1125-VP-823 **John C. Wierman*** (jwierma1@gmail.com), Dept. of Applied Mathematics and Statistics, 100 Whitehead Hall, Johns Hopkins University, Baltimore, MD 21218. *Bond percolation threshold bounds for Archimedean lattices.* Preliminary report.

In the bond percolation model, a random subgraph is obtained from an infinite connected graph G by retaining each edge independently with probability p, $0 < p < 1$. The percolation threshold p_c is the edge retention probability value above which the random subgraph contains an infinite connected component. The exact percolation threshold is known for only a few graphs, and rigorous bounds for unsolved graphs are generally rather poor. The substitution method uses stochastic ordering, a symmetry reduction, non-crossing partitions, and network flow algorithms to compute improved bounds for several of the eleven Archimedean lattices, which are vertex-transitive tilings of the plane by regular polygons. (Received September 12, 2016)