

**Speaker:** Thomas Gorin, University of Guadalajara, Mexico  
**Title:** Discrete quantum walks on the line with Gaussian noise  
**Date:** Wednesday, July 16th, 16:00 pm (s.t.)  
**Place:** Seminar room 915

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Dissipative quantum walks have been studied for a while. One way to introduce decoherence or noise into the process are measurements applied to the coin at a certain rate. Another possibility consists in alternating the ideal coin operation with one of the three canonical Pauli channels. A third possibility (which has so far not been considered) consists of using a continuous Pauli-Lindblad noise model. The latter is equivalent to a Gaussian noise model, which has been introduced recently [Reynoso, TG JPA (2024)]. We think that this latter model combines greater flexibility with a clearer physical interpretation, while including many of the previous models as special cases. I will then show numerical simulations which intend to elucidate certain typical features of dissipative quantum walks: (i) the quantum-to-classical transition, (ii) stretched exponential probability densities, (iii) a curious weak-localization like dip in the probability density of the walker.