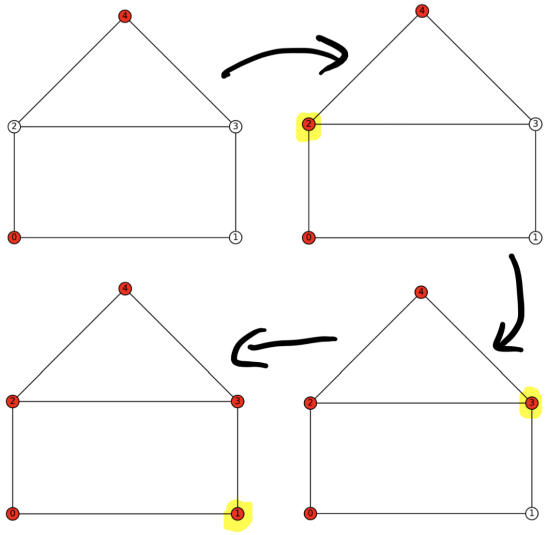
VCU Discrete Mathematics Seminar

Small Percolating Sets

Prof Neal Bushaw
VCU!

Wednesday, Aug. 28
1:00-1:50
4145 Harris Hall



Bootstrap percolation is a simple monotone cellular automaton which was originally introduced by Chalupa, Leath and Reich as a model of ferromagnetism in the late 1970s. In this model, we think of some vertices of a graph as being *infected*. Even worse, this infection can spread – an *uninfected* vertex with many infected neighbors will itself become infected.

In this talk, we give an introduction to bootstrap percolation and its history, highlighting a few major breakthroughs, classic problems, and important variants. Then, we discuss a 'small percolating sets' phenomena – which graphs have a small set of vertices whose infection eventually spreads to the entire graph? This final question was the topic of this summer's Graph Brain Project; we describe several results from the summer's work.

No background knowledge will be assumed – this talk will introduce you to the area and its problems, rather than show complicated proofs.

For the DM seminar schedule, see:

`http://www.people.vcu.edu/~dcranston/DM-seminar/`