

# Workshop

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- Start: Monday March 18th 2019 at 09:00
- Finish: Thursday March 21th 2019 at 12:30
- Address: Walter-Flex-Str. 3, 57072 Siegen (Building D)
- Room: ENC-D 114

## Detailed Schedule (preliminary)

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### • Monday

- 09:00 -- 10:00 Liqun Qi  
*Tensor Eigenvalues and Their Applications in Quantum Physics, Part I*
- 10:00 -- 10:25 Gael Sentís  
*Unsupervised classification of quantum data*
- 10:25 -- 11:00 Coffee/Tea break
- 11:00 -- 12:00 Andreas Winter  
*Resource theories of quantum channels and the universal role of resource erasure*
- 12:00 -- 12:25 Tristan Kraft  
*Quantifying quantum resources with conic programming*
- 12:25 -- 14:00 Lunch
- 14:00 -- 15:00 Guofeng Zhang  
*Tensor Eigenvalues and Their Applications in Quantum Physics, Part II*
- 15:00 -- 15:30 Coffee/Tea break
- 15:30 -- 15:55 Zahra Raissi  
*Constructing  $k$ -uniform states of non-minimal support and study the graph states representation*
- 15:55 -- 16:20 Markus Heinrich  
*Some applications of symmetry reductions in convex optimization*
- 19:00 Conference dinner

### • Tuesday

- 09:00 -- 10:00 Barbara Kraus  
*Local manipulation of entanglement*
- 10:00 -- 10:25 Adam Sawicki  
*Symmetries of locally maximally entangled states and asymptotic SLOCC equivalence*
- 10:25 -- 11:00 Coffee/Tea break
- 11:00 -- 12:00 Markus Lange-Hegermann  
*Gröbner bases and applications*
- 12:00 -- 12:25 H. Chau Nguyen

*SLOCC and Gröbner bases*

◦ 12:25 -- 14:00 Lunch

◦ 14:00 -- 15:00 Lars Grasedyck

*Preliminary title: Numerical Methods for Hierarchical Low Rank Tensors*

◦ 15:00 -- 15:30 Coffee/Tea break

◦ 15:30 -- 15:55: Remigiusz Augusiak

*Self-testing of quantum systems of arbitrary local dimension*

◦ 15:55 -- 16:40 Vladimir Gerdt

*Description of entanglement space of qubits and qutrits in terms of polynomial invariants: challenges to computer algebra*

• **Wednesday**

◦ 09:00 -- 10:00 Miguel Navascués

*LP and SDP hierarchies in quantum information theory*

◦ 10:00 -- 10:25 Denis Rosset

*Automating the decomposition of finite dimensional group representations*

◦ 10:25 -- 11:00 Coffee/Tea break

◦ 11:00 -- 12:00 Timo de Wolff

*New Dependencies of Hierarchies in Polynomial Optimization*

◦ 12:00 -- 12:25 Felipe M Mora

*Representation theory of tensor power Cliffords*

◦ 12:25 -- 14:00 Lunch

◦ 14:00 Social program

• **Thursday**

◦ 09:00 -- 10:00 Roman Orus

*On mathematical aspects of tensor network states and optimization methods*

◦ 10:00 -- 10:25 Martin Dönges

*Optimization of tensor networks*

◦ 10:25 -- 11:00 Coffee/Tea break

◦ 11:00 -- 12:00 Ivan Oseledets

*Modelling quantum systems on classical computers: approximation and high-performance computing*

◦ 12:00 -- 12:25 Tim Seynnaeve

*Uniform matrix product states from an algebraic geometer's point of view*

◦ 12:25 -- 12:50 Mariami Gachechiladze

*Connection between linear matrix pencils and coarse graining of entanglement in  $2 \times m \times n$  systems*

◦ 12:50 -- 14:00 Lunch