FAU

FAU MoD Lecture Series

Quantum firmware: Optimal control for quantum processors

Tommaso Calarco

UNIVERSITY OF COLOGNE
UNIVERSITY OF BOLOGNA

WWW.MOD.FAU.EU

#FAUMoDLecture

WHEN
Monday **November 17, 2025**
11:00H (Berlin time)

WHERE
On-site / Online

Friedrich-Alexander-Universität
Erlangen-Nürnberg (FAU). Room
H13 Johann-Radon-Hörsaal
Felix-Klein building
Cauerstraße 11, 91058
Erlangen. Bavaria, Germany

Live-streaming:
https://www.fau.tv/clip/id/59621

Quantum optimal control is well known to improve the performance of quantum technology devices up to their limits in terms e.g. of system size and speed of operation. I will introduce our recent results with a variety of quantum technology platforms, focusing in particular on ultracold atoms, and introduce the software we developed for automatic calibration of quantum operations.

I will present optimization results for each of the building blocks of a quantum simulator: from evaporative cooling to lattice loading, from qubit transport to entanglement generation and to higher stack functionality such as neural-network assisted gate synthesis for quantum compilation.