Special Issue

Thin Film Deposition and Characterization in Micro- and Nano-Technology

Message from the Guest Editor

Thin film deposition is one of the most important processes in micromachining device fabrication, either before or after lithography. These processes include CVD, PVD, spin coating, electroplating, and other coating methods. The structure and quality of the thin film determines the success of these properties in micromachining device application. In the film deposition, different thin film growth modes can result in more dislocations and grain boundaries, resulting in mechanical failure in the micromachining device. For optical applications, the efficiency of photonic crystal light transport or microwave transport also depends on the pattern perfection of thin film growth. In an electrochemical cell, ion transport depends on the porosity of the morphology and the roughness of the heterojunction. In addition, lateral nanoscale thin film growth is differs entirely from micro-scale thin film. Thin film materials in micromachining devices use nano-probes or nano-focus beams to probe with high-resolution lateral spatial resolution, involving non-conventional material characterization methods such as high-resolution SEM/TEM, nano-focus X-ray, and Raman scatting.

Guest Editor

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Deadline for manuscript submissions

31 December 2025

Micromachines

an Open Access Journal by MDPI

Impact Factor 3.0
CiteScore 6.0
Indexed in PubMed

mdpi.com/si/235644

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