Sabine JANSEN (Ruhr-Universität-Bochum)

Metastability at low temperature for continuum interacting particle systems

We consider a system of point particles in a finite box in $\mathbf{R}^2$ that interact via a finite-range attractive pair potential, and move according to a Markov process that has the grand-canonical Gibbs measure as a reversible measure. The chemical potential is such that the system favors a packed box, but has a nucleation barrier to overcome in order to go from an empty box to a filled box. We are interested in the nucleation time in the limit as the temperature tends to zero. We use the potential-theoretic approach to metastability. The results should extend earlier work for lattice systems; the main difficulty lies in understanding the energy landscape of the continuum particle system, a problem of intrinsic interest in analysis. This talk reports on joint work in progress with Frank den Hollander.