |

18:14 18:22 **ID: 11499 A Mobile Application for Multi-Hazard Physical Vulnerability Prioritization of Schools**
Arash Nassirpour, Carmine Galasso, Dina D'Ayala

18:22 18:30 **ID: 12041 Degradation and Scenario Development in the 4th Dimension**
Helmut Wenzel, Moritz Wenzel

18:30 18:38 **ID: 12007 Middle East and North Africa earthquake catastrophe model**
Matthias Schmid, Crescenzo Petrone, Shubham Jaiswal

18:38 18:46 **ID: 10758 The near real-time system for estimating the Seismic Damage in Romania (SeisDaRo) - recent upgrades and results**
Dragos Toma-Danila, Carmen Ortanza Cioflan, Constantin Ionescu, Alexandru Tiganescu

18:48 18:54 **ID: 12146 Fostering the Resilience of Heritage Buildings in New Zealand: Potentialities of Decision Support Systems**
Sonia Giovinazzi, Shannon Abeling, Francisco Galvez, Stacy Vallis, Tatiana Goded, Nick Horspool, Elena Calandra, Jason Ingham

18:54 19:02 **ID: 11978 Bridge Functionality in Istanbul after a Potential Earthquake**
Himmet Karaman, Betül Ergün Konukcu

19:02 19:10 **ID: 11991 Loss Estimation Software: Developments, Limitations and Future Needs**
Nisrine Makhoul, Sotiris Argyroudis

**Special Session 09: Seismic isolation and energy dissipation in civil structures** (organized by P. Clemente, G. Benzoni) — **M2.7 Library Hall**

17:30 17:40 **ID: 11240 Thermal-Mechanical Coupled Behavior of Elastomeric Isolation Bearings Under Cyclic Loading**
Masaru Kikuchi, Ken Ishii

17:40 17:50 **ID: 11287 Performance Based Optimal Seismic Retrofitting of Yielding Frame Structures with Nonlinear Fluid Viscous Dampers**
Nicolo' Pollini, Oren Lavan, Oded Amir

17:50 18:00 **ID: 11364 Experimental study on seismically isolated structures: Can the isolated superstructure yield?**
Anastasios Tsiavos, David Schlatter, Bozidar Stojadinovic

18:00 18:10 **ID: 11397 Probable Maximum Loss (PML) Study for a Seismically Isolated Hospital Complex in Turkey**
Cuneyt Tuzun, Bahadir Sadan, Mustafa Erdik

18:10 18:20 **ID: 11715 Shake Table Testing of An Energy Dissipating System Applied to Braced Steel Frames**
Mehrtash Motamedi, Carlos Ventura

18:20 18:30 **ID: 12095 The use of experimental results in Seismic Isolation design**
Arsen Adzhemyan, Gianmario Benzoni, Giuseppe Lomiento

18:30 18:40 **ID: 12118 Introduction of systems of seismic isolation in practice of construction production in Russia**
Lyubov Smirnova, Alexander Bubis

18:40 18:50 **ID: 10717 Low-Cost Seismic Isolator For Low-Rise Buildings: Experimental Tests**
Ingrid Elizabeth Madera Sierra, Daniele Losanno, Mariacristina Spizzuoco, Johannio Marulanda, Peter Thomson

18:50 19:00 **ID: 10733 Influence of the Seismic Incidence Angle on the Peak Response of Base–Isolated Buildings: 3D Investigation of Pounding**
Eftychia A. Mavronicola, Panayiotis C. Polycarpou, Petros Komodromos

19:00 19:10 **ID: 10797 Shaking Table Tests On An Isolated Legged Wine Storage Tank: A Novel Device For Seismic Isolation**
Jose Ignacio Colombo, Jose Luis Almazan

19:10 19:20 **ID: 10845 Dissipating Device for Seismic Protection of Masonry Structures**
Victor Melatti, Dina D'Ayala

19:20 19:30 **ID: 10988 Seismic Peformance Of Bridges Isolated By Fps**
Paolo Castaldo, Rosa Lo Priore

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| | ID: 10376 Poster Presentation \| **Seismic behaviour of base isolated buildings in Italy**<br>Giovanni Bongiovanni, Giacomo Buffarini, Paolo Clemente, Fernando Saitta, Federico Scafati |
| | ID: 11218 Poster Presentation \| **Comparative Evaluation of Trilinear Isolation Systems for the Same Performance Objectives**<br>Cem Yenidogan, Mustafa Erdik, Lindsay Jones |
| | ID: 11431 Poster Presentation \| **Application of Polynomial Analytical Model for Rubber Bearings in Shaking Table Test Simulation**<br>Igor Gjorgjiev, Borjan Petreski |
| | ID: 11751 Poster Presentation \| **Influence of Rocking on the Seismic Response of High Rise Buildings Resting on Sliding Bearings**<br>Andreas Zervas, Nikolaos Skretas, Anna Ikonomou, Petros Marathias |
| | ID: 12169 Poster Presentation \| **Seismic Base Isolation: Retrofitting Application In Structures Damaged By Earthquake**<br>Antonello Salvatori |
| | ID: 11011 Poster Presentation \| **Analyses on the Seismic Retrofitting with Rubber Bearing Isolation for an RC Frame Structural Office Building**<br>Chenglin FAN, Junwu DAI, Yongqiang Yang |
| | ID: 11323 Poster Presentation \| **Prototype of Low Cost Seismic Isolator using Recycled Tires Sheets**<br>Roy Reyna, Andre Munoz, Carlos Zavala, Miguel Diaz |
| | ID: 12124 Poster Presentation \| **Resent Development of Base isolation and Damping technologies in Russia**<br>Aleksandr Bubis, Lyubov Smirnova, Ivan Vedyakov |
| | ID: 10749 Poster Presentation \| **Seismic Isolation of an Old R.C. Hospital Building in Bucharest, Romania**<br>Ion Vlad, Gabriella Castellano, Florin Macinic, Alberto Candeo |
| | ID: 11682 Poster Presentation \| **An Analysis of the Dynamics of Seismically Isolated Structures taking into account the Rotational Components of Seismic Effects**<br>Enrique Simbort, Yuri Rutman |
| **Special Session 15: Earthquake repair/retrofit costs**<br>(organized by M. Di Ludovico, C. Del Vecchio) | **M2.8 CR1** |
| 17:30<br>17:50 | Guest Lecture **Post-earthquake reconstruction cost data: Collection, analysis and applications**<br>Andrea Prota |
| 17:50<br>18:00 | ID: 12051 **Actual Repair Costs of RC Building Components Damaged by the L'Aquila Earthquake (2009)**<br>Ciro Del Vecchio, Marco Di Ludovico, Andrea Prota, Edoardo Cosenza |
| 18:00<br>18:10 | ID: 11202 **Exploring Different Damage Definitions on the Empirical Building Vulnerability**<br>Annalisa Rosti, Maria Rota, Andrea Penna |
| 18:10<br>18:20 | ID: 11520 **Evaluation of Seismic Reparability Limit State of R/C Frame Structure Frame Structure**<br>Masaki Maeda, Sayaka Igarashi |
| 18:20<br>18:30 | ID: 10852 **Development of Resilient Reinforced Concrete Building Structural System**<br>Susumu Kono, Ryo Kuwabara, Fuhito Kitamura, Eko Yuniarsyah, Hidekazu Watanabe, Tomohisa Mukai, David Mukai |
| 18:30<br>18:40 | ID: 11555 **Increasing Seismic Resilience of Philippines' School Infrastructure through Structural Retrofitting**<br>Arash Nassirpour, Carmine Galasso, Dina D'Ayala |
| 18:40<br>18:50 | ID: 12144 **Economic-Temporal-Environmental Post-Earthquake Scenarios for RC-MRF existing Buildings**<br>Monica Mastroberti, Marco Vona, Dionysios Bournas, Helena Gervasio |

**20:30 Gala Dinner (Nautical Club of Thessaloniki)**

# THURSDAY **21.06.2018**

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| 09:00<br>09:45 | **Th.KL01: Keynote Lecture \| Sergio Lagomarsino**<br>Session Chair: Dina D'Ayala<br><br>**ID: 12316 Seismic Assessment of Existing Irregular Masonry Buildings by Nonlinear Static and Dynamic Analyses**<br>Sergio Lagomarsino, Daniela Camilletti, Serena Cattari, Salvatore Marino | **M1.1**<br>**Friends of Music Hall** |

**09:45-10:05 Coffee Break**

## 10:05-10:35 THEME LECTURES

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| **Th.TL01: Theme Lecture \| Božidar Stojadinovic**<br>Session Chair: Martin Georg Koller<br><br>**ID: 12356 Resilience-based Design of Communities**<br>Božidar Stojadinovic | **M1.1**<br>**Friends of Music Hall** |
| **Th.TL02: Theme Lecture \| Elizabeth Vintzileou**<br>Session Chair: Humberto Varum<br><br>**ID: 12288 Unreinforced masonry walls subjected to in-plane shear: From Tests to Codes and vice versa**<br>Elizabeth Vintzileou | **M2.1**<br>**Aimilios Riadis** |
| **Th.TL03: Theme Lecture \| Nicos Makris**<br>Session Chair: Elias G Dimitrakopoulos<br><br>**ID: 12249 The Dynamics of Rocking Isolation**<br>Nicos Makris | **M2.4**<br>**Maurice Saltiel B** |
| **Th.TL04: Theme Lecture \| Stefano Parolai**<br>Session Chair: Radu Vacareanu<br><br>**ID: 12218 Bridging The Gap Between Seismology And Engineering: Towards Real-time Damage Assessment**<br>Stefano Parolai, Michael Haas, Massimiliano Pittore, Kevin Fleming | **M2.6**<br>**Museum Hall** |

