

TG Spin and Transport Models Overview

TG Leader	Luis Santos
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TG Activities

- Contribute to CRC DQ-mat
- Contribute to TGs Quantum Computation Concepts, Topological Systems, Open many-body quantum systems
- Current LUH-TUBS and LUH-PTB collaborations on Coulomb crystals, Twisted-bilayer graphene and Tensor-Network techniques
- Regular meetings to intensity collaboration in key areas.

TG Competences/Services

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Involved QF Members

Members	Institution	Relevant Expertise
Luis Santos, Leader	LUH	Theory of Dynamics of Manybody Quantum Systems; Twisted-bilayer-graphene physics in ultracold atoms in optical potentials
Hendrik Weimer	LUH	Theory of Dynamics of Manybody Quantum Systems
N.N.	LUH	Theory of Dynamics of Manybody Quantum Systems
Silke Ospelkaus	LUH	Exotic Spin Systems with Molecules; Application of Ultracold Molecular Systems for Precision Measurements and Quantum Many-Body Physics
Mirco Siercke	LUH	Exotic Spin Systems with Molecules
Tanja Mehlstäubler	PTB / LUH	Integrated Chip Traps and Optical Components; Dynamics of Ion Coulomb Crystals
Luca Ruffert	PTB	Integrated Chip Traps and Optical Components; Dynamics of Ion Coulomb Crystals
Daniel Vadlejšch	PTB	Integrated Chip Traps and Optical Components; Dynamics of Ion Coulomb Crystals
Henning Füst	PTB	Integrated Chip Traps and Optical Components; Dynamics of Ion Coulomb Crystals
Lars Timm	PTB / LUH	Dynamics of ion Coulomb Crystals
Christian Ospelkaus	LUH / PTB	Scalable Surface-Electrode Ion Traps
Patrik Recher	TUBS	Theory of Emergent Correlated Quantum Matter; Josephson Junctions; Twisted Bilayer Graphene; Twisted-bilayer-graphene physics in ultracold atoms in optical potentials
Peter Silvestrov	TUBS	Twisted Bilayer Graphene

Wolfram Brenig	TUBS	strongly correlated electron systems, quantum transport, quantum critical systems, low dimensional quantum magnets
Andrey Surzhykov	PTB / TUBS	Light-Matter Interfaces and Dynamics
Peter Lemmens	TUBS	Spin liquids in 2D frustrated spin lattice models
Michael Oestreich	LUH	Spin and charge carrier dynamics in complex semiconductor nanostructures, spin noise spectroscopy
Jens Hübner	LUH	Spin and charge carrier dynamics in complex semiconductor nanostructures, spin noise spectroscopy
Eduard Sauter	LUH	Spin and charge carrier dynamics in complex semiconductor nanostructures, spin noise spectroscopy
Kai Hühn	LUH	Spin and charge carrier dynamics in complex semiconductor nanostructures, spin noise spectroscopy
Pavel Sterin	LUH	Spin and charge carrier dynamics in complex semiconductor nanostructures, spin noise spectroscopy
C. Karrasch	TUBS	Strongly-correlated systems/ non-equilibrium dynamics/Matrix Product State techniques/ Functional Renormalization group/ Transport through quantum dots and wires
T. Osborne	LUH	Tensor network techniques/Quantum Neural Networks/