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Understanding the dark universe through Mach's principle and modified gravity

While the standard LCDM model containing dark matter and dark energy can explain the observational data accurately, the possibility that the general theory of relativity (GR) fails to explain the true nature of gravity on a kilo-parsec scale and needs a modification can also not be overruled. In this talk, I will discuss a modified gravity model based on Mach's principle. I will discuss how this modified gravity model provides some additional fields that behave like dark matter and dark energy. This can fit the galactic velocity profile, galaxy cluster mass profile, and different other cosmological data without requiring any dark components in the universe.

Primary author: DAS, Santuna (Imperial College London)

Presenter: DAS, Santuna (Imperial College London)