S N BOSE NATIONAL CENTRE
FOR BASIC SCIENCES
Block JD, Sector III, Salt Lake, Kolkata 700 106

DEPARTMENTAL SEMINAR

Department of Astrophysics and High Energy Physics

22nd December,2022 **11.00 AM** **ONLINE/ FERMION**

SPEAKER

Dr. Vishnu Rajagopal,
Ph. D Student, School of Physics, University of Hyderabad,
Central University P.O, Hyderabad

TITLE OF THE TALK

Maximal acceleration in non-commutative space-times

ABSTRACT

The minimal length scale associated with the quantum gravity models is expected to put an uuper bound on the acceleration of particles. The maximal acceleration has been studied using different approaches. We derive the the maximal acceleration in two non-commutative (NC) space-times, namely, κ-deformed and Doplicher-Fredenhagen-Robert (DFR) space-times. This is done by generalising the Caianiello's maximal acceleration. We then obtain the maximal temperature associated with thermal radiation in the NC space-times. Further, we also show the emergence of maximal acceleration from the 4-dimensional κ-Minkowski space-time.

References
[1] E. R. Caianiello, Lett. Nuovo Cimento 32 (1981) 65.
[2] E. Harikumar and V. Rajagopal, Ann. Phys. 423 (2020) 168332.
[3] E. Harikumar, L. G. C. Lakkaraju and V. Rajagopal, Mod. Phys. Lett. A 36 (2021) 2150069.
[4] E. Harikumar, S. K. Panja and V. Rajagopal, Eur. Phys. J. Plus 137 (2022) 966.

HOST FACULTY

Dr. S. Gangopadhyay, Associate Professor
ASTROPHYSICS AND HIGH ENERGY PHYSICS

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