VCU Discrete Mathematics Seminar

3-Bootstrap Percolation on Grids and Tori

Prof Neal Bushaw
(VCU!)

Wednesday, Oct. 22
1:00-1:50 EDT

In person in 4145 Harris Hall. And a Zoom option:
`https://vcu.zoom.us/j/81475528886`
`password=graphs2357`

At each step of the k-neighbor bootstrap percolation process on a graph, every uninfected vertex with at least k infected neighbors becomes infected. An initial set of infected vertices PERCOLATES if eventually every vertex becomes infected. Determining the minimum size of a percolating set under the 2-bootstrap model is a classic combinatorial puzzle – the slower infection of the 3-bootstrap process seems harder to analyze. Building on the work of Dukes, Noel, and Romer, we determine precisely the minimum size of a percolating in an (m x n) grid. We then consider the same question for toroidal grid graphs.

This is joint work with Alexander Clifton.

For the DM seminar schedule, see:

`https://go.vcu.edu/discrete`