The Math/Stats Colloquium
Department of Mathematics and Statistics
San José State University

Patrick Murphy

SJSU

Modeling Collective Bacterial Dynamics

Wed Feb 28, 2024, MH320

Abstract: Emergent behavior is a phenomenon where interacting parts of a system can produce behaviors or effects that the individual parts cannot. Collective behavior in bacterial communities, such as the soil bacteria M. xanthus, is one such example, with groups of bacteria able to self-organize into complex structures. We will look at two examples of how these processes can be modeled, one using a data-integrated agent model and the other using more classic differential equations.

Background: Some knowledge of statistics, probability, and differential equations.

About the speaker: Patrick Murphy received his Ph.D. in Mathematical Biology from the University of Utah. He is currently an Assistant Professor in the Department of Mathematics and Statistics at SJSU. His current research involves models of cooperative behaviors in bacterial communities.

Snacks in MacQuarrie Hall 331B at 2:40pm
Talk starts at 3:00pm

For more information, see our full schedule at:

http://www.timhsu.net/colloq/