

WPC Theoretical Physics Symposium 2019

WOLFGANG-PAULI-CENTRE

A COMPETENCE FIELD OF PIER

Theoretical Physics Symposium 2019



Eine Partnerschaft der
Universität Hamburg und DESY

Wednesday, 13 November 2019 - Friday, 15 November 2019

DESY Hamburg

Scientific Programme

Theoretical Physics Symposium 2019

13-15 November, Hamburg

Location: DESY Hamburg, Auditorium CSSB, bldg. 15

Wednesday 13.11. (Theory of Condensed Matter)

Coffee-breakfast 8:30-9:00

9:00-9:45 Thomas Maurice Rice

The Puzzling Pseudogap Phase of Underdoped Cuprates

9:45-10:30 Masatoshi Imada

Numerical Studies on High-T_c Cuprate Superconductors

Coffee break 10:30-11:00

11:00-11:45 Fuchun Zhang

High T_c superconductivity and topological quantum computation

11:45-12:30 Philippe Corboz

Simulations of SrCu₂(BO₃)₂ with 2D tensor networks

Lunch 12:30-14:00

14:00-14:45 Olga Smirnova

Synthetic chiral light for extremely sensitive chiral light matter interaction

Coffee break 14:45-15:00

15:00-15:45 Chris H. Greene

Recent insights into the world of ultracold few-body physics

15:45-16:30 Mikhail Katsnelson

Does God play dice?

17:00 Shuttle bus from the CSSB, bldg. 15 to Planetarium Hamburg

18:30-21:00 Award ceremony & reception

<u>Thursday 14.11. (Quantum Dynamics of Many-Body Systems)</u>

Coffee-breakfast 8:30-9:00

9:00-9:45 Uwe-Jens Wiese

Cluster Algorithms, Sign Problems and Quantum Simulators for Gauge Theories

9:45-10:30 Nikolai Prokofev

Fermionic sign problem: an exaggerated myth

Coffee break 10:30-11:00

11:00-11:45 David Landau

A New Universality at a First Order Transition: The Spin-Flop Transition in an Anisotropic Heisenberg Antiferromagnet

11:45-12:30 Alexey Rubtsov

Cuprates as ultraquantum material: low energy fluctuations and superconductivity

Lunch 12:30-14:00

14:00-14:45 Andrew Daley

Dynamics of entanglement and scrambling in sparse spin models with cold atoms

Coffee break 14:45-15:00

15:00-15:45 Boris Svistunov

When Charge Quantization Leads to the Halon Effect

15:45-16:30 Lode Pollet

Discerning multiple order parameters with interpretable machines: towards the automation of phase classification

16:30 Shuttle bus from the CSSB, bldg. 15 to XFEL

17:00-20:00 XFEL-excursion & reception

<u>Friday 15.11. (Machine Learning and Quantum Physics)</u>

Coffee-breakfast 8:30-9:00

9:00-9:45 Sue Coppersmith

Complex systems and quantum computers

9:45-10:30 Giuseppe Carleo Neural-Network Quantum states

Coffee break 10:30-11:00

11:00-11:45 Bela Bauer

Matrix product state algorithms for Gaussian fermionic states

11:45-12:30 James Whitfield

Quantum technology and time-dependent density functional theory

Lunch 12:30-14:00

14:00-14:45 Emanuel Gull

Continuous-time Quantum Monte Carlo: from models to spectroscopy

14:45-15:30 Shaul Mukamel

Monitoring elementary molecular events with X-ray and quantum light

Coffee break 15:30-15:45

15:45-16:30 Maciej Lewenstein

Strongly correlated bosons in dynamical lattices

16:30-17:15 Andy Millis

Superconductivity in Cuprates, Nickelates and the Hubbard Model

17:15-18:30 Matthias Troyer

The impact of quantum computing on many body quantum physics

Closing remarks