Mathematics and CS Seminar

Random data Cauchy theory for nonlinear wave equations

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In the classical well-posedness theory for nonlinear dispersive and hyperbolic equations the aim is to construct unique strong solutions for all initial data belonging to a certain function space such as the L^2-based Sobolev spaces. However, at low regularities ill-posedness phenomena usually tend to occur. In practice one is often interested in the typical behavior of solutions and may be content to neglect certain pathological behaviors leading to ill-posedness results. This concept may be formalized by considering random initial data and by trying to construct in an almost sure manner strong local-in-time or even global-in-time solutions. Such an approach sometimes allows to go beyond certain deterministic regularity thresholds.I will begin this talk with a general introduction to the study of nonlinear dispersive and hyperbolic equations for random initial data. Afterwards I will present an almost sure global existence and scattering result for the 4D energy-critical nonlinear wave equation for scaling super-critical random data in the radial case.This talk is based on joint works with Ben Dodson and Dana Mendelson.

Tuesday, July 3, 2018 04:00pm - 06:00pm

Big Seminar room Ground floor / Office Bldg West (I21.EG.101)

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