

1135-60-979

**Gabrielle C.W Moss\*** (gmoss2@jhu.edu), 3400 N Charles Street, Whitehead Hall 100, Baltimore, MD 21218. *Investigating bounds for the bond and site percolation thresholds of a 2-uniform lattice.*

A percolation model is an infinite graph, from which edges are deleted independently with probability  $p$ . The percolation threshold of an infinite graph is the critical probability  $p_c$  above which there exists a connected, infinite component. Most research so far has focused on calculating exact values and rigorous bounds for the percolation threshold of one-uniform tilings, known as Archimedean lattices. We will investigate how to calculate the percolation threshold of a two-uniform tiling. In a two-uniform tiling, each vertex of the tiling has one of two sequences of faces surrounding it. We use these vertex configurations to name the tiling. This talk will be focusing on the  $(3,4,3,12)$ ,  $(3,12^2)$  lattice. Each vertex of this graph has one of two face sequences: triangle-square-triangle-dodecagon, or triangle-dodecagon-dodecagon. We will derive bounds for the site and bond percolation thresholds and discuss the methods used for calculating these bounds. (Received September 18, 2017)