



Lead Free Piezoelectric Materials for Clean and Sustainable Energy

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Deadline for manuscript
submissions:

closed (30 November 2022)

Message from the Guest Editors

Piezoelectric materials can convert electric energy to mechanical energy and vice versa. These materials have found many applications in actuators, sensors, energy harvesting tools, etc. One of the key questions in the development of eco-friendly piezoelectric is how to achieve high piezoelectricity and large hysteresis-free electrostrain responses in a facile and effective manner. The thermal stability of piezoelectric properties is also a topic of concern. Considering lead toxicity, at present there is interest in developing piezoelectric materials that are biocompatible and more environmentally friendly.

Over the past six decades, lead-based ceramics have gained much attention due to their excellent piezoelectric properties and high Curie temperatures. Their giant piezoelectric responses are due to the existence of a morphotropic phase boundary (MPB). The scientific community is interested in understanding the mechanism responsible for such large piezo responses, which remains unclear despite more than six decades of investigation.





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Message from the Editor-in-Chief

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