

**Fakultät für Mathematik, Informatik und Physik
Universität Innsbruck**

**Ankündigung des öffentlichen Vortrags
(„defensio dissertationis“)**

im Rahmen der abschließenden kommissionellen Prüfung (Verteidigung der
Dissertation) im Doctor of Philosophy - Doktoratsstudium Physik

von

Orsucci Davide

über

“Quantum computation models and their application”

Zeit: Mittwoch, 30. Oktober 2019, 9:00 Uhr

Ort: Seminarraum 1 ICT Gebäude

Inhalt:

"Quantum technologies are becoming increasingly more developed and find application in fields as diverse as algorithmics, simulation of complex quantum systems, optimization, high-accuracy sensing, and machine learning. These tasks can be performed within different quantum information processing paradigms which, albeit ultimately equivalent, can be leveraged to solve specific problems in a tailored and thus more effective way. In my thesis I present new methods that are based on different quantum computation paradigms in order to efficiently solve problems arising in quantum metrology, quantum linear systems, and Markov chain theory.

In my talk, I will discuss two of these methods. First, I will show that Measurement-Based Quantum Computation affords the implementation of quantum metrological schemes in a resource-efficient and flexible way. Second, I show that methods akin to Adiabatic Quantum Computation allow to solve quantum linear systems in an essentially optimal way, while being conceptually simpler than previously developed algorithms."

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