Low Temperature Physics Division
Fachverband Tiefe Temperaturen (TT)

Reinhold Kleiner
Universität Tübingen
Physikalisches Institut
An der Morgenstelle 14
72076 Tübingen
kleiner@uni-tuebingen.de

Overview of Invited Talks and Sessions
(Lecture Rooms HSZ 03, HSZ 103, HSZ 201, HSZ 204, HSZ 304; Poster P2)

Invited Talks not included in Focus Sessions and Symposia

TT 2.6 Mon 11:00–11:30 HSZ 103 The Echo of Superconductivity: Higgs Oscillations of Superconductors in Non-Equilibrium — •Dirk Manske
TT 14.6 Mon 16:30–17:00 HSZ 201 Multi-Terminal Josephson Junctions as Topological Matter — •Julia S. Meyer
TT 12.9 Mon 17:15–17:45 HSZ 03 U(1) Quantum Spin Liquid Ground State in the Triangular Antiferromagnet YbMgGaO₄ — •Yuesheng Li
TT 47.1 Wed 15:00–15:30 HSZ 103 Interplay between CDW and Superconductivity: Effect of Pressure — •Matthieu Le Tacon
TT 62.7 Thu 11:15–11:45 HSZ 304 Optical Control of Complex Quantum Materials — •Stefan Kaiser
TT 70.1 Thu 15:00–15:30 HSZ 103 New Developments in the Theory of STM on Unconventional Superconductors — •Andreas Kreisel

Focus Sessions

“Frustration in Mott Insulators and Mott Criticality”

TT 1.1 Mon 9:30–10:00 HSZ 03 Herbertsmithite and the Search for the Quantum Spin Liquid — •Michael Norman
TT 1.2 Mon 10:00–10:30 HSZ 03 Anisotropic Magnetism and Spin Gap in α-RuCl₃ — •Bernd Büchner
TT 1.3 Mon 10:30–11:00 HSZ 03 The Fate of Spinons in Quantum Critical Mott Systems — •Vladimir Dobrosavljevic
TT 1.4 Mon 11:15–11:45 HSZ 03 Breakdown of Hooke’s Law of Elasticity at the Mott Critical Endpoint in an Organic Conductor — •Elena Gati
TT 1.5 Mon 11:45–12:15 HSZ 03 The Widom Line in Pristine Mott Insulators: Dynamical Properties of Quantum Spin Liquids — •Andrei Pustogow
TT 1.6 Mon 12:15–12:45 HSZ 03 Toward Understanding the Complex Magnetism in Kitaev Spin-Liquid Candidates — •Stephen Winter

“Nematicity, Magnetism and Superconductivity in FeSe and Related Compounds”

TT 21.1 Tue 9:30–10:00 HSZ 03 BCS-BEC Crossover, Preformed Pairs and Highly Spin-Polarized Superconducting Phase in FeSe — •Yuji Matsuda
TT 21.2 Tue 10:00–10:30 HSZ 03 Discovery of Orbital-Selective Cooper Pairing in FeSe — •J. C. Séamus Davis
TT 21.3 Tue 10:30–11:00 HSZ 03 Frustrated Magnetism and Electron-Electron Interactions in FeSe — •Roser Valenti
TT 21.4 Tue 11:15–11:45 HSZ 03 Orbital-Selective Pairing and Gap Structures of Iron-Based Superconductors — •Brian Andersen
TT 21.5 Tue 11:45–12:15 HSZ 03 New Experimental Results Concerning the Nematic State in Fe-based Superconductors — •Christoph Meingast
“Collective Quantum Dynamics: From Fundamentals to New Phenomena”

**TT 46.1 Wed 15:00–15:30 HSZ 03**
Many-Body Localization and Glassiness in Quantum Spin Systems — **Antonello Scardicchio**

**TT 46.2 Wed 15:30–16:00 HSZ 03**
Exploring Many-Body Localization in Two Dimensions — **Christian Gross**

**TT 46.3 Wed 16:00–16:30 HSZ 03**
Floquet Engineering and Control of Topology in Solid State Systems — **Takashi Oka**

**TT 46.4 Wed 16:45–17:15 HSZ 03**
Hydrodynamic Regimes of Electron Transport — **Andrew Mackenzie**

**TT 46.5 Wed 17:15–17:45 HSZ 03**
Dynamical Phase Transitions — **Stefan Kehrein**

“Superconductivity in the Vicinity of a Quantum Critical Point”

