An effective model of facets formation.

Dmitry Ioffe, Technion-Israel Institute of Technology

An effective model of facets formation is a 2+1 SOS interface over a lattice box of linear size N, which is coupled with high and low density Bernoulli fields (designed to model co-existing pure phases) respectively below and above it, and which is conditioned on excess particle number aN^2. As a grows the model undergoes an infinite sequence of first order transitions which are spelled out in terms of spontaneous formation of macroscopic size facets. Concentration, large deviations and fluctuations of the corresponding level sets are discussed.

Joint work with Senya Shlosman