

CARNEGIE MELLON UNIVERSITY

BME 2022 SPRING SEMINAR SERIES

Novel form of neural communication in the brain by electric field coupling



PRESENTED BY

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SCHEDULE

HOA 160

**Thursday,
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(10:15AM-11:15AM)

Neural activity is known to propagate by action potentials travelling along axons and activating other neurons. However, recent experiments have shown that various types of neural activity such as epileptic spikes, sleep waves, theta waves, seizures can propagate without chemical or electrical synaptic transmission. Additional experiments show that neural activity can propagate through a complete cut of the tissue and indicate that ephaptic (electric field) coupling plays a significant role in the propagation of neural activity. These results show that a neural network can give rise to sustained self-propagating waves by ephaptic coupling, suggesting a novel propagation mechanism for neural activity in-silico, in-vitro and in-vivo.



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