Contribution ID: **488** Type: **Poster (Student, In Competition) / Affiche (Étudiant(e), inscrit à la compétition)**

Bohmian trajectories for harmonic oscillator and Coulomb potentials

Wednesday 17 June 2015 19:04 (2 minutes)

In Bohmian mechanics, quantum particles follow causal deterministic trajectories. These trajectories obey an equation of motion much like Newton's, with the addition of a "quantum potential" linked to the Schrödinger wave function. Quantum probabilities stem from the absence of precise knowledge of initial conditions, and they are recovered exactly if one assumes that initial particle positions are distributed according to the absolute square of the wave function. We give examples of computation of Bohmian trajectories for the harmonic oscillator and Coulomb potentials. Numerical uncertainties are estimated. Our objective is to compute trajectories for distributions of initial particle positions that differ from the absolute square of the wave function, and to investigate the relaxation of the associated probability distributions to the quantum probabilities.

Author: Mr DUPUIS, Benjamin (Université du Québec à Trois-Rivières)

Co-author: Prof. MARCHILDON, Louis (Université du Québec à Trois-Rivières)

Presenter: Mr DUPUIS, Benjamin (Université du Québec à Trois-Rivières)

Session Classification: DTP Poster Session with beer / Session d'affiches, avec bière DPT

Track Classification: Theoretical Physics / Physique théorique (DTP-DPT)