The **Vienna Center for Quantum Science and Technology**
VCQ

invites you to a

COLLOQUIUM TALK

by

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Scalable quantum-classical interfaces and their applications to learning in the quantum realm

Large-scale quantum (computing) experiments do not work in isolation. Substantial classical computing power is required to control the architecture and process its results. This necessarily creates information-transmission bottlenecks at the interface between quantum and classical realms.
In this colloquium, I will present quantum-classical interfaces that address these information-transmission bottlenecks. Dubbed classical shadows (of quantum systems), these leverage frame theory and high-dimensional probability theory to obtain a succinct classical description of the underlying quantum system. These can then be used to efficiently predict many features of the quantum system in a streaming fashion. Building on these ideas, we also establish mathematically rigorous synergies between quantum experiments (to obtain data) and machine learning (to learn how to make predictions).

Monday, 04 November 2024

at Lise Meitner Lecture Hall at Universität Wien
Boltzmanngasse 5, 1090 Vienna, 1st floor

17:00 Get-together with snacks

17:30 VCQ Student Talk: Martin Mauser

17:45 VCQ Colloquium Talk

Host: Borivoje Dakić

For further information and a Zoom link please visit https://vcq.quantum.at/colloquium-ws-24-25/