**TT 69.1 Thu 15:00–15:30 HSZ 03**
The Antiferromagnet YbRh$_2$Si$_2$ - a New Heavy-Fermion Superconductor — **Frank Steglich**

**TT 69.2 Thu 15:30–16:00 HSZ 03**
Quantum Criticality in Cuprate and Iron Based Superconductors — **Antony Carrington**

**TT 69.3 Thu 16:00–16:30 HSZ 03**
Evolution of the Fermi Surface of the Nematic Superconductors FeSe$_{1-x}$S$_x$ — **Amalia Coldea**

**TT 69.4 Thu 16:45–17:15 HSZ 03**
Superconductivity near Structural Instabilities — **Malte Grosche**

**TT 69.5 Thu 17:15–17:45 HSZ 03**
An Empirical Approach to the 2 mK Transition in YbRh$_2$Si$_2$ — **Christoph Geibel**

Focus on 2D Materials (Joint Sessions of DS,DY,HL,TT)

Focus Session “Two-Dimensional Materials” (organized by HL)

**TT 6.1 Mon 9:30–10:00 POT 81**
Van der Waals Heterostructures: Tunnelling and Interaction with Light — **Artem Mishchenko**

**TT 6.6 Mon 11:30–12:00 POT 81**
Excitons in Ultra-Thin Perovskites and van der Waals Crystals — **Alexey Chernikov**

**TT 9.1 Mon 14:45–15:15 POT 81**
2D / 3D Heterostructures for Optoelectronics — **Max Lemme**

**TT 9.6 Mon 16:45–17:15 POT 81**
Excitons in Colloidal 2D-CdSe Nanocrystals — **Ulrike Woggon**

Focus Session “Ballistic Quantum Transport in Graphene” (organized by TT)

**TT 58.1 Thu 9:30–10:00 HSZ 03**
Kondo Screening of a Vacancy Magnetic Moment in Graphene — **Eva Y. Andrei**

**TT 58.2 Thu 10:00–10:30 HSZ 03**
Higher-Than-Ballistic Conduction in Viscous Electron Fluids — **Leonid Levitov**

**TT 58.3 Thu 10:30–11:00 HSZ 03**
Electron Optics in Ballistic Graphene — **Ming-Hao Liu**

**TT 58.4 Thu 11:15–11:45 HSZ 03**
Ballistic Transport in Mesoscopic Graphene Devices — **Christoph Stampfer**

**TT 58.5 Thu 11:45–12:15 HSZ 03**
Interaction-Induced Conductance from Zero Modes in a Magnetic Graphene Waveguide — **Alex Zazunov**

Symposium “Optics and Light-Matter Interaction with Excitons in 2D Materials (SYLM)”

See SYLM for the abstracts of the symposium.

**SYLM 1.1 Thu 15:00–15:30 HSZ 02**
Light matter interaction in TMDs and their heterostructures — **Ursula Wurstbauer**

**SYLM 1.2 Thu 15:30–16:00 HSZ 02**
Quantum optics with deterministically positioned quantum emitters in a two-dimensional semiconductor — **Brian Gerardot**
### Dresden 2017 – TT Overview

| SYLM 1.3 | Thu 16:00–16:30 | HSZ 02 | Light-matter coupling with atomic monolayers in microcavities — Christian Schneider |
| SYLM 1.4 | Thu 17:00–17:30 | HSZ 02 | Properties of Synthetic 2D Materials and Heterostructures — Joshua Robinson |
| SYLM 1.5 | Thu 17:30–18:00 | HSZ 02 | Exciton spectroscopy in transition metal dichalcogenide monolayers and van der Waals heterostructures — Bernhard Urbaszek |
| SYLM 1.6 | Thu 18:00–18:30 | HSZ 02 | Strain-induced single-photon emitters in layered semiconductors — Rudolf Bratschitsch |

### Other Joint Symposia with TT participation

#### Symposium “Novel Functionality and Topology-Driven Phenomena in Ferroics and Correlated Electron Systems (SYCE)”

See SYCE for the abstracts of the symposium.

