Critical Exponent ν of the Ising Model in Three Dimensions with Long-range Correlated Disorder
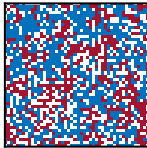
Hamiltonian diluted Ising Model

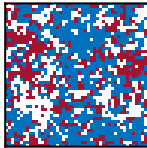$$\mathscr{H} = -J \sum_{\langle xy \rangle} \eta_x \eta_y s_x s_y$$

$\eta_x = 1/0$ for occupied/empty site

defects long-range correlated

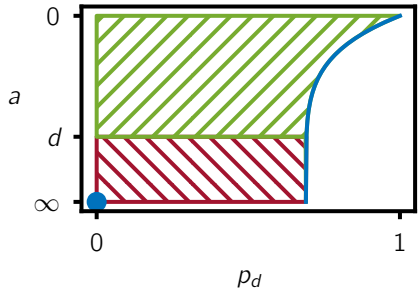$$\langle \eta_x \eta_y \rangle \propto \frac{1}{r(x,y)^a}$$

uncorrelated   correlated

Extended Harris Criterion

for $a < d$ expect

$$\nu = \frac{2}{a}$$

● pure ▨ uncorr. ▨ corr.

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