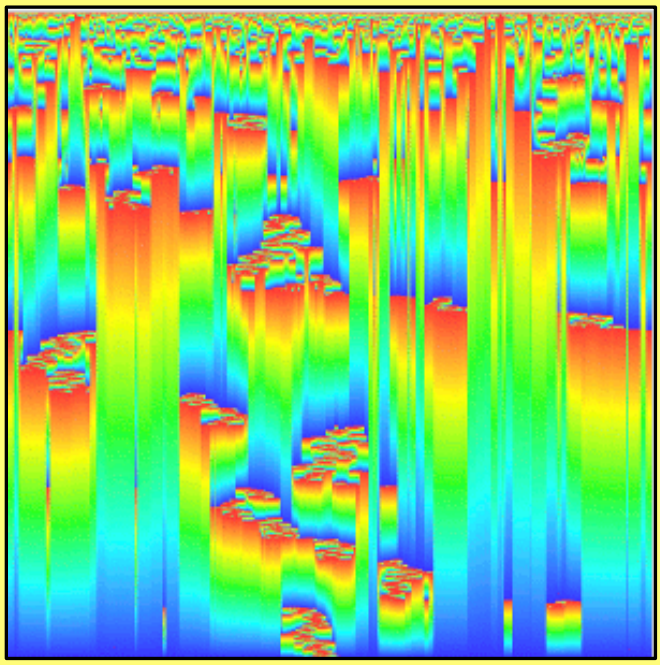
UCCS Department of Mathematics

Math Colloquium Series

DR. IDDO BEN-ARI

UNIVERSITY OF CONNECTICUT



DATE:
THURSDAY
MARCH 16, 2017

TIME:
12:30PM-1:30PM
(REFRESHMENTS AT 12:15PM)

LOCATION:
UNIVERSITY CENTER
ROOM #126

The Bak-Sneppen Model of Biological Evolution and Related Models

Abstract: The Bak-Sneppen model is a Markovian model for biological evolution that was introduced as an example for Self-Organized Criticality. In this model, a population of size N evolves according to the following rule. The population is arranged on a circle, or more generally a connected graph. Each individual is assigned a random fitness, uniform on [0,1], independent of the other fitness of the other individuals. At each unit of time, the least fit individual and its neighbors are removed from the population, and are replaced by new individuals. Despite being extremely simple, the model is known to be very challenging, and the evidence for Self-Organized Criticality provided by Bak and Sneppen was obtained through numerical simulations. I will review the main rigorous results on this model, mostly due to R. Meester and his coauthors, present some new results and open problems. I will then turn to recent and more tractable variants of the model originally introduced by Guiol Machado and Schinazi, in which the spatial structure is relaxed, yet the population size is random. I will focus on the functional central limit for model, which has a somewhat unusual form.

For More Information please contact the UCCS Math Department at
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