

Logarithmic Scaling of Critical Collapse

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We study the collapse of the nonlinear Schrodinger equation (NLS) and the Keller-Segel equation (KS) in critical case of dimension two. The scaling of self-similar solutions near collapse point has $(t_0-t)^{1/2}$ scaling law for both NLS and KS with the logarithmic modifications. We develop a perturbation theory for these modifications beyond leading order and perform detailed comparison with simulations.