



Journal Menu

- Abstracting and Indexing
- Aims and Scope
- Article Processing Charges
- Articles in Press
- Author Guidelines
- Bibliographic Information
- Contact Information
- Editorial Board
- Editorial Workflow
- Reviewers Acknowledgment
- Subscription Information

- Open Special Issues
- Published Special Issues
- Special Issue Guidelines

Call for Proposals for Special Issues

Journal of Sensors
Volume 2009 (2009), Article ID 943125, 13 pages
doi:10.1155/2009/943125

Review Article

On Mass Loading and Dissipation Measured with Acoustic Wave Sensors: A Review

Marina V. Voinova

Department of Physics, University of Gothenburg, 412 96 Göteborg, Sweden

Received 31 December 2008; Accepted 18 April 2009

Academic Editor: Michele Penza

Abstract

We summarize current trends in the analysis of physical properties (surface mass density, viscosity, elasticity, friction, and charge) of various thin films measured with a solid-state sensor oscillating in a gaseous or liquid environment. We cover three different types of mechanically oscillating sensors: the quartz crystal microbalance with dissipation (QCM-D) monitoring, surface acoustic wave (SAW), resonators and magnetoelastic sensors (MESs). The fourth class of novel acoustic wave (AW) mass sensors, namely thin-film bulk acoustic resonators (TFBARs) on vibrating membranes is discussed in brief. The paper contains a survey of theoretical results and practical applications of the sensors and includes a comprehensive bibliography.

- Abstract
- Full-Text PDF
- Full-Text HTML
- Linked References
- How to Cite this Article
- Complete Special Issue