| SYCE 1.1 | Mon 15:00–15:30 | HSZ 02 | Ferroelectric domain walls: from conductors to insulators and back again — Petro Maksymovych |
| SYCE 1.2 | Mon 15:30–16:00 | HSZ 02 | Zoology of skyrmions and the role of magnetic anisotropy in the stability of skyrmions — Istvan Kezsmarki |
| SYCE 1.3 | Mon 16:00–16:30 | HSZ 02 | Magnetic imaging of topological phenomena in ferroic materials — Weida Wu |
| SYCE 1.4 | Mon 17:00–17:30 | HSZ 02 | Topological skyrmion textures in chiral magnets — Markus Garst |
| SYCE 1.5 | Mon 17:30–18:00 | HSZ 02 | Learning through ferroelectric domain dynamics in solidstate synapses — Manuel Bibes |

#### Symposium “Quantum Optics on the Nanoscale: From Fundamental Physics to Quantum Technologies (SYQO)”

See SYQO for the abstracts of the symposium.

| SYQO 1.1 | Thu 09:30–10:00 | HSZ 02 | Quantum dot based quantum technologies — Pascale Senellart |
| SYQO 1.2 | Thu 10:00–10:30 | HSZ 02 | Controlled strong coupling of a single quantum dot to a plasmonic nanoresonator at room temperature — Bert Hecht |
| SYQO 1.3 | Thu 10:30–11:00 | HSZ 02 | High efficiency and directional emission from a nanoscale light source in a planar optical antenna — Mario Agio |
| SYQO 1.4 | Thu 11:30–12:00 | HSZ 02 | Tailoring quantum states by measurement — Jörg Wrachtrup |
| SYQO 1.5 | Thu 12:00–12:30 | HSZ 02 | Quantum optics and quantum control at the nanoscale with surface plasmon polaritons — Stéphane Guérin |

#### Symposium “Frontiers of Electronic-Structure Theory: New Concepts and Developments in Density Functional Theory and Beyond (SYES)”

See SYES for the abstracts of the symposium.

| SYES 1.1 | Fri 10:30–11:00 | HSZ 02 | Going Beyond Conventional Functionals with Scaling Corrections and Pairing Fluctuations — Weitao Yang |
| SYES 1.2 | Fri 11:00–11:30 | HSZ 02 | Multi-reference density functional theory — Andreas Savin |
| SYES 1.3 | Fri 11:30–12:00 | HSZ 02 | Density functionals from machine learning — Kieron Burke |
| SYES 1.4 | Fri 12:00–12:30 | HSZ 02 | Tuning Memory-Dependence in Time-Dependent Density Functional Theory — Neepa Maitra |
| SYES 1.5 | Fri 12:30–13:00 | HSZ 02 | Quantum Embedding Theories — Fred Manby |
Dresden 2017 – TT Overview

