Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

**Use of asymmetric cells in percolation theory**[1] EUGENIO E. VOGEL, WALTER LEBRECHT, JULIO F. VALDES, Univ. La Frontera, Chile — The use of renormalization cells to obtain percolation thresholds and critical exponents for site and bond occupancy is a well-known technique. Herewith we consider bond percolation with two variations to this technique. On one side, we extend the analysis so as to include asymmetric percolation cells on top of the usual symmetric cells giving more points to the scaling analyses. On the other hand, we consider the inflection point of the percolation curve as an indicator for the transition in addition to the usual renormalization analysis. Results show good accuracy comparing well and even better than some reported parameters in the literature. The presentation will go over two dimensions for the sake of simplicity but some early results in three dimensions will be also reported towards the end of the presentation. The implications of these treatments in the field of magnetic phase transitions are also considered.

[1]Partially supported by Millenium Scientific Initiative (Chile).

Eugenio E. Vogel
Univ. La Frontera, Chile

Date submitted: 21 Oct 2009 Electronic form version 1.4