DANA MENDELSON, University of Chicago

Probabilistic scattering for the 4D energy-critical defocusing nonlinear wave equation

We consider the Cauchy problem for the energy-critical defocusing nonlinear wave equation on $\mathbb{R}^4$. It is known that for initial data at energy regularity, the solutions exist globally in time and scatter to free waves. However, the problem is ill-posed for initial data at super-critical regularities. In recent years, probabilistic methods have been used to investigate the behavior of solutions in regimes where deterministic techniques fail. We will present an almost sure global existence and scattering result for randomized radially symmetric initial data of super-critical regularity. The main novelties of our proof are the introduction of an approximate Morawetz estimate to the random data setting and new large deviation estimates for the free wave evolution of randomized radially symmetric data.

This talk is based on joint work with Benjamin Dodson and Jonas Luhrmann.