## 10:45-13:00 CONCURRENT ORAL SESSIONS

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| | **Th.OS01: Eurocode 8 and Seismic Design Codes**<br>Session Chairs: Pierre Bernard Labbe, Andreas J. Kappos, Evi Riga | **M1.1**<br>**Friends of Music Hall** |
| 10:45<br>10:55 | **ID: 11435 State of Eurocode 8 Implementation in the European Union**<br>Adamantia Athanasopoulou, Silvia Dimova, Manfred Fuchs, Maria Luisa Sousa, Artur Pinto, Borislava Nikolova, Sonia Iannaccone | |
| 10:55<br>11:05 | **ID: 11081 The Relationship Between Eurocode's Behaviour Factor And The Risk-Targeted Safety Factor**<br>Jure Zizmond, Nusa Lazar Sinkovic, Matjaz Dolsek | |
| 11:05<br>11:15 | **ID: 11396 Site Classification and Spectral Amplification for site classes B and C of EC8**<br>Stergios Befas, Anastasios Anastasiadis | |
| 11:15<br>11:25 | **ID: 10580 Assessment of Seismic Rooftop Acceleration Demands In High-Rise Buildings**<br>Rola Assi, Ahmad Abo-El-Ezz, Tania Zand Miralvand | |
| 11:25<br>11:35 | **ID: 11848 Earthquake Ground Motion and Seismic Design Spectra: Statistical Analysis of the Spectral Shape Parameters**<br>Laurentiu Danciu, Donat Fäh | |

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| 11:35<br>11:45 | **ID: 10563 Development and Revision of the European Standard EN 15129 on Anti-Seismic Devices**<br>Renzo Medeot, Tobia Zordan |
| 11:45<br>11:55 | **ID: 10593 Deformation Capacity Models of Flexure-Controlled RC Members Under Cyclic Lateral Loading**<br>Sofia Grammatikou, Dionysis Biskinis, Michael Fardis |
| 11:55<br>12:05 | **ID: 11209 Size Effect on the Rotational Capacity of RC Elements: A Step Towards Eurocode 8 Improvements**<br>Abdelhafid Nouali, Mohammed Matallah |
| 12:05<br>12:15 | **ID: 10208 A Comment On Nonlinear Time History Analysis Regulations of Seismic Code Of New Zealand Applicable In EUROCODE 8 And Many Other Seismic codes**<br>Aram Soroushian, Saeed Amiri |
| 12:15<br>12:25 | **ID: 11354 SEISMOCODE: A Digital Platform in Support to the Assimilation of the New European Harmonized Seismic Code of Romania**<br>Radu Pascu, Iolanda-Gabriela Craifaleanu, Ovidiu Anicai, Livia Stefan, Viorel Popa, Vasile-Virgil Oprisoreanu, Ionut Damian, Andrei Papurcu, Cristian Rusanu |
| 12:25<br>12:35 | **ID: 10228 Estimation of optimum design coefficients from probabilistic seismic hazard analyses. Application to Mexico and Colombia**<br>Mario Ordaz, Mario Andres Salgado Galvez, Luis Eduardo Pérez Rocha, Omar Dario Cardona, Ulises Mena Hernández |
| 12:35<br>12:45 | **ID: 11074 EN1998-5 Pseudo-Static Analysis of Earth Retaining Structures – Current Limitations and Alternatives**<br>Gustavo Pereira, Pierre de Lavernée, Pierre Schmitt |
| 12:45<br>12:55 | **ID: 11762 Ductility Reduction of Rectangular R/C Members due to Biaxial Bending**<br>Emmanouil A. Vougioukas, Athanassios A. Stamos |

**Th.OS02: Seismic Design and Analysis of Special Structures (I)** — **M2.1 Aimilios Riadis**
Session Chairs: Jochen Schwarz, Hong-Ru Zhang, Grigorios Elias Manoukas

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| 10:45<br>10:55 | **ID: 11338 Seismic Design Considerations For Industrial Structures**<br>Michael Angelides |
| 10:55<br>11:05 | **ID: 10282 Structural Verification of the new PPC Boiler house in Ptolemaida V**<br>Gregory Penelis, Elias Paraskevopoulos, Sotiria Stefanidou, Konstantinos Paschalidis |
| 11:05<br>11:15 | **ID: 10536 Study of the Behaviour of Headed Stud Connectors in Composite Wall Systems for Seismic Applications**<br>Tzanetis Vogiatzis, Aris Avdelas |
| 11:15<br>11:25 | **ID: 12006 Seismic Performance of Dry Wall Joints Used for Unbonded Post-Tensioned Precast Shear Walls**<br>Bulent Erkmen, Burak Talha Kilic |
| 11:25<br>11:35 | **ID: 11099 Estimation of Design Base Shear in Concrete Wall Air Traffic Control Towers**<br>Mohammadreza Vafaei, Sophia C Alih, Amirali Moradi, Gholamreza Soltanzadeh |
| 11:35<br>11:45 | **ID: 10730 Investigation on Seismic Behavior of Concrete Filled Double-Steel-Plate (CFDSP) Shear Wall**<br>Alireza Rahai, Ghazaleh Eslami |
| 11:45<br>11:55 | **ID: 12277 Research on Seismic Acceleration Responses of High-rise Intake tower-hoist chamber System**<br>Hanyun Zhang |
| 11:55<br>12:05 | **ID: 10439 Response of High-Rise Buildings to Translational and Rocking Components of Motion Associated with Surface Waves**<br>Kristel Carolina Meza Fajardo, Apostolos Papageorgiou |
| 12:05<br>12:15 | **ID: 10171 Quantifying the Effect of Beating Inferred from Recorded Responses of Tall Buildings**<br>Mehmet Celebi |
| 12:15<br>12:25 | **ID: 11837 Numerical Modeling of Seismic Performance of Light-frame Wood Building**<br>Marisa Mulder, Armin Bebam Zadeh, Carlos Ventura, Mike Fairhurst |

12:25 12:35 **ID: 10358 Effect of Moored Vessels on the Nonlinear Dynamic Response of Marginal Wharves**
J. Nicolás Villamizar-Gonzalez, J. Paul Smith-Pardo, Juan C. Reyes, Carlos A Alvarez-Henao

12:35 12:45 **ID: 10307 Seismic Behavior of Wharves Built on Vertical Prestressed Concrete Spun Piles**
Nguyen Van Duyet

## Th.OS03: Seismic Design and Analysis of Masonry Buildings (II)

M2.3
Maurice Saltiel A

Session Chairs: Georgia E. Thermou, Serena Cattari, Filomena de Silva

10:45 10:55 **ID: 11907 Use of nonlinear static procedures for irregular URM buildings in literature and codes**
Salvatore Marino, Serena Cattari, Sergio Lagomarsino

10:55 11:05 **ID: 12029 FE and DE Modelling of Out-of-plane Two Way Bending Behaviour of Unreinforced Masonry Walls**
Francisco Galvez, Stefano Segatta, Marta Giaretton, Kevin Walsh, Ivan Giongo, Dmytro Dizhur

11:05 11:15 **ID: 10405 A Comparative Study on the Seismic Performances of Unreinforced and Confined Masonry Buildings**
Murat Altug Erberik, Cihan Citiloglu, Gulden Erkoseoglu

11:15 11:25 **ID: 11217 Seismic Diagnosis and Formulation of Reinforcement Design Standards for Masonry Buildings in Mongolia**
Shigenori Kita, Seiichirou Fukushima

11:25 11:35 **ID: 10953 Effect of Position and Size of Openings on In-Plane Behavior of Unreinforced Masonry (URM) Walls**
Zhen Liu, Adam J Crewe

11:35 11:45 **ID: 10790 Numerical and Experimental Analysis of the Out-of-plane Capacity of Unreinforced Masonry Walls**
Moritz Loenhoff, Hamid Sadegh-Azar

11:45 11:55 **ID: 11479 Innovative System for Earthquake Resistant Masonry Infill Walls**
Marko Marinkovic, Christoph Butenweg

11:55 12:05 **ID: 10279 Application Of The "Parsant" Method In A Masonry Building**
John Marneris

12:05 12:15 **ID: 11779 Seismic Response of Free-Standing Rocking Masonry Walls Considering Toe Crushing**
Mostafa Masoudi, Payam Adibfar

12:15 12:25 **ID: 11542 A DEM Simulation of the Masonry Structure Damage Test By Simply Hand-made Shaking Table in Uzbekistan**
Takafumi Nakagawa, Yasushi Niitsu, Chikahiro Minowa, Jamshid Kaniev, Bekmurod Karimov, Rustam Isakjonov

12:25 12:35 **ID: 10343 LS-DYNA Numerical Simulation of Solid Unreinforced Masonry Detached House Tested Dynamically**
Candice Avanes, Gianmarco Montalbini, Yuli Huang, Richard Sturt, Michele Palmieri

12:35 12:45 **ID: 10954 Shaking Table Studies of FRP-Reinforced Masonry: Experimental and Numerical Results**
Luiza Dihoru, Adam J Crewe, Colin Taylor, Zhen Liu

12:45 12:55 **ID: 10827 The Use of Artificial Neural Networks to Estimate Seismic Damage in Traditional Masonry Buildings**
Tiago Miguel Ferreira, João Estêvão, Rui Maio, Romeu Vicente

## Th.OS04: Seismic Design and Analysis of Steel Structures (III)

M2.4
Maurice Saltiel B

Session Chairs: Euripidis Mistakidis, Luigi Di Sarno, Themistoklis Nikolaidis

10:45 10:55 **ID: 10241 An Approach Towards Embedded Structural Steel Connections for Use in an Innovative HCW System**
Rajarshi Das, Bram Vandoren, Herve Degee

10:55 11:05 **ID: 10180 Modelling and Analysis of an Archetype Non-Residential Old Steel Building for Collapse Risk Evaluation**
Gaetano Cantisani, Gaetano Della Corte, Raffaele Landolfo

11:05 11:15 **ID: 10531 Seismic Design of Steel Multi-storeyed Steel Frames with Stick Damper Mechanism**
Honami Eguchi, Satoshi Kikugawa, Guang Xu, Minoru Yamanari

