

Workshop „Ab initio simulations of correlated fermions“

Kiel University, July 8-9 2020

organization: M. Bonitz (Kiel) and T. Dornheim (CASUS)

Wednesday, July 8, 4.00p.m.-8.15 p.m. Central European time

„Ab initio thermodynamics and transport of quantum plasmas“

16.00 **Matthew Foulkes** (Imperial College): „Solving the Many-Electron Schrödinger Equation with Deep Neural Networks“

16.35 **Tobias Dornheim** (CASUS): „Recent developments of PIMC for correlated electrons“

17.05 **Vladimir Filinov** (IVTAN, Moscow): „Sign problems, the Pauli blocking in phase space and the Lefschetz thimbles“

17.30 **Paul Hamann** (Kiel): „Reconstruction of dynamic properties via QMC“

17.50-18.15 break

18.15 **Pavel Levashov** (IVTAN, Moscow): „Entropy evaluation in atomistic simulations“

18.45 **Burkhard Militzer** (UC Berkeley): „Path integral Monte Carlo simulations of real materials“

19.15 **Fionn Malone** (LLNL): „Finite Temperature Auxiliary Field QMC“

19.45 **Brenda Rubenstein** (Brown University): „Finite Temperature AFQMC for Molecules and Solids“

Thursday, July 9, 2.00 p.m.-5.00 p.m.

„Quantum dynamics with nonequilibrium Green functions“

14.00 **Gianluca Stefanucci** (University of Rome Tor Vergata): „Nonequilibrium Green Functions“

14.45 **Jan-Philip Joost** (Kiel University): „The G1-G2 scheme“

15.15 **Claudio Verdozzi** (Lund University): „Manipulating skyrmions: The explicit role of the electrons“

15.45-16.00 break

16.00 **Zhandos Moldabekov** (Almaty): „Quantum Hydrodynamics for quantum plasmas“

16.30 **Simone Latini** (MPSD Hamburg): „Ultrafast Laser-Assisted Stabilization of Ionized Adenine“

(subject to minor changes)

the workshop will be held via video conference (zoom).

The link will be posted at the web page <http://www.theo-physik.uni-kiel.de/bonitz/>

Speakers are invited to contribute to

Special issue of „Contributions to Plasma Physics“: Lectures/Review articles on ab initio simulations of quantum plasmas, Guest editors: T. Dornheim, H. Kählert, and P. Ludwig

Deadline for manuscript submission: September 1

Current list of contributors (preliminary titles)

Karsten Balzer, „Nonequilibrium Green functions approach to charge neutralization at surfaces“

Vladimir Filinov, Alexander Larkin, and Vladimir Fortov, „Sign problems, the Pauli blocking in phase space and the Lefschetz thimbles“

Pavel Levashov, „Entropy evaluation in atomistic simulations“
Fionn Malone, „Finite Temperature Auxiliary Field QMC“