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Interacting diffusions and their measure-valued limits in an ultrametric setting

Spatial stochastic models and their behaviour in different space and time scales have been intensively studied in Euclidean spaces for many years. In this lecture we review some developments in the study of the analogous questions in a class of ultrametric spaces and the relations between these two settings. We consider interacting $\mathbb{R}_+^k$-valued diffusions for $k = 1, 2$ and the classification of their scaling behaviours based on the degree of transience-recurrence for the associated random walks. In particular we discuss the Fisher-Wright, Feller continuous state branching, catalytic, mutually catalytic branching and self-catalytic branching universality classes and their measure-valued limits. This is based on joint research with Andreas Greven.