

A Kinetic Model Relaxing to a Nonlinear Aggregation-Diffusion Equation.

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Abstract

In this talk, we present an asymptotic analysis of a kinetic BGK-type model, focusing on its relaxation to a nonlinear aggregation-diffusion equation, where the diffusion exhibits porous medium-type nonlinearity. We introduce new techniques for handling weak entropy solutions that satisfy the natural bounds imposed by the kinetic entropy inequality. Our proof utilizes the relative entropy method and various compactness arguments to establish the convergence and properties of these solutions.