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| 11:15<br>11:25 | ID: 11574 Seismic Performance Comparison of Tall Buildings with Dual System of Conventional and Buckling Restrained Braced Frames<br>Behrouz Asgarian, Farnaz Abediyan, Sara Amerinia |
| 11:25<br>11:35 | ID: 10808 Seismic Performance of SPSWS With Beam-Connected Web Plates Designed for Low-Seismic Regions<br>Yigit Ozcelik, Patricia Clayton |
| 11:35<br>11:45 | ID: 10540 Behavior of Frame with High Strength Steel Outer Column in Partially Base-isolated Steel Frame with Friction Dampers<br>Dong Yang, Daiki Hirata, Minoru Yamanari |
| 11:45<br>11:55 | ID: 11271 Cyclic loading behavior of steel chevron braced frames with round-hollow-section or I-section braces<br>Taichiro Okazaki, Akiri Seki, Hayato Asada |
| 11:55<br>12:05 | ID: 10483 On the Seismic Response and Modal Damping Ratios of Low-Rise Plane Steel Frames with Seesaw System<br>Panagiota Katsimpini, George Papagiannopoulos, Manolis Sfakianakis |
| 12:05<br>12:15 | ID: 12211 Inelastic Cyclic Behavior and Fracture of Wide Flange Steel Brace Members<br>Madhar A. Haddad, Rami H. Haddad, Arabi N. Al Qadi, Hashem M. Al-Mattarneh |
| 12:15<br>12:25 | ID: 10248 Seismic Performance of a Controlled-Rocking Concrete-Filled Steel Tube/Moment Resisting Frame<br>Kazuhiro Hayashi, Konstantinos A. Skalomenos, Hiroyuki Inamasu |
| 12:25<br>12:35 | ID: 11066 Seismic Performance of Composite Structures Made with Concrete-Filled Steel Tubular Members<br>Yadong Jiang, António Silva, Luis Macedo, José Miguel Castro, Ricardo Monteiro |
| | ID: 11619 Steel Moment Connection with Elliptical Reduced Beam Section<br>Seyed Esmaeil Mohammadyan-Yasouj, Fahimeh Esmaeilzadeh, Parham Memarzadeh |
| **Th.OS05: Seismic Performance and Retrofit of Historical Monuments (I)**<br>Session Chairs: Sergio Lagomarsino, Constantine Spyrakos, Stella Karafagka | **M2.5**<br>**Maurice Saltiel C** |
| 10:45<br>10:55 | ID: 11979 Seismic Hazard Analysis of the Acropolis of Athens and Seismic Analysis of Propylaea Colonnade<br>Kyriazis Pitilakis, Stella Karafagka, Olga Ntinoudi, Ioannis Kalogeras, Vasiliki Eleftheriou |
| 10:55<br>11:05 | ID: 10974 Study of ancient monuments' seismic performance based on Passive and Remote Techniques<br>Nicholas Christos Kyriakides, Vasiliki Lysandrou, Athos Agapiou, Nicola Masini, Maria Sileo, Francesco Soldovieri, Diofantos Hadjimitsis, Rogiros Illampas |
| 11:05<br>11:15 | ID: 11326 Experimental And Numerical Assessment Of The Seismic Performance Of A Half-Scale Stone Masonry Building Aggregate<br>Gabriele Guerrini, Ilaria Senaldi, Paolo Comini, Stylianos Kallioras, Francesco Vanin, Michele Godio, Francesco Graziotti, Guido Magenes, Katrin Beyer, Andrea Penna |
| 11:15<br>11:25 | ID: 10506 Integration of retrofit structure and architecture in an unreinforced masonry building in New Zealand<br>Nabil Jose Allaf, Andrew W. Charleson |
| 11:25<br>11:35 | ID: 12074 Seismic Vulnerability of Merlons in Ancient Fortified Buildings<br>Erica Lenticchia, Eva Coïsson, Daniele Ferretti |
| 11:35<br>11:45 | ID: 10532 Experimental Study on Breakage of Columns in Japanese Traditional Timber Structures with Large Hanging Walls<br>Saki Ohmura, Kazuki Mabira, Mina Sugino, Yasuhiro Hayashi |
| 11:45<br>11:55 | ID: 12033 In-Plane Static Cyclic Tests On Traditional Romanian Houses' Walls<br>Andreea Dutu, Mihai Niste, Iulian Spatarelu |
| 11:55<br>12:05 | ID: 11571 Seismic Upgrade of Masonry Structures with Cementitious Matrix Composite<br>Valerio Alecci, Luisa Rovero, Gianfranco Stipo, Mario De Stefano |

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| 12:05<br>12:15 | **ID: 10285 Reversible Shear Strengthening of Wall Panels with Mechanically Attached Stainless Strips**<br>Antonio Borri, Marco Corradi, Giulio Castori, Alessio Molinari |
| 12:15<br>12:25 | **ID: 10113 Seismic Safety of Monuments - Swiss Interdisciplinary Guidelines**<br>Friederike Braune |
| 12:25<br>12:35 | **ID: 11096 Mechanic-Based Procedure For The Damage Mechanism Evaluation Of Historic Masonry Structures**<br>Valentina Putrino, Dina F. D'Ayala |
| 12:35<br>12:45 | **ID: 10574 Seismic Strengthening And Heritage Restoration Christchurch Arts Centre**<br>John Fletcher Trowsdale |
| 12:45<br>12:55 | **ID: 10372 Meso Scale Modelling of Infill Foam Concrete Wall for Earthquake Loads**<br>Zarghaam Haider Rizvi, Neele Dempwolf, Amir Sattari, Frank Wuttke |

## Th.OS06: Geotechnical Earthquake Engineering (IV)

**M2.6 Museum Hall**

Session Chairs: Francesco Silvestri, Nikolaos Gerolymos, Kalliopi Kakderi

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| 10:45<br>10:55 | **ID: 10584 Rotational Response of Shallow Foundations on Liquefiable Sand**<br>Orestis Adamidis, Gopal S.P. Madabhushi |
| 10:55<br>11:05 | **ID: 10649 Seismic Response of High Plasticity Clays During Extreme Events**<br>Juan Manuel Mayoral, Ernesto Castanon, Simón Tepalcapa |
| 11:05<br>11:15 | **ID: 10771 Unreinforced Concrete Columns as Countermeasure Against Liquefaction**<br>Efthymios Apostolou, Andrew J. Brennan, Jimmy Wehr |
| 11:15<br>11:25 | **ID: 11468 Effects of Improvement Techniques on Seismic Performance of Highway Embankments**<br>Ayse Edincliler, Yasin Sait Toksoy |
| 11:25<br>11:35 | **ID: 11163 3D Rocking Response of Rigid Blocks Under Strong Near-Fault Seismic Shaking**<br>Evangelia Garini, Marianna Loli, Irene Georgiou, George Gazetas |
| 11:35<br>11:45 | **ID: 10300 Relation in Order to Better Assess Gmax Values and G Variation With Shear Strain γ**<br>Jean-Claude Gress |
| 11:45<br>11:55 | **ID: 11036 Effects of Overconsolidation History and Long-Term Consolidation on Liquefaction Strength in Sandy Soil**<br>Yusuke Kanai, Susumu Yasuda, Keisuke Ishikawa |
| 11:55<br>12:05 | **ID: 10217 Effects of Superstructure Inertia on Liquefaction Settlements of Footings**<br>Konstantinos N. Bazaios, George D. Bouckovalas, Yannis K. Chaloulos |
| 12:05<br>12:15 | **ID: 10240 Effect of Foundation and Backfill Relative Density on The Seismic Performance of a Quay Wall**<br>Panos Dakoulas, Polyxeni Kallioglou, Polynikis Vazouras |
| 12:15<br>12:25 | **ID: 11487 Experiment On Ground Subsidence Caused By Interaction Between Underground Structure And Liquefied Ground**<br>Yousuke Ohya, Eiji Kohama |
| 12:25<br>12:35 | **ID: 10991 Seismic Performance Of A Bituminous-Faced Rockfill Dam**<br>Alessia Vecchietti, Manuela Cecconi, Giacomo Russo, Vincenzo Pane |
| 12:35<br>12:45 | **ID: 10149 Microstructural Characteristics of Volcanic Soil in the Aso Caldera related to the Landslide Triggered by the 2016 Kumamoto Earthquake**<br>Wa Ode Sumartini Zaanu Asmal, Hemanta Hazarika, Takaji Kokusho, Shinichiro Ishibashi, Daisuke Matsumoto, Babloo Chaudhary |

## Th.OS07: Seismic Hazard Engineering Seismology and Strong Ground Motion (V)

Session Chairs: Fabrice Cotton, Mohsen Ghafory-Ashtiany, Zafeiria Roumelioti

M2.7
Library Hall

10:45 10:55 **ID: 11607 integration of Site Effects into PSHA: A Comparison Between Two Fully Probabilistic Methods for The Euroseistest Case.**
Claudia Aristizabal, Juan Camilo Gomez Zapata, Pierre Yves Bard, Céline Beauval

10:55 11:05 **ID: 10424 Seismic Hazard Analysis for Development of Risk-Targeted Ground-Motion Maps in the Western Saudi Arabia**
Vladimir Sokolov, Hani Mahmoud Zahran

11:05 11:15 **ID: 12073 On Reliability Perception of Seismic Hazard Estimates Used in Structural Design**
Mariano Angelo Zanini, Lorenzo Hofer

11:15 11:25 **ID: 10826 Estimation of Quality Factor Qc and Qs Using Accelerograms in Tehran Region**
Shima Taheri, Majid Mahood, Alireza Bagheri noghredehi

11:25 11:35 **ID: 10148 Motives for a Multidirectional Conditional Spectrum in Seismic Design and Assessment**
Cecilia I. Nievas, Timothy J. Sullivan

11:35 11:45 **ID: 10128 Stochastic Process of Earthquake Motion Phase and its Inherent Features**
Tadanobu Sato

11:45 11:55 **ID: 11467 Ground Motion Simulation of the 2003 Boumerdes Earthquake using Empirical Green's Function Method**
Faouzi Gherboudj, Hiroe Miyake, Toshiaki Yokoi, Nasser Laouami

11:55 12:05 **ID: 11965 Multi-Objective Optimum Selection of Ground Motion Records with Genetic Algorithms**
Panagiotis Mergos, Anastasios Sextos

