

Degenerate parabolic equation derived from the kinetic theory

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Abstract

We study a degenerate parabolic equation derived from the kinetic theory using Rényi-Tsallis' entropy. If the exponent is critical, we have the finiteness of type II blowup points. The results are regarded as the threshold blowup mass and also a higher-dimensional version of our previous work on the non-stationary Smoluchowski-Poisson equation associated with the Boltzmann entropy in two-space dimensions, and actually, we use the mass quantization of the blowup family of stationary solutions in the proof.