

## **Bouncing droplets and quantum trajectories**

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Recently, the properties of bouncing oil droplets, also known as “walkers,” have attracted much attention because they are thought to offer a gateway to a better understanding of the quantum behavior. They indeed constitute a macroscopic realization of wave-particle duality, in the sense that their trajectories are guided by a self-generated surrounding wave. The aim of this presentation is to try to describe walker phenomenology in terms of de Broglie–Bohm dynamics and of a stochastic version thereof. First we compare the onset of equilibrium in the stochastic and the de Broglie–Bohm approaches (in particular we focus on properties such as ergodicity, mixing, and so on). Then based on actual observations of walker behavior in a 2D harmonic potential well, we propose some simple experiments by which one can test the applicability of our models to the context of bouncing oil droplets.