



Mathematics and CS Seminar

Quantum Markov semi-groups and approximation/rigidity of von Neumann algebras

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A quantum Markov semi-group can be regarded as a noncommutative analogue of a classical diffusion process such as the Heat semi-group. These quantum Markov semi-groups arise in quantum probability with time evolutions of open systems that interact with their environment. In this talk we focus on quantum Markov semi-groups on von Neumann algebras. We first prove that their generators, i.e. the noncommutative Laplacian, have close links to fundamental properties of the von Neumann algebra. In particular the growth rate of the eigenvalues relate to approximation properties of the von Neumann algebra such as amenability and Haagerup property. In the last part of the talk we show that quantum Markov semi-groups also have close ties with deeper structural properties such as the existence of Cartan subalgebras.

Thursday, March 31, 2022 04:15pm - 05:10pm

Mondi 2 (I01.01.008), Central Building



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