



Analysis Seminar

Initial-boundary value problems for the nonlinear Schrödinger equation in one and two dimensions

By

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Abstract: A method for establishing the Hadamard well-posedness (existence, uniqueness, and continuous dependence of solution on the data) of dispersive partial differential equations in the setting of initial-boundary value problems has been developed in recent years by Athanassios Fokas, Alex Himonas, and the speaker. In this talk, new developments via this method are discussed in the context of the nonlinear Schrödinger equation and, more specifically, for boundary conditions of Robin type in one as well as in two spatial dimensions. The Neumann problem is also covered as a special case. A key role in the analysis is played by the solution formulae for the linear Schrödinger equation obtained via Fokas's unified transform, which are used for establishing suitable linear estimates that are then combined with a contraction mapping argument to yield well-posedness for the nonlinear problems.

Date: Tuesday, October 18, 2022

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

Place: ZOOM

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