Seminar/Talk

On the existence of derivations as square roots of generators of state-symmetric quantum Markov semigroups

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Host: Jan Maas / Haonan Zhang

Cipriani and Sauvageot have shown that for any generator L of a tracially symmetric quantum Markov semigroup on a C*-algebra A there exists a densely defined derivation δ from A to a Hilbert bimodule H such that L = δ*δ. Here we show that this construction of a derivation can in general not be generalised to quantum Markov semigroups that are symmetric with respect to a non-tracial state. In particular we show that all derivations to Hilbert bimodules can be assumed to have a concrete form, and then we use this form to show that in the finite-dimensional case the existence of such a derivation is equivalent to the existence of a positive matrix solution of a system of linear equations. We solve this system of linear equations for concrete examples using Mathematica to complete the proof.

Thursday, March 31, 2022 05:15pm - 06:15pm
Mondi 2 (I01.01.008), Central Building

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