**Organic materials for bioelectronic devices**

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Bioelectronics is the emerging interdisciplinary field that integrates biology with electronic systems to revolutionize the way we diagnose and treat disease. Its origins can be traced back to the 18th century, when Luigi Galvani’s experiments with detached twitching frog legs revealed the nature of electricity in living organisms. Today, this legacy continues in a plethora of bioelectronic devices which include defibrillators and pacemakers to prevent or correct arrhythmias, cochlear implants to provide the sense of hearing, and glucose monitoring devices to help diabetics manage their disease. However, the coupling between biology and electronics is limited by the materials that can form stable interfaces with the tissue and transduce signals across the biotic/abiotic ensemble. Recently, organic electronic materials have emerged as a promising solution. These materials offer their unique properties, which include mixed ionic/electronic conductivity, mechanical flexibility and enhanced biocompatibility, and which make them ideal for interfacing biological systems.

In this talk, I will provide an overview of the field of bioelectronics and explore its potential to address unmet medical needs. I will present examples of innovative devices designed to bridge the gap between biology and electronics and demonstrate how organic materials open new avenues for studying and treating disease.