



APPLIED MATHEMATICS SEMINAR

On the Influence of Fractional Calculus in Quantum and Classical Gravity

by

Shahram Jalalzadeh

(Federal University of Pernambuco)

Abstract: This presentation will offer a concise summary of the studies regarding the influence of the Riesz fractional derivative in quantum black hole physics and the de Sitter universe. I will illustrate how the fractional Wheeler-DeWitt equation enhances our comprehension of physics in both quantum and classical gravity. I will demonstrate that the event horizon of a fractional Schwarzschild black hole does not possess the properties of a smooth surface but instead resembles a fractal structure. This statement is also relevant to the fractional de Sitter spacetime. Moreover, the investigation of fractional de Sitter space advances us towards the notion of power law inflation. This finding is universal and remains devoid of any parameters of the inflaton field.

Date: Monday, November 11, 2024

Time: 16:00-17:00, GMT+3

Place: ZOOM

To request the event link, please send a message to yheydarzade@bilkent.edu.tr.