12:05 12:15 **ID: 10868 Recalling and Revising the Experience and the INCERC-Bucharest Studies on the 1977.03.04 Vrancea Earthquake**
Emil Sever Georgescu, Horea Sandi

12:15 12:25 **ID: 10753 Areal Exceedance Of Ground Motion As Complementary Hazard Quantification**
Friedemann Wenzel, Vladimir Sokolov

12:25 12:35 **ID: 10472 Next Generation of Italian Shakemaps**
Licia Faenza, Giovanni Lanzano, Rodolfo Puglia, Valentino Lauciani, Lucia Luzi, Alberto Michelini

## Th.OS08: Civil Protection and Earthquake Risk Mitigation Policies and Methodologies (I)

Session Chairs: Vassilios Lekidis, Athanasios N. Papadopoulos, Grigorios Tsinidis

M2.8
CR1

10:45 10:55 **ID: 10996 French Organisation For Post-Earthquake Diagnosis : Challenges And Ongoing Developments**
Andrei Balgiu, Ghislaine Verrhiest-Leblanc, Emmanuel Viallet, Thierry Winter, Céline Dujarric, Didier Combescure

10:55 11:05 **ID: 10840 Post Earthquake Procedures: Comparison Of The 2008 (Greece) And The 2009 (Italy) Seismic Events.**
Gabriella Zagora

11:05 11:15 **ID: 11297 Urban seismic network based on MEMS sensors for post-earthquake rapid disaster assessment**
Antonino D'Alessandro, Giovanni Vitale, Salvatore Scudero, Luca Greco, Domenico Patanè

11:15 11:25 **ID: 10242 Ambient Vibration Tests on a Building Before and After the 2012 Emilia (Italy) Earthquake**
Maria Rosaria Gallipoli, Tony Alfredo Stabile, Giulia Massolino, Nasser Abu-Zeid, Leonardo Chiauzzi, Samuel Bignardi, Alessandro Rebez, Marco Mucciarelli

11:25 11:35 **ID: 11780 Measures for the earthquake risk reduction in the city of Zagreb, Croatia**
Josip Atalic, Marta Savor Novak, Mario Uros, Sanja Hak, Domagoj Damjanovic, Zvonko Sigmund

11:35 11:45 **ID: 12026 Seismic Resilience Challenge for Izmir: Pilot Project for Seismic Risks of Existing Buildings**
Turkay Baran, Ozgur Ozcelik, İbrahim Serkan Misir, Aydin Saatci, Sadik Can Girgin, Serap Kahraman

11:45 11:55 **ID: 10714 Earthquake Safety of Civil Buildings of Modern Development in Central Asia and increasing Concepts**
Shamil Khakimov, Bakhtiar Nurtaev

11:55 12:05 **ID: 10451 Damaging Aspects of September 11, 2016, M5.1 Skopje Earthquake**
Zoran Milutinovic, Radmila Salic, Slobodan Micajkov, Daniel Tomic, Hristina Ristovska

12:05 12:15 **ID: 12037 Improving The Role of a Selected Skilled Profession Towards Seismic Risk Reduction Through Training**
Yasamin O. Izadkhah, Mahmood Hosseini

12:15 12:25 **ID: 11177 A Comparative Analysis of Prevention, Response and Recovery Procedures of Thessaloniki (1978) and Kefalonia (2014) Earthquakes**
Alexandra - Dimitra Oikonomou, Gabriella Zagora, Spyros Lalechos

12:25 12:35 **ID: 10108 Analytical Fragility Embodied in on-Site Early Warning System for Induced Seismicity**
Konstantinos G. Megalooikonomou, Stefano Parolai, Massimiliano Pittore

**13:00-14:00 Lunch Break**

## 14:00-14:30 THEME LECTURES

**Th.TL05: Theme Lecture | Ioannis Psycharis** — **M2.1 Aimilios Riadis**
Session Chair: Kosmas Stylianidis

**ID: 12267 Seismic Vulnerability of Classical Monuments**
Ioannis Psycharis

**Th.TL06: Theme Lecture | Bijan Khazai** — **M1.1 Friends of Music Hall**
Session Chair: Gian Paolo Cimellaro

**ID: 12355 Measuring and Managing Urban Disaster Resilience**
Bijan Khazai, Christopher Burton, Johannes Anhorn, Friedemann Wenzel, Fouad Bendimerad, Jerome Zayas

## 14:40-16:40 CONCURRENT ORAL SESSIONS

**Th.OS09: Lessons from Recent Earthquakes** — **M1.1 Friends of Music Hall**
Session Chairs: Efthimios Lekkas, Giovanni Lanzano, Evangelia Garini

14:40 14:50 **ID: 11588 2016 Central Italy Earthquakes: Preliminary Results Based On Field Surveys**
Gabriele Fiorentino, Angelo Forte, Enrico Pagano, Fabio Sabetta, Davide Lavorato, Camillo Nuti

14:50 15:00 **ID: 11640 AFPS Feedback Of Post- Seismic Surveys After Major Earthquakes**
Celine Dujarric, Didier Combescure, Emmanuel Viallet, Ghislaine Verrhiest, Leopoldo Tesser, Pierre-Alain Naze, Thierry Lamadon

15:00 15:10 **ID: 12192 The June-July, 2017 Earthquake Sequences in Eastern Aegean Sea: Ground Motions, Geotechnical Ground Failures and Structural Response**
Christos Papaioannou, Christos Karakostas, Emmanouil Rovithis, Thomas Salonikios, Nikos Theodoulidis, Konsantia Makra, Vassilis Lekidis, Vassilis Margaris, Stratos Zacharopoulos, Kostas Morfidis

15:10 15:20 **ID: 10621 Lessons from the 2016 Kumamoto Earthquake: Difference Between Damaged and Undamaged Buildings**
Koichi Kusunoki, Tomohisa Mukai, Masayuki Kuroki, Joji Sakuta

15:20 15:30 **ID: 10940 Hearing and Analysis of Hospital Evacuation after the 2016 Kumamoto Earthquake**
Masahiro Kurata, Mayu Hitomi, Shota Shimmoto, Shigeru Ohtsuru, Manabu Shimoto, Kosai Cho, Osamu Sugiyama, Aida Shinji

15:30 15:40 **ID: 10605 Simplified Characterization of Pulse-like Ground Motions in the 2016 Kumamoto Earthquake**
Mina Sugino, Shiori Murase, Saki Ohmura, Yasuhiro Hayashi

15:40 15:50 **ID: 10596 Relationship Between Seismic Intensity and Ratio of Collapsed Wooden Houses in the 2016 Kumamoto Earthquake**
Shiori Murase, Saki Ohmura, Mina Sugino, Yasuhiro Hayashi

15:50 16:00 **ID: 11642 UK Earthquake Engineering Assessment Team's Response to the M7.8 Muisne Earthquake, Ecuador 2016**
Mark Scorer, Anna Pavan, Francisco Pavia

16:00 16:10 **ID: 10520 Effects of Liquefaction-Induced Inclination of Houses on Health Problems of Residents**
Yuko Serikawa, Setiawan Hendra, Masakatsu Miyajima, Masaho Yoshida

16:10 16:20 **ID: 11128 Seismological Investigation Of The April 05, 2017 Fariman, Iran Earthquake (Mw= 6.0)**
Mehdi Zare

16:20 16:30 **ID: 10582 Relationship of Seismic External Force and Damage Rate of Levee in The Great East JAPAN Earthquake**
Masanori Ishihara, Tomoki Jizou, Tetsuya Sasaki

16:30 16:40 **ID: 11207 Study of the Seismic Performance of a RC Building with Damage During the Mw 8.8 Earthquake in 2010**
Betzabeth Jessenia Suquillo Ronquillo, Fabián Rodolfo Rojas Barrales, Leonardo Maximiliano Massone Sánchez

## Th.OS10: Seismic Design and Analysis of Special Structures (II)

**M2.1 Aimilios Riadis**

Session Chairs: Stavroula J. Pantazopoulou, Anastasios Sextos, Ioannis Nikolaos Doudoumis

14:40 14:50 **ID: 10267 Dynamic and Seismic Response of the Niarchos Cultural Center Suspended Roof**
George C. Manos, Kostas Katakalos, George Koidis, Katerina Kyprioti

14:50 15:00 **ID: 11643 The Assessment and Reduction of Seismic Risk in Cable Structures**
Alin Radu, Irina F. Lazar, Anastasios Sextos

15:00 15:10 **ID: 10268 Seismic Performance of Steel Dual Systems with BRBs and Moment-Resisting Frames**
Enrico Tubaldi, Fabio Freddi, Alessandro Zona, Andrea Dall'Asta

15:10 15:20 **ID: 10972 Numerical Simulation of Wind Turbine Tower with Earthquake forces and Aerodynamic Interactions**
Pierre-Yves Duverneuil, Rajesh Rupakhety, Rajan Dhakal

15:20 15:30 **ID: 11417 Numerical Investigation of Dissipative Behavior of Connection Using Post-installed Anchors**
Angelo Marchisella, Giovanni Muciaccia

15:30 15:40 **ID: 11244 Effects of Ground Motion Duration on The Collapse Rate of A Mid-rise Woodframe Structure**
Yuxin Pan, Carlos E. Ventura, Haibei Xiong

15:40 15:50 **ID: 11595 Comparison Of Static And Dynamic Non-Linear Kinematic Analysis**
Sander Meijers, Maria Rosales Gonzalez

15:50 16:00 **ID: 11314 Application of HDI matrix method for solution of dam-fluid interaction**
Violeta Mircevska, Miroslav Nastev, Irena Gjorgeska

16:00 16:10 **ID: 11839 Earthquake Safety Evaluation of Critical Dam Appurtenant Structures and Equipment**
Najib Bouaanani, Sylvain Renaud, Sayouba Tinta, Tarik Saichi

16:10 16:20 **ID: 10207 Study on the Verification of the Seismic Performance of Shapai Arch Dam During Wenchuan Earthquake**
Jin Tu, Deyu Li, Cuiran Zhang, Haibo Wang

