SIMION STOILOW INSTITUTE OF MATHEMATICS OF THE ROMANIAN ACADEMY
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Monthly conference:

A Markov process for a continuum infinite particle system with attraction

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Abstract: An infinite system of point particles placed in R^d is studied. The particles are of two types; they perform random walks (jumps) in the course of which those of distinct types repel each other. This interaction induces effective attraction of the same type particles, which leads to the multiplicity of states of thermal equilibrium in such systems. The pure states of the system are locally finite subsets of R^d, which can also be interpreted as locally finite counting measures. For a special class $\mathcal{P}_{exp}$ of (sub-Poissonian) probability measures on the set of pure states, we prove the existence of a unique family of probability measures on the space of paths which solves a martingale problem for the mentioned system. Thereby, a Markov process with càdlàg paths is specified which describes the stochastic dynamics of this particle system. Joint work with Michael Röckner (Bielefeld).