1086-60-1057 **John C. Wierman*** (`wierman@jhu.edu`), Johns Hopkins University, Dept. of Applied Mathematics & Statistics, Baltimore, MD 21218. *Computing percolation threshold bounds using the substitution method without a reference lattice.* Preliminary report.

In percolation theory, an infinite random lattice graph model is studied. A fundamental quantity is the percolation threshold, often interpreted as a phase transition point, above which infinite clusters exist. Past applications of the substitution method derived rigorous upper and lower bounds for the percolation threshold of a lattice graph by comparison with a percolation model on an exactly-solved lattice graph. For a class of planar lattice graphs, an approach that does not require a reference lattice will be presented. (Received September 18, 2012)