

# BOHMIAN TRAJECTORIES OF SEMICLASSICAL WAVE PACKETS

Sarah Römer

*Mathematisches Institut der LMU,  
Theresienstr. 39, 80333 München, Germany*

## **Abstract**

Bohmian mechanics is a quantum theory about particles in motion, i.e. about particle trajectories. So contrary to orthodox quantum mechanics (where a priori there are no trajectories) the question of the classical limit can be posed in the most straightforward way imaginable: When are Bohmian trajectories approximately Newtonian? In my talk I shall present a first step towards an answer to this question. In joint work with D. Dürr I showed that in an appropriate scaling limit typical Bohmian trajectories associated with Hagedorn wave packets (a special class of semiclassical Gaussian wave packets) tend to the classical trajectory tracked by the mean position of the wave packet.