16:20 16:30 **ID: 10136 Application of Pseudo-Static Analysis in Seismic Design and Safety Evaluation of Embankment Dams**
Martin Wieland

16:30 16:40 **ID: 10160 A Non-Uniform Input Motion Calculation Methodology For High Concrete Face Rockfill Dams**
Yu Yao, Rui Wang, Tianyun Liu, Jian-Min Zhang

**Th.OS11: Seismic Design and Analysis of Masonry Buildings (III)** — **M2.3 Maurice Saltiel A**
Session Chairs: Andrea Penna, Georgia E. Thermou, Dimos Charmpis

14:40 14:50 **ID: 10691 The Applied Element Method and the modelling of both in-plane and out-of-plane response of URM walls**
Daniele Malomo, Paolo Comini, Rui Pinho, Andrea Penna

14:50 15:00 **ID: 11786 Macroelement Representation for URM Components Under Cyclic Loading**
Eleni Minga, Lorenzo Macorini, Bassam Izzuddin, Ivo Calio

15:00 15:10 **ID: 10216 A Constitutive Model for Masonry Structures: Practical Application under Earthquake Loading in Groningen**
Stavros Panagoulias, Anita Laera, Gregor Vilhar, Ronald B.J. Brinkgreve

15:10 15:20 **ID: 10342 LS-DYNA Numerical Simulation of Full Scale Masonry Cavity Wall Terraced House Tested Dynamically**
Candice Avanes, Chad Fusco, Maryam Asghari Mooneghi, Yuli Huang, Michele Palmieri, Richard Sturt

15:20 15:30 **ID: 10981 A Masonry Material Model for Seismic Analysis in LS-DYNA: Implementation and Validation**
Richard Sturt, Mattia Bernardi, Candice Avanes, Yuli Huang, Michael Willford

15:30 15:40 **ID: 10567 Non-Linear Seismic Soil-Structure Interaction Analysis Of Masonry Buildings - Part I: Superstructure**
Marc Tatarsky, Negin Yousefpour, Greg Congdon, Pablo Vega-Behar, Eden Almog, Emre Toprak

15:40 15:50 **ID: 11615 Fragility Curves Of Mixed Masonry-Rc Buildings In Lisbon**
Jelena Milosevic, Rita Bento, Serena Cattari

15:50 16:00 **ID: 11121 Public Housing Population of Florence: Seismic Assessment of A Case-Study**
Marco Tanganelli, Tommaso Rotunno, Stefania Viti, Vieri Cardinali

16:00 16:10 **ID: 10425 Effect of Soil Structure Interactions on The Seismic Behavior of A Contemporary Monumental Masonry Structure**
Yildirim Serhat Erdogan, Mehmet Ada

16:10 16:20 **ID: 11623 Out-Of-Plane Effective Stiffness And Behaviour Factor Of Unreinforced Masonry Infills Accounting For The In-Plane/Out-Of-Plane Interaction**
Paolo Ricci, Mariano Di Domenico, Gerardo M. Verderame

16:20 16:30 **ID: 11639 Use of Simplified Methods On The Seismic Structural Assessment of URM Buildings**
Alessandro Marasca, Luca Mari, Patricio Garcia, Timurhan Timur, Maurizio Teora, Dick den Hertog, Paul van Horn, Michele Malaspina

**Th.OS12: Tsunamis and Risk Assessment of Structures and Infrastructures** — **M2.4 Maurice Saltiel B**
Session Chairs: Tiziana Rossetto, Stella Karafagka, Stavroula Fotopoulou

14:40 14:50 **ID: 10817 Probabilistic Tsunami Loss Estimation Using Momentum Flux-based Tsunami Fragility Functions**
Jie Song, Raffaele De Risi, Katsuichiro Goda

14:50 15:00 **ID: 11718 New Approaches for the Nonlinear Assessment of Buildings Subjected to Earthquake and Tsunami in Sequence**
Camilo De la Barra, Tiziana Rossetto, Crescenzo Petrone, Jorge A. Vásquez

15:00 15:10 **ID: 11384 Designing Offshore Natural Gas Pipelines Facing the Geohazard of Submarine Landslides**
Dionysios Chatzidakis, Yiannis Tsompanakis, Prodromos N. Psarropoulos

15:10 15:20 **ID: 11931 Vulnerability Assessment Of Low-code Reinforced Concrete Buildings Subjected To Tsunami Loading**
Stella Karafagka, Stavroula Fotopoulou, Kyriazis Pitilakis

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| 15:20<br>15:30 | **ID: 10143 Development of Tsunami Design Provisions for Coastal Construction**<br>Ian N Robertson |
| 15:30<br>15:40 | **ID: 10324 Overview of the National Tsunami Design Code of Russia**<br>Mark Klyachko, Efim Pelinovsky, Victor Kaistrenko |
| 15:40<br>15:50 | **ID: 10783 Quantification of Global Probabilistic Tsunami Risk – Initial Results**<br>Andreas Maximilian Schaefer, James Edward Daniell, Friedemann Wenzel |
| 15:50<br>16:00 | **ID: 11141 Investigation of the role of Ductility in the Assessment of Structures Under Tsunami Loading**<br>Joshua Macabuag, Crescenzo Petrone, Tiziana Rossetto |
| 16:00<br>16:10 | **ID: 10716 Seismic Performance of Nonlinear System Subjected to Multiple Time Histories Matched to the Same Spectrum: Evaluation of Mean and Maximum Response Approaches**<br>Shakhzod Takhirov, Eric Fujisaki, Leon Kempner, Brian Low, Michael Riley |
| 16:10<br>16:20 | **ID: 10659 Building Extraction From Satellite Image For Seismic Hazard Assessment**<br>Devilata Pegu, Josodhir Das, Mukat Lal Sharma |
| 16:20<br>16:30 | **ID: 10775 Tsunami Hazard Assessment for Izmir Bay, Turkey**<br>Gozde Guney Dogan, Nazan Yilmaz Kilic, Ahmet Cevdet Yalciner, Mehmet Semih Yucemen |

**Th.OS13: Seismic Performance and Retrofit of Historical Monuments (II)** — M2.5 Maurice Saltiel C

Session Chairs: Ioannis Psycharis, Elizabeth Vintzileou, Prodromos Psarropoulos

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| 14:40<br>14:50 | **ID: 10489 Mitigation Of Seismic Vulnerability In Earthen Historic Structures With Traditional Strengthening Techniques.**<br>Georgios Karanikoloudis, Paulo B. Lourenço, Daniel Torrealva, Claudia Cancino, Kelly Wong |
| 14:50<br>15:00 | **ID: 11770 Structural Analyses of The Katholikon of Daphni Monastery with Alternative Interventions Improving Its Overall Behaviour**<br>Androniki Miltiadou - Fezans, Elisabeth Vintzileou, Charalambos Mouzakis, John Dourakopoulos, Panagiotis Giannopoulos, Nikolaos Delinikolas |
| 15:00<br>15:10 | **ID: 11919 Numerical and experimental seismic response analysis of Suleiman mosque in Medieval City of Rhodes, Greece**<br>Anna Karatzetzou, Dimitris Pitilakis, Maria Manakou |
| 15:10<br>15:20 | **ID: 11069 Seismic Retrofitting of Historic Buildings with Dissipation Panels**<br>Raquel Fernandes Paula, Luís Guerreiro, Vítor Cóias, José Paulo Costa |
| 15:20<br>15:30 | **ID: 11707 Ambient Noise Vibrations As a Tool for Seismic Response Assessment of Selected Monumental Structures of Crete**<br>Margarita Moisidi, Filippos Vallianatos |
| 15:30<br>15:40 | **ID: 10910 Seismic Behaviour of an Ancient Stone Masonry Tower Using the Distinct Element Method**<br>Amin Mohebkhah, Vasilis Sarhosis, Elham Tavafi, Panagiotis Asteris |
| 15:40<br>15:50 | **ID: 11147 Kinematic limit analysis of Basilica del Salvador, a significant example of the neo-gothic architecture in Santiago, Chile**<br>Nuria Chiara Palazzi, Luisa Rovero, Ugo Tonietti, Juan Carlos de la Llera, Cristian Sandoval |
| 15:50<br>16:00 | **ID: 10581 Structural Protection Systems DC90**<br>Zoran, Sava Petraskovic |
| 16:00<br>16:10 | **ID: 10958 Ambient Vibration Testing of Historical Monuments Within Monastery Complex "Treskavec" Near Prilep**<br>Lidija Krstevska, Kristijan Runevski, Nikola Naumovski |
| 16:10<br>16:20 | **ID: 11554 Monitoring and Simulating the Seismic Response of the Hill and the Perimeter Wall of the Acropolis of Athens**<br>Prodromos Psarropoulos, Elena Kapogianni, Ioannis Kalogeras, Michael Sakellariou |

16:20 16:30 **ID: 11971 Seismic and Dynamic Assessment of Monumental Structures Made Up of Rigid Blocks: Neptune Temple**
Luigi Petti, Francesco Sicignano, Domenico Greco

**Th.OS14: Economic and Societal Models for Earthquake Loss Assessment and Mitigation** — M2.6 Museum Hall
Session Chairs: Friedemann Wenzel, Eugenio Chioccarelli, Stavroula Fotopoulou

14:40 14:50 **ID: 10588 Casualty Estimation Through Assessment Of Volume Loss And External Debris Spread In Building Collapse**
Emily So, Hannah Baker, Robin Spence

14:50 15:00 **ID: 11164 Assessing the Performance Of Existing Repair-Cost Relationships for Buildings**
Adrien Pothon, Philippe Gueguen, Sylvain Buisine, Pierre-Yves Bard

15:00 15:10 **ID: 11428 Sensitivity of Annualized Earthquake Loss Estimations to the Computation of Inelastic Displacement Demand**
Ufuk Hancilar, Karin Sesetyan, Eser Cakti

15:10 15:20 **ID: 11502 Evaluating seismic risk from a holistic perspective to improve resilience: The UN evaluation at global level**
Mabel Cristina Marulanda Fraume, Omar Dario Cardona, Paula Marulanda Fraume, Martha Liliana Carreño, Alex H. Barbat

