

Markov evolution of continuum particle systems with dispersion and competition

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A birth-and-death Markov evolution of states of a continuum system of point particles is constructed. In this evolution particles reproduce themselves at distant points (disperse) and die under the influence of each other (compete). It is shown that the correlation functions of the system evolve in a scale of Banach spaces and remain sub-Poissonian if the dispersion is subordinate to the competition. This allows for applying also approximate methods based on a mesoscopic scaling, which leads to the description of the system by means of a kinetic equation.