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Modeling and Design Based on Shape Memory Behavior

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Message from the Guest Editors

Shape memory materials (SMMs) are a class of smart materials that, without any additional mechanical effort, are capable of memorizing their permanent shapes and recovering them through different types of stimuli. Among the four main types of shape memory material, which are shape memory ceramics, shape memory composites (SMCS), shape memory alloys (SMAs), and shape memory polymers (SMPs), the last two terms are of considerable attention due to the widespread types of applications. The feature of shape memory effect (SME) can be seen when a significant deformation may be recovered through a particular stimulus. However, other features including superelasticity (in alloys) and visco-elasticity (in polymers) have drawn attention due to the interesting behavior upon unloading and loading. Furthermore, several methods including experimental, computational, and applied mechanics may be employed to analyze mechanical as well as electrical devices.

Therefore, this Special Issue is focused on the analysis and development of novel devices, structures, and applications of SMAs and SMPs in engineering fields from civil and aerospace engineering to medical devices.

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Message from the Editor-in-Chief

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