

## **The emergence of the Born Law in the de Broglie-Bohm pilot-wave theory**

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According to the de Broglie-Bohm pilot-wave theory, a quantum system is not only described by its wave-function, but also by a configuration, which is guided by the wave-function in a deterministic way (in the case of a non-relativistic particle, this configuration is simply a particle position). A quantum ensemble, on the other hand, is described by a wave-function and by a distribution of configurations.

The pilot-wave theory reproduces the predictions of standard quantum mechanics for ensembles in which the configurations are distributed according to the Born Law.

In principle, the pilot-wave theory also allows ensembles in which the configurations are not distributed according to the Born Law: such ensembles are said to be in quantum non-equilibrium and for them standard quantum mechanics is violated, possibly opening the door new physics. However, realistic systems in quantum non-equilibrium tend to relax to quantum equilibrium, thereby justifying the Born Law.

This talk will consist in a brief overview of the pilot-wave theory, followed by a discussion of the emergence of the Born Law.