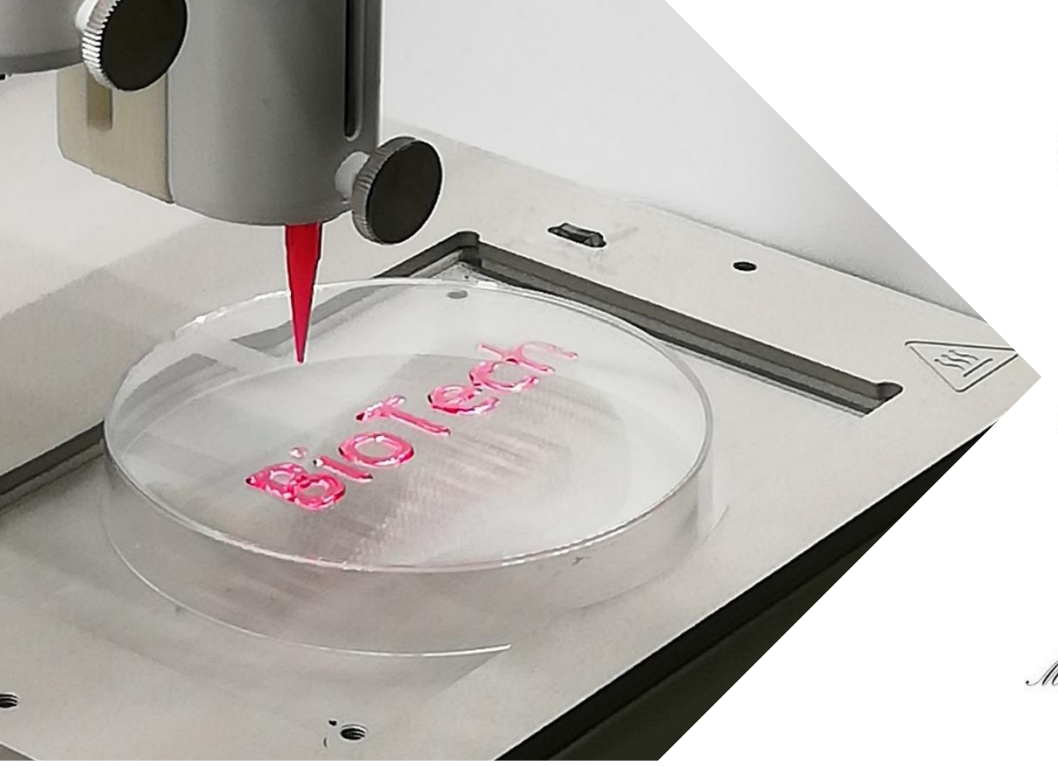

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Department of Industrial Engineering
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Soft Electronics as Interfaces to Living Tissues

Speaker:
Prof. **John A. Rogers**,
Northwestern University,
Evanston, Illinois, USA
April 11th, 2023
h. 4.30 pm CEST
Zoom Platform

Abstract

Advanced optoelectronic systems that can intimately integrate with the brain and the peripheral nervous system have the potential to accelerate progress in neuroscience research and to serve as the foundations for new approaches in patient care. Specifically, capabilities for injecting miniaturized electronics, light sources, photodetectors, multiplexed sensors, programmable microfluidic networks and other components into precise locations of the deep brain and for softly laminating them onto targeted regions of the surfaces of the neural tissues will open up unique and important opportunities in stimulation, inhibition and real-time monitoring of neural circuits. This talk will describe foundational concepts in materials science, device physics and assembly processes for these types of technologies, in 1D, 2D and 3D architectures. Examples of system level demonstrations include 'cellular-scale', injectable optofluidic neural probes for behavioral research on animal models and 3D mesoscale networks for study of neural signal propagation and neuroregeneration in cortical spheroids.