Special Issue

Innovations in Neurochemical and Electrophysiological Sensing: Materials, Devices, and Techniques

Message from the Guest Editors

Understanding brain function requires advanced neural probes capable of monitoring both electrical and chemical signaling across multiple timescales and brain regions. The integration of electrochemical neurotransmitter detection with traditional electrical recording in implantable multielectrode probes has opened new frontiers in neuroscience research. These advancements offer deeper insights into the complex dynamics of neurochemical and electrophysiological processes. This Special Issue aims to spotlight recent developments in materials, devices, and techniques that have enabled or have the potential to advance dual-mode recordings. The focus is on innovations that not only enhance the functionality of neural probes but also address critical challenges such as sensor fouling and long-term biocompatibility, thereby minimizing brain damage from chronic implantation. We welcome original research articles, reviews, and mini-reviews that cover a range of topics.

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Biosensors is a leading journal, devoted to fast publication of the latest achievements, technological developments and scientific research in the exciting multidisciplinary area of biosensors. Both experimental and theoretical papers are published, including all aspects of biosensor design, technology, proof of concept and application. Special issues are devoted to specific technologies and applications, and a selection of the most outstanding papers each year is recognized. Pushing the boundaries of the discipline, we invite original papers, as well as timely reviews on cutting edge fields within the subject area.

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