Special Issue

The Behavior of Materials and Structures Under Fast Loading

Message from the Guest Editor

The behavior of materials and structures in complex, non-standard situations remains a dynamic area of research, continually creating new fields of interest. In recent years, this field has been significantly enriched by studies on high-speed dynamic loadings, such as blasts and bullet penetrations. Under these conditions, materials exhibit unexpected properties, particularly in terms of failure and damage criteria, leading to unforeseen structural behaviors. The range of industrial applications is vast, spanning from the design of protective structures subjected to blasts to advancements in aviation and space engineering. Laboratory tests, such as those conducted using split Hopkinson bars, enable the measurement of material behavior at deformation rates of up to 106. Additionally, modern numerical tools allow for highly accurate simulations of structural responses under extreme conditions. Keywords:

- Blast Loading
- Split Hopkinson Pressure Bar (SHPB)
- Material Failure Criteria
- Numerical Simulations
- Functionally Graded Materials (FGMs)

Guest Editor

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Deadline for manuscript submissions

20 October 2025

Applied Sciences

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.5

mdpi.com/si/236472

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mdpi.com/journal/applsci

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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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