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Innovations in Materials, Fabrication and Functionalization of Microfluidic Devices

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Message from the Guest Editors

Microfluidics has become an attractive field of research, since it has a wide range of applications, such as in lab-on-a-chip devices, cell analysis, cosmetics, drug delivery, microfabrication, and chemical synthesis.

Microfluidics is a subsection of fluidics usually in networks of channels with dimensions from tens to hundreds of micrometers and microliter volumes. Since the first approaches to miniaturizing the fluid flow devices in the 1990s, the discipline has grown enormously over the last three decades.

Microfluidic devices are manufactured with a large variety of methods and materials. Typical materials are polymers, including silicon-based polymers, inorganic materials such as glass or silicon, and paper. Traditional methods for microfabrication are photolithography and wet or dry etching. However, the use of additive manufacturing is getting more and more important. So-called 3D printing can also handle multicomponent materials.

The flow in microfluidic devices, especially for multiphase flow, strongly depends on the surface properties. This Special Issue will focus on the innovations in materials for microfluidic devices and their fabrication.





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Message from the Editor-in-Chief

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