

Quantum groups in the heat

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In this talk, I will consider the diffusion of the heat semi-group on free orthogonal quantum groups. In the case of classical orthogonal groups, this is the Markov semi-group associated to the Brownian motion, and it is known to spread very abruptly in the sense that it exhibits a *cut-off phenomenon* (this is a result of P.-L. Meliot).

I will explain what this means and show that this phenomenon also occurs in the quantum setting. I will further detail how one can get a more precise description of the behaviour of the semi-group around the mixing time by computing the so-called *limiting profile*. This is based on a joint work with L. Teyssier and S. Wang.