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## Glass performance

C. Louter · J. Belis · J. H. Nielsen · M. Overend · J. Schneider

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The Glass Structures & Engineering journal performs very well and a stunning 1500 pages were published over the past 4 years! This equals to more than 100 articles which in total are downloaded over 100.000 times so far. This performance is achieved thanks to the contributions and support of our authors, reviewers, board members and of course our readers.

The journal now enters its 5th volume and presents with the current edition a second special issue on *Glass Performance*. Once again a colorful bouquet of articles related to the performance of glass is composed.

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These articles address a broad range of topics, including the strength-performance of glass, the performance of polymers in glass construction and the performance of glass in playful and futuristic case-studies.

The strength-performance of glass is addressed in the first two articles. Müller-Braun et al. (2019) investigate how the edge strength of annealed glass can be enhanced by adjusting parameters in the cutting process. It is shown that the parameters cutting wheel type and cutting pressure have a significant effect on the edge strength. Bonati et al. (2019) investigate the strength of laminated annealed float glass. Through probabilistic assessments and incorporation of area size effects, it is shown that lamination may theoretically decrease the strength of a plate made of annealed glass.

The performance of polymers in glass construction is addressed in the subsequent three articles. In two parts, the articles of Drass et al. focus on metal-to-glass adhesive bonds using thin structural silicones in heavily constrained applications such as point-fixings. The first part (Drass et al. 2020) develops a constitutive model that takes into account the growth of voids (cavities) in hyperelastic materials. The second part (Drass et al. 2019) extends this model for cyclic loading and incorporates the phenomena of stress softening due to Mullins effect and mechanical hysteresis under hydrostatic loading of rubber-like materials. The developed model is validated by comparisons with experimental results. Hänig and Weller (2019) investigate the structural performance of lightweight composite panels consisting of thin glass facings and a polymethyl methacry-

late (PMMA) core. Short term and long term bending experiments are presented as well as an analytical calculation approach for sandwich panels, which are used to compare the performance of the composite panels to monolithic and laminated glass panels, respectively.

The last two articles present the performance of glass in two case-studies. Snijder et al. (2019) present the design, engineering and construction of an extraordinary glass swing, as displayed on the cover of this issue. This spatial and vector-active structure consists of glass struts composed of solid glass rods and additively manufactured steel nodes to connect them. The article presents the structural form-finding process, the design and testing of the glass struts and the development of the steel nodes, which resulted in the construction of the glass swing. Favoino et al. (2019) investigate the impact of glazing on the performance of futuristic electric vehicles. In the paper it is shown that by optimizing the solar and thermal characteristics of the glazing, the energy need for air conditioning inside the vehicle is reduced, thereby extending the driving range of the vehicle.

We would like to thank Jorma Vitkala and Brown Onduso for their support in collecting the articles for this special issue on Glass Performance.

Finally, we warmly invite you to submit your works to the Glass Structures & Engineering journal and to further support the journal by reviewing and reading the articles. This will be of great help for further boosting the journal's performance!

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