
HOW LAGRANGIAN STATES EVOLVE INTO RANDOM WAVES

Maxime Ingremau

Université de Nice Sophia-Antipolis

Septembre 12, 2022

In 1977, Berry conjectured that eigenfunctions of the Laplacian on manifolds of negative curvature behave, in the high-energy (or semiclassical) limit, as a random superposition of plane waves. This conjecture, central in quantum chaos, is still completely open.

In this talk, we will consider a much simpler situation. On a manifold of negative curvature, we will consider a Lagrangian state associated to a generic phase. We show that, when evolved during a long time by the Schrödinger equation, these functions do behave, in the semiclassical limit, as a random superposition of plane waves.

This talk is based on joint work with Alejandro Rivera, and on work in progress with Martin Vogel.