Séminaire de physique mathématique

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Lundi 27/05/2019, 11h00-12h00

Orme des Merisiers Salle Claude Itzykson, Bât. 774

Jumps and spikes in quantum trajectorie

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IPhT

Indirect measurements in quantum mechanics lead to stochastic evolution equations for the density matrix, the so-called quantum trajectories.

Generically, the measurements themselves favor wave function collapse towards certain states, while the internal evolution, if it does not preserve these states, prevents the collapse. In this talk I'll describe the regime when the time scale of the collapse is very short compared to the typical time scale of the internal evolution. In this regime, which is a strong noise regime, quantum trajectories, though continuous, are closely related to Poisson processes and a strong universality emerges.

The mathematical tools we use have recently attracted the attention of probabilists who are now aiming at a fully rigorous treatment.