
Organic (nano)bioelectronics for point of care diagnostics

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The development of micro-electronic devices that bridge the gap between the rigidity of traditional electronics with the soft mechanics of biological systems is highly desirable. The emergence of highly conjugated polymers with interesting electronic and optical properties, opened up exciting directions in biomedical research including point-of-care diagnostics. With the ultimate goal of fully integrated wearable sensors combined with IoT, and that of autonomous at-home diagnostic tests, polymer electronics have been heavily explored the past decade resulting in novel device configurations. Multiplexing capability, ability to adopt to complex performance requirements in biological fluids, sensitivity, stability, literal flexibility and compatibility with large-area processes are only some of the merits of conjugated polymers for point of care diagnostics. This talk will summarize our recent efforts on developing (nano)biosensors for health monitoring, harnessing the ease and versatility in processability of polymers with the high surface to volume ratio of 2D structures/ materials, with direct applications in point-of-care diagnostics.