

Abstract Submitted
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Extracellular recording of *Hirudo medicinalis* neurons using high density, nanocoax neurointerface array¹ JEFFREY R. NAUGHTON, MARGARET H. AASEN, MICHAEL J. BURNS, THOMAS C. CHILES, MICHAEL J. NAUGHTON, Boston College — We describe the development of a nanocoax-based neuroelectronic array with submicron pixelation with potential for recording and stimulation with high spatial and temporal resolution. Our device is composed of an array of nanoscale open-ended coaxial electrodes addressed in either a group or individual configuration. As a neuroelectronic interface, our device is characterized by noninvasive real-time coupling to the ganglion sac located along the main nerve cord of the *Hirudo medicinalis*. This allows for extracellular recording of interneural synaptic activity, while also showing the capability of actuating precisely-localized stimulation (faradaic regime). We report on initial results from measurements of electrical signals associated with induced and spontaneous synapse firing in pre- and post-synaptic somata.

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