



Delft University of Technology

Special Issue

Advanced Modeling and Design for Composite Materials and Structures

Zhong, Yucheng; Wu, Tao; Sun, Guangyong; Cherniaev, Aleksandr; Alderliesten, René

DOI

[10.1007/s10443-023-10152-6](https://doi.org/10.1007/s10443-023-10152-6)

Publication date

2023

Document Version

Final published version

Published in

Applied Composite Materials

Citation (APA)

Zhong, Y., Wu, T., Sun, G., Cherniaev, A., & Alderliesten, R. (2023). Special Issue: Advanced Modeling and Design for Composite Materials and Structures. *Applied Composite Materials*, 30(4), 1031-1032.
<https://doi.org/10.1007/s10443-023-10152-6>

Important note

To cite this publication, please use the final published version (if applicable).
Please check the document version above.

Copyright

Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

Takedown policy

Please contact us and provide details if you believe this document breaches copyrights.
We will remove access to the work immediately and investigate your claim.

Green Open Access added to TU Delft Institutional Repository

'You share, we take care!' - Taverne project

<https://www.openaccess.nl/en/you-share-we-take-care>

Otherwise as indicated in the copyright section: the publisher is the copyright holder of this work and the author uses the Dutch legislation to make this work public.



Special Issue: Advanced Modeling and Design for Composite Materials and Structures

Yucheng Zhong¹  · Tao Wu² · Guangyong Sun³ · Aleksandr Cherniaev⁴ ·
René Alderliesten⁵

Received: 1 July 2023 / Accepted: 11 July 2023
© The Author(s), under exclusive licence to Springer Nature B.V. 2023

Research on composites is by nature interdisciplinary. It involves material science and chemistry for modification of interfaces and development of new polymer systems, which are stronger, tougher, flame retardant, easy to manufacture and inexpensive; principles of mechanics need to be used for the design of composite structures, the evaluation of their mechanical properties, the prediction of damage characteristics, and for the analysis and optimization of manufacturing processes for mitigating defects.

Considering the importance of advanced modelling and simulation in the development of composite materials and structures, this SI was initiated and supported by Prof. Guangyong Sun (Associate Editor), Prof. Peter W.R. Beaumont (Editor for Special Issues) and Prof. Maria Kashtalyan, Editor-in-Chief. The aim of this focused SI is to provide a platform for scientists to share their work and for readers to review the most recent developments in this field. Guest editors for this SI include Assoc. Prof. Yucheng Zhong from Wuhan University of Technology, Dr. Tao Wu from Technische Universität Dresden, Prof. Guangyong Sun

✉ Yucheng Zhong
yzhong1@e.ntu.edu.sg

Tao Wu
wutao202@hotmail.com

Guangyong Sun
sgy800@126.com

Aleksandr Cherniaev
Aleksandr.Cherniaev@uwindsor.ca

René Alderliesten
R.C.Alderliesten@tudelft.nl

¹ Hubei Key Laboratory of Theory and Application of Advanced Materials Mechanics, Wuhan University of Technology, Wuhan 430070, P.R. China

² Technische Universität Dresden, Holbeinstraße 3, 01307 Dresden, Germany

³ State Key Laboratory of Advanced Design and Manufacture for Vehicle Body, Hunan University, Changsha 410082, China

⁴ University of Windsor, Windsor, ON N9B 3P4, Canada

⁵ Delft University of Technology, Kluyverweg 1, Delft 2629 HS, Netherlands

from Hunan University, Assist. Prof. Aleksandr Cherniaev from University of Windsor and Prof. René Alderliesten from Delft University of Technology.

Manuscripts submitted to this SI were subjected to a rigorous review process and evaluated based on their relevance to this SI, their novelty and scientific contribution. 17 manuscripts are finally included in this SI. We would like to express our gratitude to editors and staff of the Applied Composite Materials for enthusiastically supporting its publication. Special thanks shall be given to authors and reviewers who made great efforts to ensure and maintain the high standard of manuscripts in this collection of selected papers.

Within 17 accepted papers, various interesting issues concerning different composite structures are addressed. Four major themes are covered. The first theme comprises analysis of the mechanical response of composite structures, including strength prediction, damage behavior under high and low velocity impact, torsional performance of complex skin-core composite rods, and shape memory processes of composites. The second theme touches upon AI-assisted modeling, including the prediction of elastic moduli and fatigue life of composites. The third theme addresses manufacturing aspects of composites, including numerical simulation of light-curing, and curing process of additive manufacturing of thermosetting composites. The fourth major theme concerns design of composite structures, specifically including energy-absorbing CFRP tubes and composite leaf springs.

Data Availability Data sets generated during the current study are available from the corresponding author on reasonable request.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.