Analysis Seminar

Quantum Markov Decision Processes II

By

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Abstract: In this talk, we aim to develop a quantum counterpart to classical Markov decision processes (MDPs). We first present a comprehensive formulation of quantum MDPs with state and action spaces in the quantum domain, quantum transitions, and cost functions. The focus then shifts to establishing a verification theorem for Markovian quantum control policies. Subsequently, we introduce classes of open-loop and closed-loop policies and present their structural results. Finally, we develop algorithms for computing optimal policies and value functions for both open-loop and closed-loop policies using the duality between dynamic programming and semi-definite programming formulations.

Date: Monday, April 15, 2024
Time: 15:30-16:30
Place: SA141 - Mathematics Seminar Room