Contribution ID: **14** Type: **not specified**

Invited Talk - A connection between the missing mass and the cosmological constant from galactic rotation curves - Sandipan Sengupta, IIT Kharagpur

Saturday 23 August 2025 16:00 (1 hour)

We discuss an analogue of the Schwarzschild-(anti) de Sitter class of metrics for the outer region of spiral galaxies. These are shown to emerge as solutions to Einstein equations are associated with a constant Ricci scalar in
four dimensions, being supported by anisotropic pressure and positive definite 'mass'. The flatness of rotation curves at large radii emerges as a dynamical consequence. This is shown to imply that the (bare) cosmological constant must be related to the energy momentum tensor of the missing mass, being exactly zero if the latter is traceless. We also elucidate some specific observational implications of these galactic spacetime
solutions.

Session Chair : Gaurav Narain