

Boğaziçi MATH GRAD SEMINAR

Estimating Products of Dispersive Waves via Littlewood–Paley and angular decompositions

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Abstract: Many arguments for nonlinear dispersive equations depend on estimating products of waves. This talk explains how information about frequency size and direction helps us obtain these estimates. We begin with the two-dimensional cubic nonlinear Schrödinger equation, where Strichartz estimates give a direct nonlinear bound at energy regularity. We then use the Zakharov–Kuznetsov equation to illustrate Littlewood–Paley decomposition and the idea of angular localization. The emphasis is on why each decomposition improves the nonlinear estimate and permits rougher initial data, rather than on the technical details of the full proofs.

Date : Wednesday, November 4, 2026

Time: 15:00

Place: TB130