

HABILITATION

Fachbereich Mathematik und Informatik

EINLADUNG

zum Habilitationsvortrag

Im Rahmen seines Habilitationsverfahrens wird

Herr Dr. Patricio Farrell

am **Mittwoch, d. 25. Januar 2023**

um **16:30 Uhr** im **Seminarraum 019, Arnimallee 3**, 14195 Berlin

einen Vortrag über das Thema:

Quantum Computing

halten.

Der Vortrag wird ca. 45 Minuten dauern (Zusammenfassung s.u.).

Die Universitätsöffentlichkeit ist dazu herzlich eingeladen.

gez. Prof. Dr. K. Reinert

Dekan des FB Mathematik und Informatik

Abstract: How many sides of a coin do you need to check to find out whether there is an equal chance it is heads or tails? This talk gives an introduction to quantum computing where the answer to this question is surprisingly different from what we are used to. The talk begins with a brief overview of the history of quantum computing and different hardware implementations before introducing the necessary mathematical tools such as tensor calculus and the bra-ket notation. It then translates fundamental physical concepts such as qubits, Born's rule, the observer's effect, quantum gates, entanglement as well as interference into linear algebra. Finally, key quantum algorithms are discussed which are proven to give a definite answer to the initial question.