Special Issue

Advanced Composite Modeling and Process System Engineering for Sustainable High-Performance Manufacturing

Message from the Guest Editors

This Special Issue reflects the collective expertise of the in progressive failure modeling, advanced composite design, and AI-driven process control. It aims to showcase transformative approaches that advance process intensification, defect mitigation, and sustainability across high-performance manufacturing systems. The scope of this Special Issue includes, but is not limited to, the following topics:

- Progressive failure modeling and damage prediction;
- Multiphysics and multiscale simulation of composite and metamaterial systems;
- AI-enabled process optimization and defect analytics;
- Rheological and thermal analysis for sustainable manufacturing;
- Digital twins and virtual testing workflows;
- Bio-inspired and stitched composite structures;
- Reduced Order Models (ROM) for accelerated simulation;
- Data-driven process design and control.

We welcome original research, case studies, and reviews that demonstrate measurable advancements in process performance and sustainable engineering practices.

Guest Editors

Dr. Steve D.C. Pham

Dr. Kwek-Tze Tan

Dr. Bruno A. Purnode

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Processes
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
processes@mdpi.com

mdpi.com/journal/processes

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You are invited to contribute either a research article or a comprehensive review for consideration and publication in *Processes* (ISSN 2227-9717). *Processes* is published in open access format – research articles, reviews, and other content are released on the internet immediately after acceptance. The scientific community and the general public have unlimited, free access to the content. As an open access journal, *Processes* is supported by the authors and their institutes through the payment of article processing charges (APCs) for accepted papers. We would be pleased to welcome you as one of our authors.

Editor-in-Chief

Prof. Dr. Giancarlo Cravotto
Department of Drug Science and Technology, University of Turin, Via P. Giuria 9, 10125 Turin, Italy

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