15:20 15:30 **ID: 10941 Towards a Uniform Earthquake Loss Model across Central America**
Alejandro Jose Calderon, Vitor Silva, Catalina Yepes-Estrada, Luis Martins

15:30 15:40 **ID: 10604 A Seismic Loss Estimation Framework For Enterprises Taking Into Account Business Interruption**
Mariano Angelo Zanini, Lorenzo Hofer, Flora Faleschini, Carlo Pellegrino

15:40 15:50 **ID: 10769 Sensitivity analysis of earthquake loss estimation using the space-time ETAS model for seismicity clustering**
Athanasios N. Papadopoulos, Paolo Bazzurro

15:50 16:00 **ID: 10792 Damage Statistics and Fragility Curves of the 2014 Cephalonia Earthquake**
Panagiotis Rentzos, Navin Peiris, Mutahar Chalmers, Dimosthenis Tsaknias

16:00 16:10 **ID: 10755 2010 Kraljevo Earthquake Recovery Process Metrics Derived from Recorded Reconstruction Data**
Zoran Stojadinovic, Milos Kovacevic, Dejan Marinkovic, Bozidar Stojadinovic

16:10 16:20 **ID: 11663 Empirical fragility curves for masonry houses using data from two earthquakes in Chile**
Tamara Cabrera, Gaël Boulicault, Matias Hube, Hernan Santa Maria

**Th.OS15: Seismic Hazard Engineering Seismology and Strong Ground Motion (VI)** — M2.7 Library Hall
Session Chairs: Pierre-Yves Bard, Laurentin Dancin, Evi Riga

14:40 14:50 **ID: 10729 Building a New Ground Motion Logic Tree for Europe: Needs, Challenges and New Opportunities from European Seismological Data**
Graeme Weatherill, Dino Bindi, Fabrice Cotton, Laurentiu Danciu, Lucia Luzi

14:50 15:00 **ID: 11450 Constrains on The Near-Source Motions of The Kos-Bodrum 20 July 2017 Mw6.6 Earthquake**
Anastasia Kiratzi, Areti Koskosidi

15:00 15:10 **ID: 11216 Study of the Spatial Correlation of Earthquake Ground Motion By Means of Physics-Based Numerical Scenarios**
Maria Infantino, Roberto Paolucci, Chiara Smerzini, Marco Stupazzini

15:10 15:20 **ID: 11449 A Study Between the Relations of Caspian Sea Waves Height and the Low Frequency Seismic Noise Measurement in Tehran**
Saeed Soltani, Ebrahim Haghshenas

15:20 15:30 **ID: 10187 Applicability of Procedure for Evaluating Fault Parameters of Intra-Slab Earthquakes by HQERP, Japan, to Romanian earthquakes**
Dianshu Ju, Kazuo Dan, Saruul Dorjpalam, Haruhiko Torita

15:30 15:40 **ID: 11545 Prediction Of Earthquake Hazard In Marmara Region, Turkey**
Ilya Sianko, Zuhal Ozdemir, Iman Hajirasouliha, Kypros Pilakoutas, Reyes Garcia, Zhijian Chen

15:40 15:50 **ID: 12241 A Simple Algorithm for Identifying Pulse-Like Ground Motions Based On Significant Half-Cycles**
Changhai Zhai, Cuihua Li, Lili Xie

15:50 16:00 **ID: 10737 Prediction of input energy spectrum: Prediction models and velocity spectrum scaling**
Firat Soner Alici, Haluk Sucuoğlu

16:00 16:10 **ID: 10109 Statistical Distribution of Intensity Measures to Obtain Input for Incremental Dynamic Analysis**
Alireza Azarbakht, Sarvenaz Amini

16:10 16:20 **ID: 11627 Seismic Hazard Analysis for Armenia and Its Surrounding Areas**
Bingming Shen-Tu, Elliot Klein, Mehrdad Madyiar, Arkadi Karakhanyan, Marco Pagani, Graeme Weatherill Weatherill, Robin Gee

16:20 16:30 **ID: 10297 Spectral Displacement Prediction Equations for Vrancea Intermediate-depth Seismic Source**
Paul Olteanu, Radu Vacareanu

**Th.OS16: Civil Protection and Earthquake Risk Mitigation Policies and Methodologies (II)** — M2.8 CR1
Session Chairs: Mauro Dolce, Saburoh Midorikawa, Sotiris Argyroudis

14:40 14:50 **ID: 10482 Scenario-based Seismic Risk Assessment in the City of Aigion (Greece)**
Georgia Giannaraki, Danai Kazantzidou-Firtinidou, Ioannis Kassaras, Zafeiria Roumelioti, Athanassios Ganas, Christos Karakostas, Stylianos Mourloukos, Panagiotis Stoumpos, Christina Tsimi

14:50 15:00 **ID: 11420 An Expeditious Procedure to Assess the Seismic Risk of Individual Buildings in Lisbon**
Francisco Mota de Sá, Mário Lopes, Carlos Sousa Oliveira, Mónica Amaral Ferreira, Marta Sotto-Mayor

15:00 15:10 **ID: 10310 Updated seismic risk analysis for residential buildings in Bucharest, Romania**
Florin Pavel, Radu Vacareanu, Ionut Damian, Cristian Arion, Cristian Neagu

15:10 15:20 **ID: 10404 Earthquake Scenarios in South America: Application to five Major Cities**
Mabe Sofia Villar Vega, Vitor Silva, Kishor Jaiswal

15:20 15:30 **ID: 11689 Development Of Tools For Seismic Risk Mitigation In Algeria: Application To The City Of Blida**
Smail Kechidi, Mário Marques, José Miguel Castro, Ricardo Monteiro

15:30 15:40 **ID: 11016 A Seismic Risk Profile for Mainland Portugal**
Luis Martins, Vitor Silva

15:40 15:50 **ID: 10832 Vulnerability Assessment As a Tool to Mitigate and Manage Seismic Risk in Old Urban Areas**
Luis Palomino, Tiago Miguel Ferreira

15:50 16:00 **ID: 11261 Seismic Resilience of a Water Distribution Network**
Max Didier, Marco Broccardo, Simona Esposito, Bozidar Stojadinovic

16:00 16:10 **ID: 10298 The Design Of An On-Site Earthquake Early Warning Platform For A Bridge Traffic Control**
Alireza Taale, Carlos Estuardo Ventura

**16:40-17:30 Poster Session - Coffee Break**

## 16:40-17:30 POSTER SESSIONS

**Th.PS01: Eurocode 8 and Seismic Design Codes** — M1.2 Poster Foyer & Library

**ID: 10273 Composite Beam Effects And Implications To Seismic Design Provisions**
Hammad El Jisr, Dimitrios Lignos

**ID: 10900 State Norms of Ukraine DBN V.1.1-12:2014 "Construction in Seismic Regions of Ukraine" and Recommendations of European Standard Eurocode 8**
Iurii Ivanovych Nemchynov, Aleksandr Kendzera

**ID: 11170** **Flowchart of Assessment Studies of Seismic Capacity About Hellenic R/C Building Using Eurocode EN 1998-3**
Triantafyllos K. Makarios, Athanasios P. Bakalis

**ID: 11215** **Comparison Of The Methods Approved For The Seismic Performance Assessment Of Existing Buildings**
Cigdem Cirak, Ali Kalkan, Mehmet Palanci, Sevket Murat Senel

**ID: 11471** **State of Harmonized Use of the Eurocodes Nationally Determined Parameters Relevant to the Definition of Climatic and Seismic Actions**
Maria Luisa Sousa, Silvia Dimova, Artur Pinto, Adamantia Athanasopoulou

**ID: 12001** **Benchmark assessment of prototype RC building according to EN1998-3**
Edward Leibovich, Antonis Kosmopoulos, Nicholas Fardis, Telemachos Panagiotakos, Michael Fardis

## Th.PS02&10: Seismic Design and Analysis of Special Structures

**M1.2 Poster Foyer & Library**

**ID: 10157** **SisQuai: A Simplified Method for Seismic Assessment of regular Harbor Wharves Structures**
Denis Davi

**ID: 10209** **Parallel Computation Of Seismic Response Of High Arch Dams**
Shengshan Guo, Deyu Li, Jin Tu, Houqun Chen

**ID: 10269** **Numerical Studies on Multi-Cell CFT Columns with Double-Layer Circular Steel Tubes**
Wencong Li

**ID: 10346** **Experimentally Proved Novel Seismically Resistant Prefabricated System Of Industrial Halls**
Danilo Ristic, Jelena Ristik, Viktor Hristovski, Nenad Golubovic, Lela Mitic, Denis Milenovic

**ID: 10502** **Response Analyses of High-rise Buildings to Very Strong Near-Source Ground Motions in Osaka, Japan**
Yasuhiro Hayashi, Saki Ohmura, Mina Sugino

**ID: 10511** **Evaluation of the Vibration Characteristics of the Platform Shed on the Railway Viaduct**
Kazuaki Iwasaki, Atsushi Hayashi, Chihiro Takahashi, Kazuhiro Koyanagi

**ID: 10612** **Investigating the effect of the circumferential stiffeners on the dynamic buckling of steel storage tanks (PGA)**
Mounia Menoun Hadj Brahim, Mohamed Djermane

**ID: 10648** **Seismic Vulnerability of Hardfill Dams**
Juan Manuel Mayoral, Grissel Hurtado

**ID: 10750** **Tall Buildings in Bucharest. Local Seismic Conditions versus Future Consequences.**
Ion Vlad

**ID: 10846** **Verify Tuned Mass Damper effect of the Platform Shed Constructed on Railway Viaduct**
Kazuhiro Koyanagi, Kazuaki Iwasaki, Atsushi Hayashi, Chihiro Takahashi

**ID: 10905** **Effect of Column Base Flexibility on Demands of Pipes of Located on Pipe Supporting Structures**
Fariborz Nateghi, Mohammad Rezaee

**ID: 11007** **Accurate Estimation of Strong Ground Motions and Simulation of Structural Damage at Kumamoto Port during the 2016 Kumamoto Earthquake**
Masayuki Yamada, Akito Sone, Naonori Kuwabara, Kenji Ebisu, Shuji Yamamoto, Masahiro Sato, Takashi Kidou

