

Spring 2020 Grad Student Seminar

Department of Mathematics



Oscillations Via Excitable Cells

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Date: Monday, January 27

Time: 4:30 - 5:20 pm

Location: Room 703, Thackeray Hall

Derek Orr received his BS in both math and physics from the University of Pittsburgh in 2016. As a PhD student, he's received the Elizabeth Baranger Teaching Award in his first year, and he got an MS in number theory in 2019. He currently works under Dr. Bard Ermentrout in mathematical biology, studying oscillatory and excitable neuron interactions. He has an adorable pup, Louisa, and a pretty great fiancée, Sarah.



Oscillatory and excitable cells are just two of many types of cells in your body. They interact with each other by sending pulses or voltage spikes. An excitable cell amplifies any input it receives, as long as the input is large enough while an oscillatory cell needs no input and generates a spontaneous rhythm. One can connect these cells and model how they interact using differential equations; in this talk, I will discuss what we have found.

Organized by: Behnam Esmayli, Mark Fincher, Manu Jayadharan, Tongtong Li, and Derek Orr