



ÇANKAYA UNIVERSITY  
FACULTY OF ARTS AND SCIENCES  
DEPARTMENT OF MATHEMATICS

## SEMINAR

### A second order accurate numerical approximation for time-space fractional diffusion equation

**SPEAKER** : Assist. Prof. Dr. Sadia Arshad

**DATE** : 9 November, 2018

**TIME** : 13:30

**PLACE** : Çankaya University (Central Campus), R-213

#### Abstract

I will discuss a finite difference method to solve time–space linear and nonlinear fractional diffusion equations. Specifically, the centered difference scheme is used to approximate the Riesz fractional derivative in space. A trapezoidal formula is used to solve a system of Volterra integral equations transformed from spatial discretization. Stability and convergence of the proposed scheme is discussed which shows second-order accuracy both in temporal and spatial directions. Finally, examples are presented to show the accuracy and effectiveness of the schemes.

*All interested are cordially invited.*

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