

Mechanics and reliability of piezoelectric materials

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Piezoelectric materials have the property to generate an electric potential when stressed and, vice versa, to deform when subjected to an electric field. Their theoretical modelling requires the coupling of the equations of elasticity theory and electrostatics. Their use ranges from everyday applications in cigarette lighters, gas stoves, microphones, and loudspeakers, to advanced applications as sensors and actuators in micro-electro-mechanical systems, smart structures, and energy harvesting devices.

This specialized session aims at bringing together scientists working both on theoretical and numerical modelling of piezoelectric materials in statics and dynamics, and on their experimental characterization. Contributions on industrial applications, emphasizing the critical challenges in the control of the piezoelectric effect, for instance when the devices are exposed to high temperature variations, are encouraged too.