



istanbul matematiksel bilimler merkezi
istanbul center for mathematical sciences

WORKSHOP ON
NONLINEAR DISPERSIVE PDE
LONG TIME DYNAMICS,
BOUNDARY VALUE PROBLEMS, INTEGRABILITY

Wednesday, July 13, 2016

09.30-10.20: Aynur Bulut (University of Michigan) *Negative energy blowup for the focusing Hartree hierarchy via identities of virial and localized virial type*

The Hartree hierarchy is an infinite system of coupled PDEs which arises in the study of many-body quantum mechanics. In this talk we report on recent blowup results for this hierarchy. The results obtained are of “negative energy” type, both with and without an assumption of finite variance on the initial data. The key tools in this context are a class of virial identities and their localizations – the most delicate case of the analysis is the proof without finite variance, where we use a suitable quantum de Finetti theorem and a carefully chosen truncation lemma allowing for the control of additional terms appearing from the localization procedure.

10.20-10.50: *Discussions/Questions/Coffee Break*

10.50-11.40: Edriss Titi (Texas A&M University and Weizmann Institute of Science) *Is dispersion a stabilizing or destabilizing mechanism?*

In this talk I will present a unified approach for the effect of fast rotation and dispersion as an averaging mechanism for, on the one hand, regularizing and stabilizing certain evolution equations, such as the Navier-Stokes and Burgers equations. On the other hand, I will also present some results in which large dispersion acts

as a destabilizing mechanism for the long-time dynamics of certain dissipative evolution equations, such as the Kuramoto-Sivashinsky equation.

11.40-12.00: *Discussions/Questions*

12.00-14.00: *Lunch*

Place : IMBM Seminar Room, Boğaziçi University South Campus

For more information please visit <http://www.imbm.org.tr/ndpde16/ndpde16.html>.

