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Mechanical Modeling of Viscoelastic Composite Materials

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Message from the Guest Editors

Nowadays, there are different types of materials characterized by a viscoelastic response, where the phases generally involve both instant elastic and time-dependent viscous behavior, as well as those with hierarchical structures found in biological contexts driven by natural evolution. The present Special Issue intends to collect some theoretical and experimental approaches with the aim of achieving better performance by intentionally manipulating the complexity and inner design, and by ensuring multilength scale property control. In addition, the study of creep and relaxation behavior in viscoelasticity has gone some way towards enhancing the understanding of these kinds of composites. Viscoelastic materials are often used to improve the capability of systems to dissipate more energy. Their mechanical properties depend mainly on the frequency of excitations and temperature. The family of rheological models that consider the dependence of the mechanical properties of these materials on the excitation frequencies is very attractive. Moreover, the so-called fractional models, where fractional derivatives are used, can be considered relevant for the purpose of this work.

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Message from the Editor-in-Chief

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