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Institute of
Science and
Technology
Austria

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

invites you to a

COLLOQUIUM TALK

by

Stefanie Barz
(University of Stuttgart)

Photonic quantum technologies: from unravelling quantum foundations to advancing quantum integration and developing applications in quantum networks and computing

I will explore various facets of photonic quantum systems and their application in photonic quantum technologies. Firstly, I will discuss quantum interference, a key element in photonic quantum technologies. I will highlight how the distinguishability and mixedness of quantum states influence the interference of multiple single photons – and demonstrate novel schemes for generating multipartite entangled quantum states. I will then address photonic quantum computing, specifically focusing on the building blocks of photonic quantum computers. This includes the generation of resource states essential for photonic quantum computing. I will then shift to photonic quantum networks, covering both their hardware aspects and showcasing quantum-network applications that extend beyond bi-partite quantum communication. Lastly, I will outline how photonic integration facilitates the scalability of these systems and discuss the associated challenges.

Monday, 10 June 2024

at Helmut Rauch Lecture Hall
Atominstytut Wien, Stadionallee 2, 1020 Vienna

17:00 Get-together with drinks & snacks

17:30 VCQ Student Talk
Andrea Caprotti

Optimising quantum tomography via shadow inversion

17:45 VCQ Colloquium Talk

Host: Borivoje Dakić

For further information and a Zoom link please visit <https://vcq.quantum.at/colloquium-ss-24/>