**ID: 11033** **Seismic Design Force for Ceilings in Japan Based on a Direct Method for Floor Response Spectrum**
Tadashi Ishihara, Shojiro Motoyui, Yoshio Wakiyama

**ID: 11043** **Mechanical Properties and Required Seismic Deformations of Step Parts in Steel-Furring Suspended-Ceiling Systems in Japan**
Keigo Yamashita, Tadashi Ishihara, Hirofumi Kambe, Kento Suzuki, Masayuki Nagano

**ID: 11051** **Evaluation of Seismic In-plane Shear Deformation of Grid-Type System Ceilings in Japan**
Hirofumi Kambe, Tadashi Ishihara, Keigo Yamashita, Kento Suzuki, Masayuki Nagano

ID: 11425 **Seismic Behavior of Asymmetric Structures with Different Degree of Irregularity**
Nikola Postolov, Riste Volcev, Koce Todorov, Ljupco Lazarov

ID: 11426 **Seismic Response of Base Isolated Plan Irregular Structures**
Riste Volcev, Nikola Postolov, Koce Todorov, Ljupco Lazarov

ID: 11501 **Transfer of The Seismic Motion for The Design and Assessment of Components. A Simplified Approach**
Didier Combescure, Pierre-Alain Naze, Celine Dujarric, Gildas Potin

ID: 11560 **Seismic Design of Retaining Structures With Expanded Polystyrene (EPS)**
Prodromos Psarropoulos, Pantelis Pateniotis

ID: 12105 **Experimental Study On Seismic and Power Generation Performance of The Shear Wall integrated With Photovoltaic by Fastening-Groove Connectors**
Hongmei Zhang, Xiaoxing Jiang, Yuanfeng Duan, Jinqing Peng

ID: 12243 **Seismic safety evaluation of high arch dams in China**
Li Deyu, Tu Jin, Zhang Cuiran, Guo Shengshan

ID: 12348 **Seismic Hazard And Vulnerability Of Three Sicilian Earth Dams**
Chiara Lombardo, Valentina Lentini, Francesco Castelli, Martina Francesca Greco

## Th.PS03&11: Seismic Design and Analysis of Masonry Buildings

M1.2 Poster Foyer & Library

ID: 10436 **The Influence of In-plane Stiffness of Timber Floors on the Seismic Response of Existing Masonry Buildings**
Liljana Denkovska, Grozde Aleksovski, Kristina Milkova, Kiril Perunkovski

ID: 10524 **Finite Element Modeling of Experimentally Tested Solid Brick Masonry Walls**
Mustafa Hrasnica, Senad Medic

ID: 10575 **Numerical Analisys Of Masonry Buildings Seismic Resistance Using Fiber Reinforced Concrete Joints**
Goran Simonovic, Venera Simonovic, Merima Sahinagic-Isovic, Mili Selimotic

ID: 10614 **Numerical Analisys Of Seismic Resistance Of Masonry Buildings Using Passive Dampers**
Venera Simonovic, Merima Sahinagic-Isovic, Mili Selimotic, Goran Simonovic

ID: 10692 **Using the Applied Element Method to simulate the dynamic response of full-scale URM houses tested to collapse or near-collapse conditions**
Daniele Malomo, Rui Pinho, Andrea Penna

ID: 11106 **Accidental Torsional Response of a Large-Scale Three-Story Framed-Masonry Structure**
Dalibor Burilo, Davorin Penava, Lucas Laughery, Ivica Guljaš, Santiago Pujol

ID: 11328 **Seismic Performance Analysis of Mountainous Masonry Structure with Tilted RC Frame at Bottom**
Nina Zheng, Liya Wen, Fen Sun

ID: 11578 **Experimental Investigation Of The Stability Of Colonnades Under Harmonic Excitation**
Mazen Tabbara, Gebran Karam

ID: 11638 **Spring-Type Elements Model For Non-Linear Static Analysis Of Masonry Buildings**
Juan Jimenez Pacheco, Ramon Gonzalez-Drigo, Luis G. Pujades, Alex H. Barbat

ID: 11684 **Nonlinear Static and Dynamic Analysis of a Dry-stack ICEB Masonry House Tested on a Shaking Table**
Jhomayra Herrera, Susana Moreira, Rafael Aguilar, Luís Ramos, Thomas Sturm, Paulo Lourenço, Alfredo Campos-Costa

ID: 11685 **High-Rise Unreinforced Masonry Buildings. Influence Of The Floor System On The Global Seismic Response**
Juan Jimenez Pacheco, Ramon Gonzalez-Drigo, Alex H. Barbat, Luis G. Pujades

## Th.PS04: Seismic Design and Analysis of Steel Structures

**M1.2 Poster Foyer & Library**

**ID: 10161** **A quick method for estimating the lateral and torsional stiffness of MRF in 3D model**
Peyman Shadman Heidari, Pouya Shadman Heidari

**ID: 10352** **An Introduction to Design–Led Analysis of Earthquake Resistant Moment Frames**
Mark Grigorian, Abdolreza S. Moghadam, Hadiseh Mohammadi, M Kamizi

**ID: 10616** **Vibration Characteristics Evaluation of a Low-Rise Steel Structure at Kanagawa University**
Tetsushi Inubushi, Takahisa Enomoto, Sei Sato, Toshio Kuriyama

**ID: 10676** **Collapse Assessment of Steel Moment Frames with Semi-Continuous Joints**
Atsushi Sato, František Wald, Tetsuro Ono

**ID: 11090** **Influence of Rotational Degrees of Freedom In Model Updating of a Simple 3-D Steel Structure**
Zahra Toorang, Omid Bahar

**ID: 11419** **Three-dimensional Composite Buildings Subjected To Repeated Earthquakes**
Dionisios Serras, Maria Hatzivassiliou, Konstantinos Skalomenos, George Hatzigeorgiou, Dimitri Beskos

## Th.PS05&13: Seismic Performance and Retrofit of Historical Monuments

**M1.2 Poster Foyer & Library**

**ID: 10331** **Improving Seismic Performance Of Existing Buildings In Historical Zones Of Romania. Case Study.**
Gheorghe Popescu, Rodica Popescu, Adrian Mihai Dinca

**ID: 10357** **Experimental/Computational Exploration of Retrofit Strategies for the Piedras Blancas Light Station**
Cole C McDaniel, Peter Laursen, Graham Archer, Elster Bruce

**ID: 10418** **Analysis of the Collapse mechanisms of religious structures struck by the 2016 Italian Earthquake**
Romina Sisti, Antonio Borri, Marco Corradi, Giulio Castori, Alessandro De Maria

**ID: 10571** **Seismic Performance and Retrofit of a Historic Monument Arch Bridge**
Naida Ademovic, Azra Kurtovic

**ID: 10920** **Seismic Fragility Assessment of Traditional Adobe Masonry Buildings with Limited Stiffness**
Rogiros Illampas, Nicholas Kyriakides, Dimos Charmpis

**ID: 11071** **Efficient Intensity Measures For The Seismic Assessment Of Free-standing Columns And Colonnades**
Stella Karafagka, Grigorios Tsinidis, Olga Ntinoudi, Kyriazis Pitilakis

**ID: 11309** **Quasi-Static Tests On Traditional Masonry Wall Elements Retrofitted with innovative Technique**
Aleksandar Petar Zlateski, Veronika Shendova, Elena Delova

**ID: 11572** **Assessment of Modal Parameters From Explosion Records**
Nesrin Yenihayat, Eser Çaktı

**ID: 11708** **The Theological School Of Halki - Seismic Performance Of The Historical Building**
Ioannis Nikolaos Doudoumis, Nikolaos Ioannis Doudoumis, Christos Efstathios Ignatakis

**ID: 11810** **Damage survey of a historic town and comparison with past events after the 2016 central Italy earthquake**
Luca Sbrogiò, Giuliana Cardani, Maria Rosa Valluzzi

**ID: 11981** **Seismic Assessment, Rehabilitation and Retrofit of A Cultural Heritage Church Through Simulation**
Anastasia K. Eleftheriadou, Sotirios K. Mellis, Georgios - Alexandros Palaskas, Aikaterini D. Baltzopoulou

**ID: 11983** **Ambient Vibration Tests at "Carol I" Royal Mosque in Constanta, Romania**
Alexandru Aldea, Sorin Demetriu, Cristian Neagu, Eugen Lozincă, Mădălin Iliescu

**ID: 11996** **Seismic evaluation of the minaret of "Carol I" Royal Mosque in Constanta, Romania**
Eugen Lozinca, Matsutaro Seki, Alexandru Aldea

**ID: 12299** **Soil-Structure Interaction for the "Amphitheater Flavium", Rome, Italy: Preliminary Results**
Arrigo Caserta, Fabrizio Marra, Fabrizio Cara

## Th.PS06: Geotechnical Earthquake Engineering — M1.2 Poster Foyer & Library

ID: 10765 **Modelling Non-Linear Soil-Structure Interaction For Dynamic Earthquake Analyses**
Barend Coenraad van Viegen, John Adrichem

ID: 11032 **Reproduction Experiment of Swinging Phenomenon in Liquefied Ground Using Superabsorbent Polymer**
Chiaki Hara, Susumu Yasuda, Naoto Ohbo, Keisuke Ishikawa

ID: 11257 **Evaluation Of Seismic Coefficients Of Coastal Parapet Levees And Applicability To Practical Design**
Ryota Natsusaka, Hirofumi Fukawa, Eiji Kohama

ID: 11725 **Physical Modeling of Interaction of a 3-Story Building with a Reverse Fault Rupture**
Meysam Fadaee, Kiana Hashemi, Ioannis Anastasopoulos, George Gazetas, Mahsa Hadizadeh

ID: 11755 **Seismic Design and Analysis of Reinforced Slopes and Highway Embankments**
Evangelos Koukos, Antonia Baggou

ID: 12018 **Stochastic models to represent soil spatial variability and impact on SSI Analysis.**
Irmela Zentner, Georges Devesa, Didrik Vandeputte

