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Study of Decoupled Cosmological Solutions in f(R,T) Theory (online talk)

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In this paper, we consider a non-static spherical geometry and formulate its extension for the case of anisotropic matter configuration through minimal gravitational decoupling in curvature-matter coupled gravity. We apply a particular transformation only on the radial metric function that divides the modified field equations into two distinct sectors corresponding to their parent (original and additional) sources. The unknowns in the first (isotropic) set are reduced by taking the Friedmann-Lemaitre-Robertson-Walker cosmic model. We then obtain the isotropic solution by employing a linear equation of state and power-law form of the scale factor. The other set involves the decoupling function and components of an extra source, therefore we adopt a density-like constraint to close it. Finally, we analyze the role of this modified gravity and the decoupling parameter on three different eras of the cosmos by graphically observing the developed extended solution. It is concluded that the resulting solutions fulfill all the physical requirements only for the matter and radiation-dominated eras.

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