

Special Issue

Research Progress and Future Trends of Microfluidic Analytical Devices

Message from the Guest Editors

Miniaturization of analytical instruments such as electrophoresis, UV-VIS spectroscopy, and mass spectrometry is driven by a need to reduce cost by consumption of low volumes of expensive fluids and reagents, achieve multiplexing, and increase throughput by automation. A recent research trend is fabricating small and smaller electronic, mechanical, and optical devices to provide a faster, real-time response and more selective and sensitive detection. Among the many developed techniques, microfluidics has been a choice of technique to fabricate devices due to the advantages of controllability, reproducibility, stability with small volumes, and reaction for testing.

Microfluidics-based analytical sensors have been widely used in various applications such as point-of-care diagnostics, environmental monitoring, pathogen detection in food, healthcare monitoring, water quality, drug testing, and various chemical and biological domains.

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