

## **Weak Turbulence for the Nonlinear Schroedinger Equation: a Connection between the Scattering Theory and the Arnold Diffusion**

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The nonlinear Schroedinger equation (NLS) is an important example of an infinite dimensional Hamiltonian system. It was extensively studied during the last 50 years. A large number of mathematical fields were involved in the study of NLS: the Fourier analysis (in particular the circle method from the analytic number theory), the complex analysis (in the particular the theory of Riemann surfaces), the direct and inverse spectral theory, the probability theory, the calculus of variations, the dynamical systems, ...

In this talk, we will present some recent developments obtained in collaboration with Benoit Pausader (Brown University, USA) showing a surprising property of the conservation laws of NLS.