## Th.PS07&15: Seismic Hazard Engineering Seismology and Strong Ground Motion — M1.2 Poster Foyer & Library

ID: 10723 **Evaluation of earthquake-induced landslide hazard in the island of Lefkada, Ionian sea, Greece**
George Papathanassiou, Sotiris Valkaniotis, Athanassios Ganas

ID: 10823 **Estimation of Quality Factor (Qβ) and Source Parameters Using Accelerograms: NW-Iran**
Majid Mahood, Shima Taheri

ID: 11110 **The NIRD URBAN-INCERC Seismic Network – Data from Recent Vrancea (Romania) Earthquakes**
Claudiu-Sorin Dragomir, Emil-Sever Georgescu, Iolanda-Gabriela Craifaleanu, Vasile Meita, Daniela Dobre, Adelin Cismelaru

ID: 11125 **Why Are Earthquake Hazard Maps of Iran Different?**
Farnaz Kamranzad, Mehdi Zaré, Hossein Memarian

ID: 11203 **Proposed Method For Selecting Blocks of Maxima For Peak Ground Acceleration Data Based on Extreme Value Theory**
Shahin Borzoo, Morteza Bastami, Afshin Fallah

ID: 11305 **The Chania (Crete) urban Strong Ground Motion network. First results**
Georgios Chatzopoulos, Maria Kouli, Ilias Papadopoulos, Filippos Vallianatos

ID: 11565 **Statistical Assumptions of Mainshock Sequences and Their Validity Under Different Magnitude Ranges**
Alan Poulos, Mauricio Monsalve, Natalia Zamora, Juan Carlos de la Llera

ID: 11784 **Exploratory Bayesian Analysis of Ground-Motion Models for Spectral Accelerations in Iceland**
Milad Kowsari, Tim Sonnemann, Benedikt Halldorsson, Birgir Hrafnkelsson

ID: 12291 **An investigation of Near and Far Fault Effects On Design Spectra of Iranian Earthquake Code**
Nima Nick, Mohammad Ghasem Vetr, Hooman Nick

ID: 12309 **Ecological Consequences of Strong Earthquakes in the Himalayas**
Yury Vasilyevich Efremov

## Th.PS08&16: Civil Protection and Earthquake Risk Mitigation Policies and Methodologies — M1.2 Poster Foyer & Library

ID: 10349 **Europe Is Far Away...Or Not**
Cristian Arion

ID: 10556 **Study on Personnel Transport to Rescue Self-Escaping Difficult Persons after the Tokyo Inland Earthquake**
Satoshi Kina, Satoru Sadohara, Keiko Inagaki, Harumi Yashiro, Kazuaki Torisawa

ID: 11050 **Effectiveness of the Fault-Zoning Act on the 2016 Kumamoto Earthquake**
Norikazu Sakaba, Ichiro Sato, Harumi Yashiro

**ID: 11214 Earthquake Resilient Schools in Algarve (Portugal) and Huelva (Spain)**
João M.C. Estêvão, Mónica A. Ferreira, Antonio Morales-Esteban, Francisco Martínez-Álvarez, Luis Fazendeiro-Sá, Victoria Requena-García-Cruz, M. Luisa Segovia-Verjel, Carlos S. Oliveira

**ID: 11395 Empirical vulnerability assessment for low rise RC, Timber and Masonry Icelandic buildings**
Bjarni Bessason, Ioanna Ioannou, Ioannis Kosmidis, Jón Örvar Bjarnason, Tiziana Rossetto

**ID: 11438 Study of Artificial Neural Networks Based Methods for the Rapid Estimation of R/C Buildings' Seismic Damage**
Konstantinos E. Morfidis, Konstantinos G. Kostinakis

**ID: 11459 Challenges of Implementing an Effective Seismic Risk Mitigation Strategy for Existing Ready Made Garment Factories in Bangladesh**
Kerem Pençereci, Timurhan Timur, Rory McGowan, Aidan Madden, Laura Hulme, Sebastian Kaminski, Andrew Lawrence, Cüneyt Anadolu

**ID: 12079 Correlation between alternative smd-based seismic intensity parameters and Damage indices of structures**
Emmanouil Elenas, Nikos Nanos

**ID: 12153 Housing Structure Analysis for Earthquake Disaster Preparedness**
Md Sohel Ahmed, Hiroshi Morita

**ID: 10402 Promoting Seismic Safety in the Housing Sector in India**
Keya Mitra, Hari Kumar

## Th.PS09: Lessons from Recent Earthquakes

**M1.2 Poster Foyer & Library**

**ID: 10213 Indoor Damage and Floor Response of High-Rise Residential Buildings During the 2016 Kumamoto Earthquake Based on a Questionnaire Survey**
Masayuki Nagano, Kento Suzuki, Yutaka Hinoura, Shingo Watanabe, Takenori Hida

**ID: 10299 Non-Structural And Structural Damage Induced By The 2016 Central Italy Amatrice (August 24, Mw=6.2) And Norcia (October 30, Mw=6.5) Earthquakes**
Spyridon Mavroulis, Panayotis Carydis, Efthymios Lekkas

**ID: 10301 Effects Of The 2015 April 25 Mw 7.8 Nepal Gorkha Earthquake On The Built Environment**
Efthymios Lekkas, Spyridon Mavroulis, Panayotis Carydis, Ioannis Taflampas, Emmanouel Skourtsos

**ID: 10400 Estimation of ground motion level in the area very close to surface rupture in Mashiki-town during the 2016 Kumamoto earthquake**
Hongjun Si, Shinya Ikutama, Hideo Tanaka, Yosuke Kawakami, Takeshi Kawasato

**ID: 10839 Analysis of building damage in Mashiki Town due the 2016 Kumamoto, Japan, earthquake**
Fumio Yamazaki, Takuya Suto, Munenari Inouguchi, Kei Horie, Wen Liu

**ID: 11048 Earthquake-Response Characteristics of Super-High-Rise Residential Buildings During the 2016 Kumamoto Earthquake and the Effect of Two Consecutive Large Input Motions**
Yutaka Hinoura, Masayuki Nagano, Kento Suzuki, Takashi Kitahori, Takehiko Tanuma, Satoshi Oda

**ID: 11585 The central Italy 2016 Seismic Sequence Recorded at the Cerreto di Spoleto Strong-motion Stations.**
Dario Rinaldis, Salomon Hailemikael, Guido Martini

**ID: 11644 Earthquakes in Central Italy in 2016: Comparison Between Norcia and Amatrice**
Mario Santos Lopes, Agostino Goretti, Francisco Sá, Mónica Ferreira, Carlos Oliveira, Cristina Oliveira, Fabrizio Meroni, Thea Squarcina, Gemma Musacchio

**ID: 11778 Damage Distribution Of The June 2017 Mw 6.3 Lesvos (North Aegean Sea, Greece) Earthquake And EMS-98 Application To The Traditional Settlement Of Vrissa**
Spyridon Mavroulis, Emmanouil Andreadakis, Nafsika-Ioanna Spyrou, Varvara Antoniou, Emmanouel Skourtsos, Panayotis Carydis, Efthymios Lekkas

ID: 11951 **The November 17, 2015 M6.4 Lefkas, Greece Earthquake: Source Characteristics, Ground Motions, Ground Failures and Structural Response**
Christos A. Papaioannou, Christos Z. Karakostas, Konstantia A. Makra, Vassilios A. Lekidis, Bassil N. Margaris, Kostas E. Morfidis, Nikos P. Theodulidis, Thomas N. Salonikios, Emmanouil N. Rovithis, Stratos Y. Zacharopoulos

ID: 12023 **The Macroseismic Survey of The M4.6, 2017 Stilfontein Earthquake**
Tebogo Gladness Pule, Vunganai Midzi, Brassnavy Manzunzu, Brian Zulu, Thifhelimbilu Mulabisana, Ganesh Rathod, Khomotso Mphahlele

**Th.PS12: Tsunamis and Risk Assessment of Structures and Infrastructures** — M1.2 Poster Foyer & Library

ID: 10173 **Response of Fixed Offshore Oil and Gas Platforms Equipped with Shape Memory Alloy Elements under Extreme Wave Loading**
Amir Givkay, Peyman Shadman Heidari, Ali Golara

ID: 10235 **Tsunami Risk For Insurance Portfolios In Japan**
Jochen Woessner, Rozita Farahani, Chesley Williams, Natanya Porto, Manabu Masuda, Erin Dollarhide, Youngsuk Kim, Sreenivas Bingi

ID: 11482 **Development of an Apparatus for the Simulation of Coastal Structures Subjected to Tsunami**
Liam Jones, Ioannis Anastasopoulos

ID: 11850 **Multi-Hazard Loss Estimation Framework for Mega-thrust Subduction Earthquakes**
Katsuichiro Goda, Raffaele De Risi

**Th.PS14: Economic and Societal Models for Earthquake Loss Assessment and Mitigation** — M1.2 Poster Foyer & Library

ID: 10367 **Community Resilience Assessment Tools Based on the PEOPLES Framework: Web App and Desktop Software**
Omar Kammouh, Sebastiano Marasco, Ali Zamani-Noori, Gian Paolo Cimellaro

ID: 10413 **Development of Self-Controllable Portable Shaking Table Test System**
Osamu Tsujihara, Takeshi Yamamura, Okamoto Terumasa

ID: 10699 **Total cost of R/C buildings under alternative earthquake scenarios**
Grigorios Elias Manoukas

ID: 11498 **Seismic loss estimation of Steel Moment Resisting Frames**
Behrouz Asgarian, Masoumeh Babaei, Saeed Asil Gharebaghi

ID: 12289 **A New Socioeconomic Dependent Resilience Measure For Communities**
Morteza Abbasnejadfard, Morteza Bastami, Afshin Fallah

**17:30-18:30 Closing Ceremony | Kyriazis Pitilakis (M1.1_Friends of Music Hall)**

**Farewell**



# FRIDAY **22.06.2018**

09:00 – 18:00 **Technical and other Tours**
For more information please see pages 38-40