Méléard, Sylvie

Asymptotic behaviour of some interacting particle systems; McKean-Vlasov and Boltzmann models. (English) Zbl 0864.60077

Graham, C. (ed.) et al., Probabilistic models for nonlinear partial differential equations. Lectures given at the 1st session of the Centro Internazionale Matematico Estivo, Montecatini Terme, Italy, May 22-30, 1995. Berlin: Springer. Lect. Notes Math. 1627, 42-95 (1996).

The author presents an overview of the theory of propagation of chaos for particle systems with mean field interaction, with applications to the McKean-Vlasov and Boltzmann models, and related results. The notes cover from the basic concepts to recent research results (including contributions of the author), as well as some of the basic methodology in the field. The contents of the notes are: Introduction. The physical equations, the associated nonlinear martingale problems and some related particle systems. Propagation of chaos and convergence rate in variation norm for the Boltzmann model. Propagation of chaos for exchangeable mean field systems of diffusions with jumps. Convergence of the fluctuations for the McKean-Vlasov model.

For the entire collection see [Zbl 0844.00022].

Reviewer: L.G.Gorostiza (Mexico City)

MSC:

60K35 Interacting random processes; statistical mechanics type models; percolation theory

Keywords:

convergence of the fluctuations; propagation of chaos for particle systems; McKean-Vlasov and Boltzmann models; nonlinear martingale problems; diffusions with jumps