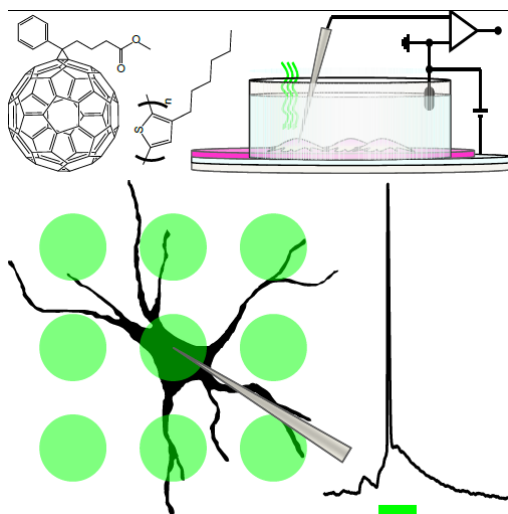


Organic opto neuronal interfaces for artificial retina and life enhancing technology

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A key issue in the realization of retinal prosthetic devices is reliable transduction of the information carried by light into specific patterns of electrical activity in the networks involved in visual information processing. Soft organic materials can be used to couple artificial sensors with neuronal tissues. Here, we interface a network of primary neurons with an organic blend. We show that primary neurons can be successfully grown onto the polymer layer, without affecting the optoelectronic properties of the active material or the biological functionality of the neuronal network. Moreover, action potentials can be triggered in a temporally reliable and spatially selective manner with short pulses of visible light. Our results may lead to new neuronal communication and photo-manipulation techniques, thus paving the way to the development of artificial retinas and other neuro-prosthetic interfaces based on organic photo-detectors.



References:

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