

Abstract Submitted
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Effective dynamics of Kantowski-Sachs spacetime in loop quantum cosmology ANTON JOE, PARAMPREET SINGH, Louisiana State University — We study singularity resolution in Kantowski-Sachs spacetime in the effective loop quantum cosmology setting for various matter models such as dust, radiation, cosmic strings, cosmological constant and scalar fields. We find the inverse triad correction and bounds on energy density, shear scalar and expansion scalar. The evolution of universe after bounce is studied and found that a Nariai-like spacetime is obtained for different choices of matter. We analyze the stability of these quantum Nariai-like spacetimes with respect to homogeneous perturbations and find that unlike classical Nariai spacetimes, these are stable.

Anton Joe
Louisiana State University

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