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Anisotropic Solutions through Decoupling in Curvature-Matter Coupling Gravity

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In this talk, we discuss the extended gravitational decoupling approach for a static sphere in the framework of f(R,T) gravity where R represents the Ricci scalar and T is the trace of the energy-momentum tensor. In this approach, the domain of a known solution is extended by incorporating a new gravitational source. Transformations in radial and temporal metric functions split the system of field equations into two subsystems corresponding to isotropic and additional sources. We consider the Korkina-Orlyanskii metric as a solution for the system related to the seed source and extend it to anisotropic domain using some physical constraints on the new source. The physical acceptability, compactness and redshift of anisotropic solutions are explored graphically for the compact star 4U 1538-52. It is found that well-behaved solutions can be constructed in the framework of f(R,T) gravity through the decoupling technique.

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