Sessions

TT 1.1–1.6 Mon 9:30–12:45 HSZ 03 Focus Session: Frustration in Mott Insulators and Mott Criticality
TT 2.1–2.11 Mon 9:30–12:45 HSZ 103 Superconductivity: Properties and Electronic Structure 1
TT 4.1–4.13 Mon 9:30–13:00 HSZ 204 Transport: Topological Insulators (jointly with DS, MA, HL, O)
TT 5.1–5.13 Mon 9:30–13:00 HSZ 304 Correlated Electrons: (General) Theory 1
TT 6.1–6.9 Mon 9:30–12:45 POT 81 Focus Session: Two-Dimensional Materials I (joint session DS, HL, TT, organized by HL)
TT 7.1–7.11 Mon 9:30–13:00 POT 151 Spintronics I (joint session DS, HL, MA, TT, organized by HL)
TT 9.1–9.10 Mon 14:45–18:15 POT 81 Focus Session: Two-Dimensional Materials II (joint session DS, HL, TT, organized by HL)
TT 10.1–10.7 Mon 14:45–17:00 POT 151 Spintronics II (joint session DS, HL, MA, TT, organized by HL)
TT 11.1–11.5 Mon 15:00–18:00 HSZ 02 SYCE: Novel Functionality and Topology-Driven Phenomena in Ferroics and Correlated Electron Systems (joint symposium DF, DS, KR, MA, MI, TT, organized by DS)
TT 12.1–12.11 Mon 15:00–18:15 HSZ 03 Correlated Electrons: Frustrated Magnets - General 1
TT 13.1–13.12 Mon 15:00–18:15 HSZ 103 Superconductivity: Fe-based Superconductors - 122
TT 14.1–14.11 Mon 15:00–18:15 HSZ 201 Superconductivity: Tunnelling, Josephson Junctions, SQUIDs 1
TT 15.1–15.12 Mon 15:00–18:15 HSZ 204 Transport: Graphene and Carbon Nanostructures (jointly with DY, DS, HL, MA, O)
TT 16.1–16.11 Mon 15:00–18:00 HSZ 304 Transport: Topological Phases (jointly with DS, MA, HL, O)
TT 17.1–17.13 Mon 15:00–18:30 HSZ 403 Magnetic Heuslers, Half-Metals and Oxides (joint session MA, TT, organized by MA)
TT 18.1–18.12 Mon 15:00–18:15 GER 38 Electronic-Structure Theory: New Concepts and Developments in Density Functional Theory and Beyond - II (joint session DS, HL, MA, MM, O, TT, organized by O)
TT 19.1–19.70 Mon 15:00–19:00 P2-EG Poster Session: Correlated Electrons 1
TT 20.1–20.21 Mon 15:00–19:00 P2-OG1 Poster Session: Correlated Electrons 2
TT 21.1–21.5 Tue 9:30–12:15 HSZ 03 Focus Session: Nematicity, Magnetism and Superconductivity in FeSe and Related Compounds
TT 23.1–23.8 Tue 9:30–11:45 HSZ 201 Transport: Topological Semimetals 1 (jointly with DS, MA, HL, O)
TT 24.1–24.13 Tue 9:30–13:00 HSZ 204 Low-Dimensional Systems: 1D - Theory
TT 25.1–25.13 Tue 9:30–13:00 HSZ 304 Correlated Electrons: Frustrated Magnets - Strong Spin-Orbit Coupling 1
TT 27.1–27.7 Tue 9:30–12:45 POT 151 Focus Session: Topological Insulators on Coupled Quantum Wells (joint session DS, HL, MA, O, TT, organized by HL)
TT 29.1–29.4 Tue 12:00–13:00 HSZ 201 Other Low Temperature Topics: Cold Atomic Gases
TT 30.1–30.8 Tue 14:00–16:00 HSZ 03 Correlated Electrons: Quantum Impurities, Kondo Physics
TT 31.1–31.8 Tue 14:00–16:00 HSZ 103 Correlated Electrons: Other Materials
TT 32.1–32.5 Tue 14:00–15:15 HSZ 201 Transport: Nanomechanics and Optomechanics (jointly with CPP, DY, BP, DF)
TT 33.1–33.8 Tue 14:00–16:00 HSZ 204 Spintronics, incl. Quantum Dynamics (joint session DS, HL, MA, TT, organized by MA)
TT 34.1–34.7 Tue 14:00–15:45 HSZ 301
Dresden 2017 – TT

Overview

Low-Dimensional Systems: 2D - Theory

Brownian Motion (jointly with DY)

Graphene Posters (joint session DS, DY, HL, MA, O, TT, organized by O)

Transport: Quantum Coherence and Quantum Information Systems - Experiment (jointly with MA, HL)

Superconductivity: (General) Theory

Transport: Molecular Electronics and Photonics (jointly with CPP, HL, MA, O)

Correlated Electrons: Quantum-Critical Phenomena

Correlated Electrons: Frustrated Magnets - Strong Spin-Orbit Coupling 2

Two-Dimensional Materials IV (joint session DS, HL, TT, organized by HL)

Focus Session: Non-Equilibrium Dynamics in Light-Driven Materials: Theory Meets Experiment (joint session O, TT, organized by O)

Electronic-Structure Theory: New Concepts and Developments in Density Functional Theory and Beyond - IV (joint session DS, HL, MA, MM, O, TT, organized by O)

Focus Session: Collective Quantum Dynamics: From Fundamentals to New Phenomena

Superconductivity: Properties and Electronic Structure 2

Superconductivity: Tunnelling, Josephson Junctions, SQUIDs 2

Transport: Topological Semimetals 2 (jointly with DS, MA, HL, O)

Correlated Electrons: Frustrated Magnets - Low-Dimensional Systems

Topological Insulators (joint session DS, HL, MA, O, TT, organized by MA)

Electronic-Structure Theory: New Concepts and Developments in Density Functional Theory and Beyond - V (joint session DS, HL, MA, MM, O, TT, organized by O)

