Symposium Quantum Thermalization (SYQT)

Fabian Heidrich-Meisner
University of Göttingen
Friedrich-Hund-Platz 1
37077 Göttingen, Germany
fabian.heidrich-meisner@uni-goettingen.de

Frank Pollmann
Technical University of Munich
James-Franck-Straße 1
85748 Garching, Germany
frank.pollmann@tum.de

Why and how do isolated quantum systems thermalize-or fail to do so? This fundamental question lies at the heart of current research in quantum many-body physics. While the eigenstate thermalization hypothesis (ETH) has provided a framework for understanding quantum chaos and ergodicity, a growing class of systems defies this paradigm. Constrained dynamics can lead to rich and exotic behaviors such as Hilbert-space fragmentation, quantum many-body scars, and anomalous transport.

This symposium covers advances in statistical physics, condensed matter, quantum optics, and lattice gauge theories. The talks will highlight both foundational insights and new experimental platforms, including experiments tailored to realize lattice gauge theories and advanced quantum-gas microscopes, complemented by theoretical talks. The theoretical talks will bridge between quantum thermalization in quantum simulators and high-energy physics.

Overview of Invited Talks and Sessions

(Lecture hall ZHG104)

Invited Talks

SYQT 1.1	Wed	10:45–11:15	ZHG104	**Probing quantum many-body dynamics using subsystem Loschmidt echos** — •Monika Aidelsburger
SYQT 1.2	Wed	11:15–11:45	ZHG104	**Approach to thermalisation in the Schwinger model** — •Adrien Florio
SYQT 1.3	Wed	11:45–12:15	ZHG104	**Timescales for thermalization and many-body quantum chaos** — •Lea Santos
SYQT 1.4	Wed	12:15–12:45	ZHG104	**Observation of Hilbert-space fragmentation and fractonic excitations in tilted Hubbard models** — •Johannes Zeiher

Sessions

SYQT 1.1–1.4	Wed	10:45–12:45	ZHG104	**Quantum Thermalization**