INVITATION

to a **TALK** by

Peter Hommelhoff

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Electron-light coupling in photonic nanostructures: From coherent electron acceleration to a quantum-coherent coupling

It is well known that electrons and light do not couple efficiently in free space -- but with the introduction of appropriate nanostructures, they do. Based on this, we have built a nanoscale version of a classical RF accelerator, including optical forces to not only accelerate electrons but also collimate them in the 225 nm narrow nanophotonic channel, representing the first demonstration of the accelerator on a chip reaching substantial energy gains. In the second part, I will briefly show how a high-resolution spectrometer inside of a scanning electron microscope allowed us to demonstrate that the electron-light coupling works in a quantum-coherent fashion. The talk will give an overview of the nascent yet already vibrant field of efficient free electron-light coupling.

Wednesday, May 3rd, 2023 17:30

Lise Meitner lecture hall, 1st floor
Boltzmanngasse 5, 1090 Vienna

Hosted by: Thomas Juffmann