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Raychaudhuri Equation in f(T) gravity: Classical and Quantum aspects

The present work deals with the classical and quantum aspects of the Raychaudhuri equation in the framework of $f(T)$-gravity theory. In the background of homogeneous and isotropic Friedmann–Lemaitre–Robertson-Walker space-time, the Raychaudhuri equation has been formulated and used to examine the focusing theorem and convergence condition for different choices of $f(T)$. Finally in quantum cosmology, the wave function of the universe has been shown to be the energy eigen function of the time-independent Schrödinger equation of a particle. Also probability measure on the minisuperspace has been examined at zero volume for singularity analysis in the quantum regime. Lastly, the Bohemian trajectory for the present quantum system has been explicitly determined for some particular choices. These trajectories unlike classical geodesics are shown to obliterate the classical singularity in the presence of quantum potential.

Email

chakmadhu1997@gmail.com

Affiliation

Jadavpur University

Author: Ms CHAKRABORTY, Madhukrishna (Jadavpur University)

Co-author: Prof. SUBENOY, Subenoy Chakraborty (Jadavpur University)

Presenter: Ms CHAKRABORTY, Madhukrishna (Jadavpur University)

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