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# The Space-time of Dark-matter

*Wednesday 14 October 2015 18:20 (15 minutes)*

Dark-matter is a hypothetical matter which can't be seen but around 27% of our universe is made of it. Its distribution, evolution from early stage of our universe to present stage, its particle constituents all these are great unsolved mysteries of modern Cosmology and Astrophysics. In this talk I will introduce a special kind of space-time which is known as Bertrand Space-time (BST). I will show this space-time interestingly shows some dark-matter properties like- flat velocity curve, density profile of Dark-matter, total mass of Dark matter-halo, gravitational lensing etc, for that reason we consider BST is seeded by Dark-matter or it is a space-time of Dark-matter. At last I will show using modified gravity formalism the behaviour of the equation of state parameter of Dark-matter and the behaviour of the Newton's gravitational constant in the vicinity of the singularity.

**Presenter:** DEY, Dipanjan (IIT Kanpur)

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