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- Random data Cauchy theory for nonlinear wave equations
  - **Guiding question**: What is the generic behaviour of solutions of a given PDE with rough and random initial data?
  - low regularity well-posedness for random initial data
  - asymptotic behaviour of these random solutions, e.g. scattering

- Infinite dimensional Hamiltonian systems, symplectic non-squeezing
  - **Guiding question**: which features of finite dimensional Hamiltonian equations carry over to infinite dimensions and what can they tell us about the behaviour of solutions to these Hamiltonian PDEs?