



PHYSICS COLLOQUIUM: Quantum Gravity on Tabletop

Ahmed Farag Ali

Lecturer, Physics Department
University of California, Merced



Date:

3/4/2022

Time:

10:30 AM - 11:50 AM

Location:

SSB 120

About The Speaker:

I am Lecturer of Physics at Department of Physics, UC Merced. I received my PhD in theoretical physics from University of Lethbridge, Canada. My research focused on quantum gravity models with particular interests in open problems in Black Holes, Cosmology and Quantum Gravity Phenomenology. I published around 70 papers in peer reviewed journals. My most known works includes the minimal length theories in quantum gravity. My research has been highlighted in several media platforms such as Nature, scientific American and Phys.org. I also wrote several articles for Scientific American-Arabic edition.

Abstract:

Several approaches to quantum gravity suggest a quantum picture of spacetime. In this talk, we introduce a model to discretize the space through a modification of the uncertainty principle. We verified our model with the Schrodinger equation, Klein Gordon equation, and Dirac equation in both cases of few-body systems and field systems. We discuss the implications through tabletop experiments such as quantum optics, gravitational bar detectors and Macroscopic Mechanical Oscillators.