Random Walks on Discrete Quantum Groups

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Abstract

I will introduce the simple quantum Bernoulli random walk, which is a simple quantization of the usual Bernoulli random walk. This will lead in a natural way to consideration of more sophisticated objects, namely quantum random walks on duals of compact groups. These objects satisfy a remarkable interplay of probabilistic as well as group theoretic properties. In particular I will consider properties related to Doob's conditionning and Martin boundaries. I will also consider the analogue for some non discrete quantum groups such as the Heisenberg group, or duals of free groups. Finally if time permit I will discuss the recent work of Izumi, Neshveyev and Tusets on Martin boundaries of quantum groups.