

Statistical physics 2, homework 6

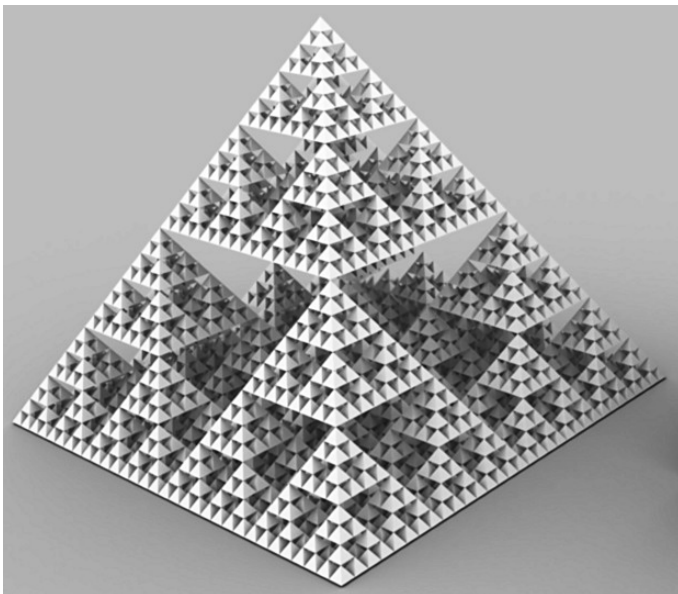
Percolation: Using real space renormalization with $b = 2$ estimate the critical probability and the ν exponent of the two dimensional square lattice site percolation.

Fractal dimension: Calculate the fractal dimension of the two dimensional Sierpinski triangle and the three dimensional fractal pyramid.

The Sierpinski triangle starts with equilateral triangle. The triangle is divided into four equivalent equilateral triangle and the middle is removed. The last step is repeated for all remaining triangles. See figure below.



The fractal pyramid starts with a square based pyramid and equilateral triangles as sides. From the pyramid we keep only five half size similar shaped pyramids at all five corners as show in the figure below:



Deadline: October 27, 2016