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

invites you to a

COLLOQUIUM TALK

by

Wolfram Pernice
(Heidelberg University | Westfälische Wilhelms-Universität Münster)

Photonic in-memory computing

Conventional computers are organized around a centralized processing architecture, which is well suited to running sequential, procedure-based programs. Such an architecture is inefficient for computational models that are distributed, massively parallel and adaptive, most notably those used for neural networks in artificial intelligence. In these application domains demand for high throughput, low latency and low energy consumption is driving the development of not only new architectures, but also new platforms for information processing.

Photonic circuits are emerging as one promising candidate platform and allow for realizing the underlying computing architectures, which process optical signals in analogy to electronic integrated circuits. Therein electrical connections are replaced with photonic waveguides which guide light to desired locations on chip. Through heterogeneous integration, photonic circuits, which are normally passive in their response, are able to display active functionality and thus provide the means to build neuromorphic systems capable of learning and adaptation. In reconfigurable photonic architectures in-memory computing allows for overcoming separation between memory and central processing unit as a route for designing artificial neural networks, which operate entirely in the optical domain.

Heidelberg University, Im Neuenheimer Feld 227, 69120 Heideberg, Germany

Monday, 27 November 2023

at Lise Meitner Lecture Hall at Universität Wien
Boltzmanngasse 5, 1090 Vienna, 1. OG

17:00 VCQ Student Talk by Nicolás Sánchez

17:15 VCQ Colloquium talk by Wolfram Pernice

There will be drinks & snacks after the talk.

Host: Philip Walther

for further information and the zoom-link please visit
https://vcq.quantum.at/colloquium-ws-23-24/