Special Issue

New Advances in Micro-Devices

Message from the Guest Editors

In recent years, there has been an important growth of micro-device proposals in various fields, including biomedical, automotive, and aerospace fields. This growth is due to the strong market interest in materials other than silicon, such as polymers, glass, and composite materials, which allow equally performing micro-devices to be obtained, but at a much lower cost thanks to the availability of high-performance micro-manufacturing technologies. Their features of precision and reproducibility, as well as their low cost and scaling suitability, make their use more appealing for innovative microfabrication. Smart manufacturing techniques, starting from standard additive manufacturing to two-photon fabrication, also offer the ability to quickly and reliably prototype micro-devices to reduce the risk of costly rework. The advent of Industry 4.0 also given a strong push to the monitoring of processes through sensors, facilitating the application of Digital Twin techniques that digitally reproduce processes in a rather realistic way, allow an accurate assessment to be made on the digital concept with important implications in terms of the feasibility of implementing the micro-device.

Guest Editors

Dr. Gianluca Trotta

STIIMA-CNR, Institute of Intelligent Industrial Systems and Technologies for Advanced Manufacturing, National Research Council of Italy, 70124 Bari, Italy

Dr. Francesco Ferrara

CNR Nanotec, Institute of Nanotechnology, National Research Council of Italy, 73100 Lecce, Italy

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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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