S. N. Bose National Centre for Basic Sciences

Bose Colloquium

22nd February, 2019 | 04:00 pm | Fermion Hall

Speaker

Prof. Frederik G. Scholtz

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Title

Classical Dynamics on Three-dimensional Fuzzy Space

Abstract

I derive the path integral action for a particle moving in three dimensional fuzzy space. From this I extract the classical equations of motion. These equations have rather surprising and unconventional features: They predict a cut-off in energy, a generally spatial dependent limiting speed, orbital precession remarkably similar to the general relativistic result, flat velocity curves below a length scale determined by the limiting velocity and included mass, displaced planar motion and the existence of two dynamical branches of which only one reduces to Newtonian dynamics in the commutative limit. These features may provide a stringent observational test for this scenario of non-commutativity.