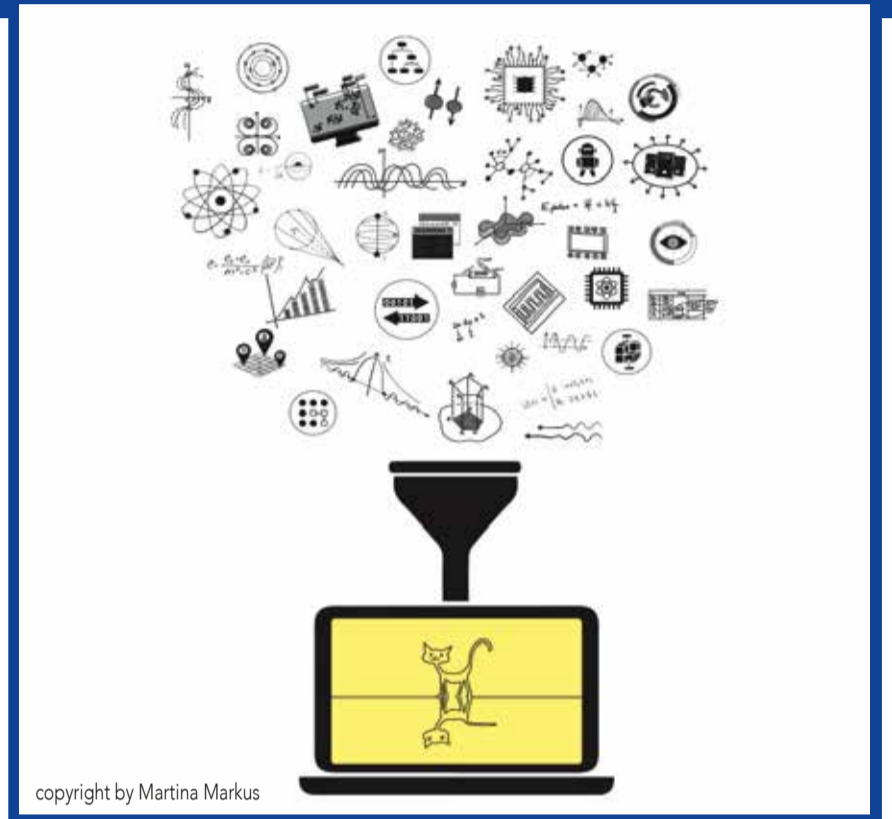




Machine Learning for Quantum Many-body Physics

International Workshop 25 - 29 June 2018

The workshop covers the emerging research area that applies machine learning techniques to analyze, represent, and solve quantum many-body systems in condensed matter physics. This includes problems of phase classification and characterization, state compression, feature extraction, wavefunction representation using neural networks, and connections between tensor networks and machine learning.



copyright by Martina Markus

Topics:

- Supervised phase classification
- Unsupervised learning of quantum phases
- Restricted Boltzmann machines for representing wavefunctions
- Solving quantum many-body problems
- Connections between the renormalization group and deep learning
- Machine learning and density functional theory
- Material discovery using machine learning
- Quantum neural networks
- Quantum error correction and decoding with neural networks
- Quantum state tomography with machine learning

Invited speakers:

Erez Berg (US)
 Kieron Burke (US)
 Giuseppe Carleo (CH)
 Juan Carrasquilla (CA)
 Ignacio Cirac (DE)
 Dong-Ling Deng (US)
 Claudia Draxl (DE)
 Jens Eisert (DE)
 Luca Ghiringhelli (DE)
 David Gross (DE)
 Masatoshi Imada (JP)
 Eun-Ah Kim (US)
 Maciej Koch-Janusz (CH)
 Nicolas Regnault (FR)
 Matthias Rupp (DE)
 Maria Schuld (ZA)
 Miles Stoudenmire (US)
 Giacomo Torlai (CA)
 Jordi Tura i Brugués (DE)

Evert van Nieuwenburg (US)
 Frank Verstraete (BE)
 Lei Wang (CN)
 Yi Zhang (US)

Scientific coordinators:

Roger Melko
 Waterloo, CA
 Titus Neupert
 Zurich, CH
 Simon Trebst
 Köln, DE

Organisation:

Mandy Lochar
 MPIPKS Dresden

Applications received before 15 March 2018 are considered preferentially.

Applications are welcome and should be made by using the application form on the event's web page. The number of attendees is limited. The registration fee for the international workshop is 120 Euro and should be paid by all participants. Costs for accommodation and meals will be covered by the Max Planck Institute. Limited funding is available to partially cover travel expenses.

For further information please contact:

Visitors Program – Mandy Lochar
 MPI for the Physics of Complex Systems
 Nöthnitzer Str. 38, D-01187 Dresden
 Tel: +49-351-871-1933
 Fax: +49-351-871-2199
 mlq18@pks.mpg.de
 www.pks.mpg.de/mlq18