



Einladung zum Oberseminar Wissenschaftliches Rechnen

Julius-Maximilians-Universität Würzburg
Lehrstuhl für Wissenschaftliches Rechnen IX

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Quantum filtering and its stability problem

In this talk, we discuss quantum filtering and its stability problem. In particular, we show that the fidelity between the state of a continuously observed quantum system governed by diffusive stochastic master equation and its associated quantum filter is a sub-martingale. This result implies the stability of such quantum filter. Also, we design more general quantum filters which are attached to jump-diffusion stochastic master equations and they take into account measurement imperfections. Moreover, we show the stability of such general quantum filtering.

Indeed, these results are generalization to non-pure quantum states where fidelity does not coincide in general with a simple Frobenius inner product. Also, these results are the continuous-time counterpart of a similar result already established for discrete-time quantum systems. We precise that these results do not necessarily imply the asymptotic convergence of quantum filters which is still an open problem.

Ort: Raum 30.02.003 (2. Stock) (Mathegeb. 30 West) Zeit: Montag, 23. Nov. 2015, 14.00 Uhr

Zu diesem Vortrag laden wir Sie herzlich ein.

gez. Prof. Dr. Alfio Borzi
gez. Prof. Dr. Roland Griesmaier