



NEUROSCIENCE AND PHYSIOLOGY SEMINAR SERIES

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“Amplitude Resolution of Ultra Microelectrodes”

Abstract: Touch is essential for dexterous movement and remains a top priority for restoration in individuals with paralysis or limb loss. Brain-computer interfaces (BCIs) can restore tactile perception by delivering intracortical microstimulation (ICMS) through electrodes implanted in the somatosensory cortex. However, conventional electrodes face challenges of biocompatibility due to their size, materials, and mechanical mismatch with neural tissue. To address this, our lab has developed ultra-microelectrodes (UMEs) that are significantly smaller than current standards. This work investigates how electrode miniaturization can increase the amplitude and spatial resolution of ICMS, to enable more finely graded feedback and guide more effective electrode design.

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