



# Joint Infosys Condensed Matter and ASET Colloquium



**Florian Marquardt**

Max Planck Institute for the Science of Light,  
Erlangen

Venue: AG 66 and on Zoom,

Date: Friday, May 12, 2023

Time: 4:00



## Better Quantum Computers via Machine Learning

Machine learning is producing a revolution in science and technology. Complex quantum devices require sophisticated control. Discovering such control strategies from scratch with the help of machine learning will enable us to keep pace with the ever-increasing demands encountered when scaling up quantum computers. In this talk, I will describe how the field of reinforcement learning can deliver on this promise. I will present examples ranging from the optimization of quantum circuits to the model-based discovery of better quantum feedback strategies. Moreover, in a recent collaboration with our experimental colleagues, we could show how to train a novel latency-optimized neural network by reinforcement learning in an experiment, acting on a superconducting qubit in cycles of less than one microsecond.

**Zoom Link:** <https://zoom.us/j/91427966752>

**Meeting ID:** 91427966752

**Passcode:** 388629

**YouTube live link:** <https://tinyurl.com/infosys-aset>

Prof. Florian Marquardt is a theoretical physicist, mostly working at the intersection of nanophysics and quantum optics.

Florian received his Ph.D. at U Basel where he worked with Prof. C. Bruder. He was a post-doctoral scholar at Basel and at Prof. Steve Girvin's group at Yale before joining Ludwig-Maximilians University in 2005 as a Junior Research Group Leader.

Florian became Full professor at University of Erlangen-Nuremberg in 2010, and since 2016 he is a scientific director at the Max Planck Institute for the Science of Light, Erlangen.