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ABSTRACT

Title	**(W01.03) A Hybrid Bio-Organic Interface For Neuronal Photo-Activation** **Room: 118 - Session: W01 - Abstract Number: 4082** **Ref.: FENS Abstr., vol 7, W01.03, 2012**
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Location:	118

A key issue toward the realization of retinal prosthetic devices is a reliable transduction of the information carried by light into specific patterns of electrical activity at the level of the networks involved in visual information processing. In this perspective, soft organic materials offer a unique chance in coupling artificial sensors with neuronal tissues. Here we report the successful interfacing of an organic blend to a network of primary neurons. We show that primary neurons can be successfully grown onto the polymer layer, without affecting the optoelectronic properties of the active material and the biological functionalities of the neuronal network. Moreover, action potentials can be triggered in a temporally reliable and spatially selective manner by shining short pulses of visible light. Our results lead to a new generation of neuronal communication and photo-manipulation techniques, thus paving the way to the development of an artificial retina based on organic photo-detectors and other neuroprosthetic interfaces.