

# İSTANBUL ANALYSIS SEMINARS

## ON THE PARABOLIC INVERSE PROBLEM WITH AN UNKNOWN TIME DEPENDENT HEAT SOURCE

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**Abstract:** In this talk, the well-posedness of inverse problem of reconstruction of right side of the one-dimensional parabolic equation with nonlocal boundary conditions and multidimensional  $2m$ -th order parabolic equations in the space of smooth functions is presented. For the numerical solution of these problems, the first and second order of accuracy difference schemes are presented. The coercive stability estimates for the solution of these difference schemes are obtained. The theoretical statements for the solution of these difference schemes for one-dimensional parabolic equation are supported by the results of numerical experiments.

This is a joint work with Allaberen ASHYRALYEV (Fatih University).

**Date:** March 9, 2012

**Time:** 15:40

**Place:** Sabancı University, Karaköy Communication Center  
Bankalar Caddesi 2, Karaköy 34420, İstanbul