Special Issue

Innovative Materials for Bioelectronics in Wearable and Implantable Applications

Message from the Guest Editors

The field of bioelectronics is undergoing transformation, showing great potential in wearable and implantable applications. Wearable electronics, such as smartwatches and electronic textiles. Implantable electronics, like pacemakers and neural stimulators. These applications rely on innovative materials that bridge the gap between biological systems and electronic devices. Flexible conductive materials like liquid metals and conductive polymers enhance signal transmission efficiency and sensing accuracy. Hydrogels, with tunable mechanical properties, can mimic the natural tissue environment, forming gentle interfaces with implantable devices. Energy conversion materials can harvest energy from biological motion and body heat, reducing reliance on external power sources. Stimulus-responsive materials can deliver electrical pulses through ultrasound, promoting nerve regeneration and tissue repair. This Special Issue emphasizes interdisciplinary research that bridges the fields of materials science, engineering, and biomedicine.

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