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Role of intrinsic curvature in generic resolution of singularity

BRAJESH GUPT, PARAMPREET SINGH, Louisiana State University, Baton Rouge — In recent years loop quantum gravity has proved to be useful for singularity resolution in many situations of cosmology. Singularity resolution is achieved due to the underlying quantum geometric effects which results in a bound on space-time curvature. We investigate in detail the effective dynamics of anisotropic spacetimes in the presence of spatial curvature by evaluating geometric quantities like expansion parameter, the shear scalar and curvature invariants and also point out certain subtleties in these models regarding the generic resolution of singularity. We also discuss the impact of the presence of intrinsic curvature on the method of quantization. As an example we analyze the effective dynamics of Bianchi II and Bianchi IX models.

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