Special Issue

Electrochemical Approaches in Microfluidics and Microsensors Development

Message from the Guest Editor

Electrochemical systems are naturally prone to integration in microfluidic platforms and microsensors. Indeed, microflow control can be achieved by electrochemical actuated valves and electroosmotic pumps. Sensitive amperometric or voltammetric detection is obtained even with the use of microelectrodes at the solution–electrode interface, making them proper for miniaturization. Conductometric and potentiometric detection strategies have widely applied in ion analysis. Simple instrumentation and low power consumption make electrochemical microsensors ideal for point-of-care, remote monitoring, and wearable devices. Most microfabrication techniques can fully incorporate electrochemical sensors during the fabrication step. Electrochemical sample preparation is a powerful strategy for isolating, derivatizing, and concentrating target analytes prior to the detection step.

This Special Issue of Micromachines covers all aspects of electrochemical systems applied to microfluidic devices and microsensors. Original papers on strategies of detection, actuation, and sample treatment coupled to microfluidic devices, as well as microsensor development, are considered.

Guest Editor

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