

Piezoelectric Sensors and Actuators: Fundamentals and applications

Rupitsch, Stefan Johann, author

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Abstrak

This book introduces physical effects and fundamentals of piezoelectric sensors and actuators. It gives a comprehensive overview of piezoelectric materials such as quartz crystals and polycrystalline ceramic materials. Different modeling approaches and methods to precisely predict the behavior of piezoelectric devices are described. Furthermore, a simulation-based approach is detailed which enables the reliable characterization of sensor and actuator materials.

One focus of the book lies on piezoelectric ultrasonic transducers. An optical approach is presented that allows the quantitative determination of the resulting sound fields. The book also deals with various applications of piezoelectric sensors and actuators.