The Departmental Colloquium

Speaker

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2-3 pm, HH-3017

Transport properties of random quantum walks

Abstract:
We introduce a non-commutative version of classical random walks on graphs, known as quantum walks, and we discuss some of their properties. Quantum walks approximate the discrete time unitary dynamics of a particle with spin, bouncing off the vertices of a graph which act as scatterers. When those scatterers have random characteristics, we speak of a random quantum walk, a non-commutative analog of a classical random walk in a random environment. We shall review recent results on the characteristic features and of the transport properties of random quantum walks under various circumstances.