Poster Session: Superconductivity 1

Poster Session: Cryotechnique

Poster Session: Superconductivity 2

Poster Session: Low-Dimensional Systems

SYQO: Quantum Optics on the Nanoscale: From Fundamental Physics to Quantum Technologies (joint symposium HL, DS, O, TT, organized by HL)

Focus Session on 2D Materials: Ballistic Quantum Transport in Graphene (jointly with DY, DS, HL, MA, O)

Superconductivity: Fe-based Superconductors - FeSe and others

Spinvaloric Transport (joint session MA, TT, organized by MA)

Coherent Quantum Dynamics (joint session DY, TT, organized by DY)

Topological Insulators I (joint session DS, HL, MA, O, TT, organized by HL)

Graphene: Electronic Properties, Structure and Substrate Interaction I (joint session DY, DS, HL, MA, O, TT, organized by O)

Topological Insulators II (joint session DS, HL, MA, O, TT, organized by HL)
Dresden 2017 – TT

Overview

TT 68.1–68.6 Thu 15:00–18:30 HSZ 02 SYLM: Optics and Light-Matter Interaction with Excitons in 2D Materials (joint symposium DS, DY, HL, TT, organized by HL)

TT 69.1–69.7 Thu 15:00–18:15 HSZ 03 Focus Session: Superconductivity in the Vicinity of a Quantum Critical Point

TT 70.1–70.11 Thu 15:00–18:15 HSZ 103 Superconductivity: Fe-based Superconductors - Theory

TT 71.1–71.11 Thu 15:00–18:00 HSZ 201 Superconductivity: Cryodetectors and Cryotechnique

TT 72.1–72.13 Thu 15:00–18:30 HSZ 304 Correlated Electrons: Frustrated Magnets - General 2

TT 73.1–73.11 Thu 15:00–18:00 HSZ 304 Correlated Electrons: Nonequilibrium Quantum Many-Body Systems 2

TT 74.1–74.13 Thu 15:00–18:15 TRE Ma Graphene: Electronic Properties, Structure and Substrate Interaction II (joint session DY, DS, HL, MA, O, TT, organized by O)

TT 75.1–75.32 Thu 15:00–19:00 P2-EG Poster Session: Transport 1

TT 76.1–76.27 Thu 15:00–19:00 P2-OG1 Poster Session: Transport 2

TT 77.1–77.9 Thu 16:00–18:30 GER 38 Electronic-Structure Theory: New Concepts and Developments in Density Functional Theory and Beyond - VI (joint session DS, HL, MA, MM, O, TT, organized by O)

TT 78.1–78.2 Thu 17:00–17:30 CHE 91 Quantum Optics at the Nanoscale: From Fundamental Physics to Quantum Technologies (joint session HL, DS, O, and TT, organized by DS)

TT 79.1–79.8 Fri 9:30–11:30 HSZ 03 Transport: Spintronics, Spincalorics and Magnetotransport (jointly with DS, HL, MA)

TT 80.1–80.6 Fri 9:30–11:00 HSZ 103 Low-Dimensional Systems: Oxide Hetero-Interfaces

TT 81.1–81.4 Fri 9:30–10:30 HSZ 304 Correlated Electrons: Chiral Magnets

TT 82.1–82.6 Fri 9:30–11:15 POT 81 Quantum Information Systems (joint session HL, MA, TT, organized by HL)

TT 83.1–83.10 Fri 9:30–12:30 POT 251 Topological Insulators III (joint session DS, HL, MA, O, TT, organized by HL)

TT 84.1–84.5 Fri 10:30–13:00 HSZ 02 SYES: Frontiers of Electronic-Structure Theory: New Concepts and Developments in Density Functional Theory and Beyond (joint symposium DS, HL, MA, MM, O, TT, organized by O)

TT 85.1–85.10 Fri 10:30–13:00 TRE Ma Graphene: Adsorption, Intercalation and Other Aspects (joint session DY, DS, HL, MA, O, TT, organized by O)

TT 86.1–86.3 Fri 11:15–12:00 HSZ 103 Low-Dimensional Systems: Charge Order

TT 87.1–87.4 Fri 11:15–12:15 CHE 89 Optics and Light-Matter Interaction with Excitons in 2D Materials (joint session HL, DS, O, and TT, organized by DS)

Annual General Meeting of the Low Temperature Physics Division

Thu 19:00–20:30 HSZ 304

- Report
- Election
- Miscellaneous