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Editorial

Composite Structures with Symmetry

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Abstract: In recent years, the use of composite materials in structural applications has been observed. The composites have revolutionized the field of materials and allow for interesting and new developments in different engineering branches. At the same time, in all areas of engineering, there are some products or parts of products or components that contain repetitive or identical elements. Here, different types of symmetry can occur. Such systems have been studied by various researchers in the last few decades. In civil engineering, for example, most buildings, works of art, halls, etc. have, in their structure, identical parts and symmetries. This has happened since antiquity, for different reasons. First, because of their easier, faster, and cheaper design, and second, because of their easy manufacturing and (less important for engineers, but important to the beneficiaries) for aesthetic reasons. The symmetry in the field of composite materials manifests itself in two different ways, at two levels—one due to the symmetries that appear in the composition of the composite materials and that determine the properties of the materials, and second in the structures manufactured with composites. The study of the obvious importance of the existence of symmetries in the design of composite materials or composite structures of a sandwich type, for example (but also other types), and of the existence of symmetries in structures constructed also using composite materials will be highlighted within this Special Issue. With this Issue, we want to disseminate knowledge among researchers, designers, manufacturers, and users in this exciting field.

Keywords: composites; symmetric structures; sandwich composite; design of composite; advanced materials

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1. Introduction

Composite materials have very different structures and geometries, which lead to interesting properties and various applications in the field of engineering. The properties of composite materials can be special, their price is generally low, they are relatively easy to manufacture, and many of them are made from recyclable materials. As a result, composite materials and composite structures have become widely used in all industries, such as in automotive engineering, airspace engineering, construction, and manufacturing [1–8]. It is for these reasons that there is continuous research into the development of the field. Some of this research is presented in this volume, in which a large group of researchers will present their latest findings. We hope that researchers will find an interesting and useful volume of information for their future work, but that the results will be also used by engineers for their practical applications.

2. Statistics of the Special Issue

The statistics of papers called for this Special Issue, related to published or rejected items, are as follows [9–24]: 26 total submissions, of which 16 published (61.5%) and 10 rejected (38.5%). The authors' geographical distribution according to the countries of the

authors of the published papers is shown in Table 1, and it can be seen that the 53 authors are from 11 different countries. Note that it is usual for a paper to be signed by more than one author, and for authors to collaborate with authors with different affiliations or more affiliations.

Table 1. Geographic distribution by countries of authors.

Country	Number of Authors
Romania	14
Saudi Arabia	8
Lithuania	9
China	5
Bahrain	1
Turkey	1
Iran	5
Germany	1
Egypt	5
Vietnam	3
Italy	1
Total	53

3. Authors of the Special Issue

The authors of this Special Issue and their main affiliations are summarized in Table 2, and it can be seen that there are three authors on average per manuscript.

Table 2. Affiliations and bibliometric indicators for authors.

Author	Affiliation	References
Vasile Gheorghe	Transilvania University of Brasov, Romania	[1]
Maria Luminta Scutaru	Transilvania University of Brasov, Romania	[1]
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Sorin Vlase	Transilvania University of Brasov, Romanian Academy of Technical Sciences, Bucharest, Romania	[4,5,14,16]
Renata Ildiko Szava	Transilvania University of Brasov, Romania	[5]
Ioan Szava	Transilvania University of Brasov, Romania	[5]
Modrea Arina	University of Medicine, Farmacy, Science and Tehnology George Emil Palade of Tg. Mures, Romania	[5]
Lei Li	Bridge and Tunnel Research Center, Research Institute of Highway Ministry of Transport, Beijing, China	[6]
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Table 2. *Cont.*

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4. Brief Overview of the Contributions to the Special Issue

The analysis of the topics identifies or summarizes the research undertaken. This section classifies the manuscripts according to the topics proposed in the Special Issue. There are three topics that are dominant, namely: symmetry in mechanical engineering, symmetry in applied mathematics, and symmetry in civil engineering.

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