

Measure-Valued Limits of Interacting Particle Systems

J. Theodore COX, *Syracuse University, USA*, E-mail: jtcox@syr.edu

KEY WORDS: Interacting particle systems, Lotka-Volterra models, super-Brownian motion

MATHEMATICAL SUBJECT CLASSIFICATION: 60K35, 60J80

Abstract: In recent years it has been shown that super-Brownian motion has a certain universality property. Namely, it appears as the limit for a number of rescaled interacting particle systems near criticality, above a critical dimension. This talk will review recent work with E. Perkins showing that this phenomenon holds for a model of competition introduced in [2]. We will describe how these “Lotka-Volterra models,” suitably normalized, converge to super-Brownian motion. We will also see how to “invert” this convergence and obtain information on survival and coexistence for the Lotka-Volterra models. This summarizes work in [1] and work in progress.

References

- [1] Cox, J.T. and Perkins, E.A. (2005). Rescaled Lotka-Volterra Models Converge to Super-Brownian Motion, *Ann. Probab.*, to appear
- [2] Neuhauser, C. and Pacala, S. (1999). An Explicitly Spatial Version of the Lotka-Volterra Model with Interspecific Competition, *Ann. Probab.*, 9, 1226-1259.