

Bahçeşehir University, Istanbul, Türkiye
Analysis & PDE Center, Ghent University, Ghent, Belgium
Institute Mathematics & Math. Modeling, Almaty, Kazakhstan

“Analysis and Applied Mathematics”

Weekly Online Seminar

Seminar leaders:

Prof. Allaberen Ashyralyev (BAU, Istanbul),
Prof. Michael Ruzhansky (UGent, Ghent),
Prof. Makhmud Sadybekov (IMMM, Almaty)

Date: **Tuesday, June 3, 2025**

Time: 14.00-15.00 (Istanbul) = 13.00-14.00 (Ghent) = 16.00-17.00 (Almaty)

Zoom link: <https://us02web.zoom.us/j/6678270445?pwd=SFNmQUlVTDtRaHlDa-VYrN3I5bzJVQT09>, **Conference ID:** 667 827 0445, **Access code:** 1

Speaker:

PhD candidate Ibrahim A. Suleman

Khalifa University, Abu Dhabi, UAE

Title: Mild solutions and long time behavior of a fractional wave equation with nonlocal logarithmic nonlinearity

Abstract: In this talk, we discuss the global existence and long time behavior of solutions of the Cauchy problem

$$\varepsilon u_{tt} + u_t + (-\Delta)^\beta u = \int_0^t (t-s)^{-\alpha} |u|^{p-2} u \ln(1 + |u|) ds, \quad t > 0,$$
$$u(0, x) = \varphi(x), \quad u_t(0, x) = \psi(x).$$

Norm estimates of the solution of the corresponding linear problem are derived to particularly observe the roles of ε and β in solution behavior. Moreover, we apply these estimates to obtain local in time mild solutions, and global solution.

Biography:

Ibrahim Suleman is a Ph.D. student at Khalifa University of Science and Technology, where he began his studies in 2021. Under the supervision of Professor Mokhtar Kirane, his research focuses on the existence and nonexistence of solutions of fractional wave equations with nonlocal nonlinearities.