1116-60-442 **John C. Wierman*** (wierman@jhu.edu), Dept. of Applied Mathematics & Statistics, 100 Whitehead Hall, Johns Hopkins University, Baltimore, MD 21218. *A lower bound for the difference between the bond percolation thresholds of the cubic and face-centered cubic lattices.* Preliminary report.

The exact percolation threshold is not known for any three-dimensional lattice bond percolation threshold, and rigorous bounds are quite poor. It has been long been known that since the cubic lattice is a subgraph of the face-centered cubic lattice, there is a strict inequality between their percolation thresholds: $p_c(\text{ cubic }) > p_c(\text{ face-centered cubic })$. However, there has been no positive lower bound on the size of the difference. Using the substitution method, we show that $p_c(\text{ cubic }) - p_c(\text{ face-centered cubic }) > 0.064$. For comparison, simulation estimates indicate that the difference is approximately 0.124. (Received September 01, 2015)