Special Issue

Numerical Methods and Modeling Applied for Composite Structures

Message from the Guest Editors

Designing modern structures with optimised strength and stiffness parameters requires the use of modern technologies. This applies in particular to high-tech aeronautical or automotive structures, in which the most beneficial solutions in terms of operation and durability are obtained, for example, by replacing previously used materials with modern composite materials. These primarily include polymer laminates reinforced with continuous fibres, most commonly carbon-fibre-reinforced plastics and glass-fibre-reinforced plastics (). Due to the very favourable mechanical properties of these materials in relation to their own weight, it has become possible to use fibre composites for carrier elements of thin-walled structures. Laminates make it possible to create the mechanical properties of designed components in terms of their ability to carry the appropriate type of load. Existing studies on composite structures primarily focus on analytical and numerical analyses of idealized cross sections subjected to simple loading cases like compression, shear, or bending. Experimental tests of these considerations on real construction elements is limited.

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Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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