Naturwissenschaftlich-Technische Fakultät

UNIVERSITÄT DES SAARLANDES

Der Vorsitzende des Promotionsausschusses

E I N L A D U N G

Hiermit lade ich ein zum öffentlichen Promotionskolloquium von

Herr M.Sc. Tomislav Piskor
Theoretische Physik
(Prof. Dr. Frank Wilhelm-Mauch)

am

Freitag, 3. Mai 2024, 14:00 Uhr s.t.
per Videokonferenz; Link für MS Teams: https://msteams.link/Y83X
Raum für die Prüfung: Raum 1.14, Gebäude E2.6, 1. Etage

Thema der Dissertation:

Quantum Simulation of Physical and Chemical Systems Using Noisy Quantum Computers and Machine Learning

One of the main challenges in the noisy intermediate-scale quantum (NISQ) era is handling decoherence caused by the interaction of quantum bits – the building blocks of a quantum computer – with the environment. To mitigate errors that occur on a NISQ computer, it is advisable to use methods that are less susceptible to noise. This thesis proposes solutions to address this issue by utilizing parameter optimization algorithms and a physical approach for post-processing noisy measurements. Additionally, this dissertation investigates the potential application of results obtained from a quantum computer to machine learning techniques for specific chemical reactions. The objective is to create a machine learning model capable of predicting different chemical properties using a limited amount of data.

Saarbrücken, 18. April 2024

Prof. Dr. Uli Kazmaier