Special Issue

Functional Probes for Scanning Probe Microscopy

Message from the Guest Editor

Scanning probe microscopy is one of the most powerful yet versatile experimental techniques offering unparalleled resolution and precision. Modern functional probes, broadly defined, drastically broaden the functionality of conventional scanning probe microscopes for characterization (e.g., physical properties, chemical identities), manipulation (e.g., creation of artificial structures), and fabrication (e.g., nanolithography) at length scales ranging from single atoms to macroscopic wafers. Such advances are made possible, for example, by the maturity of nanofabrication technologies (e.g., smart and nanostructured probes, MEMS probes), the integration of existing scanning probes with additional excitations (e.g., laser, X-ray, microwave, and mechanical excitations), functional modifications of probes (e.g., chemical decoration, superconducting probes), and the implementation of entirely new probes (e.g., the miniaturization and integration of existing technologies to a scanning probe).

Guest Editor

Dr. Xiaolong Liu
Kavli Institute at Cornell, Cornell University, Ithaca, NY 14853, USA

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Micromachines
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
micromachines@mdpi.com

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Editor-in-Chief

Prof. Dr. Ai-Qun Liu
1. Department of Electrical and Electronic Engineering, The Hong Kong Polytechnic University, Hong Kong, China
2. School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore 639798, Singapore

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