



Research In Progress Seminar

**Tuesday, February
21, 2017
2:00PM**

**Location: The Fishbowl,
2120 Biological Sciences 3**

Speaker:

**Matt Bovyn,
Physics
Department**

Talk Title:

**Intersections on the
intracellular highway: a
mathematical model
investigating when
cargos switch tracks**

Abstract:

Eukaryotic cells use kinesin and dynein molecular motors to transport organelle cargos to the correct place at the correct time. To do so, the cargos must navigate a dynamic network of microtubule tracks, choosing at each intersection whether to switch tracks or continue on. First, I will outline experimental work done by my collaborators on artificial cargos navigating 3D microtubule intersections constructed in vitro. Then I will present a mathematical model of cargo transport which we're using to help us understand the results of these experiments. The brownian dynamics model we've constructed is simulated using a hybrid gillespie / fixed timestep monte carlo method and solves a set of stochastic ODEs using Euler-Maruyama.

Questions:

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