

Abstract Submitted
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Comments on the BKL conjecture for spatially inhomogeneous cosmologies BEVERLY K. BERGER, Retired — Long ago, Belinskii, Khalatnikov, and Lifshitz (BKL) argued that the approach to the singularity in generic gravitational collapse behaved locally as a spatially homogeneous cosmology that was either velocity dominated (Kasner-like) or oscillatory (Mixmaster-like). While mathematical proofs of the BKL conjecture for apparently Mixmaster-like, spatially inhomogeneous models do not yet exist, several frameworks have been proposed to make the conjecture precise and to offer a roadmap for mathematical results. However, detailed examination of models with G_2 spatial symmetry have found recurrent spiky solutions that may be non-BKL-like or indicative of a broader BKL-like phenomenology (W.C. Lim et al, Phys. Rev. D **79**, 123526 (2009)). These issues will be explored with the BKL Simulator, a realization of the BKL conjecture. Spatial dependence is simulated by evolving spatially homogeneous Mixmaster models with slowly varying initial data. Numerical and analytic results in one spatial dimension will be presented along with comparison to genuine spatially inhomogeneous simulations.

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