

Abstract Submitted  
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**Nanocoax neurointerface array recordings of *Hirudo medicinalis* neurons**<sup>1</sup> JEFFREY R. NAUGHTON, BINOD RIZAL, MARGARET H. AASEN, MICHAEL J. BURNS, THOMAS C. CHILES, MICHAEL J. NAUGHTON, Boston College — We report results for a nanocoax-based neuroelectronic array. The device was used in real time to noninvasively couple to a ganglion sac located along the main nerve cord of the leech *Hirudo medicinalis*. This allowed for extracellular recording of synaptic activity in the form of spontaneous synapse firing in pre- and post-synaptic somata. In addition, we show the ability to actuate localized stimulation (Faradaic regime) which, in some circumstances, appears to facilitate electroporation, which itself enables intracellular measurements. In conjunction with this latter recording with one subarray, we measured changes in the local field potential (extracellular) with another array at a second site, allowing us to calculate the action potential propagation or conduction speed.

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Jeffrey Naughton  
Boston Coll

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