THE UNIVERSITY OF CHICAGO

COMPUTATIONAL AND APPLIED MATHEMATICS STUDENT SEMINAR

JUSTIN FINKEL
Committee on Computational and Applied Mathematics
University of Chicago

Patterns in Arid Ecosystems: Connecting Models and Measurement

THURSDAY, November 30, 2017, at 1:00 PM
Jones 226, 5747 South Ellis Avenue

ABSTRACT

Many arid landscapes around the world support patchy vegetation cover that appears in regular stripes. Several generations of mathematical models, from cellular automata to reaction-diffusion systems of PDEs, have successfully reproduced similar patterns, and even make rough predictions about critical behavior under changes in rainfall. These models are highly idealized, however, and do not reflect the full complexity and diversity of patterns observed in nature. With the growing availability of high-resolution satellite imagery, a natural next step is to quantitatively compare models with reality. Our ongoing work is to develop tools for capturing basic features of vegetation patterns from satellite data to rigorously test model predictions, such as correlation between vegetation stripes and local topography.

For further information and inquiries about building access for persons with disabilities, please contact Zellencia Harris, zellenciah@uchicago.edu. If you wish to subscribe to our email list, please visit the following website: https://lists.uchicago.edu/web/subscribe/cam_colloquium/.