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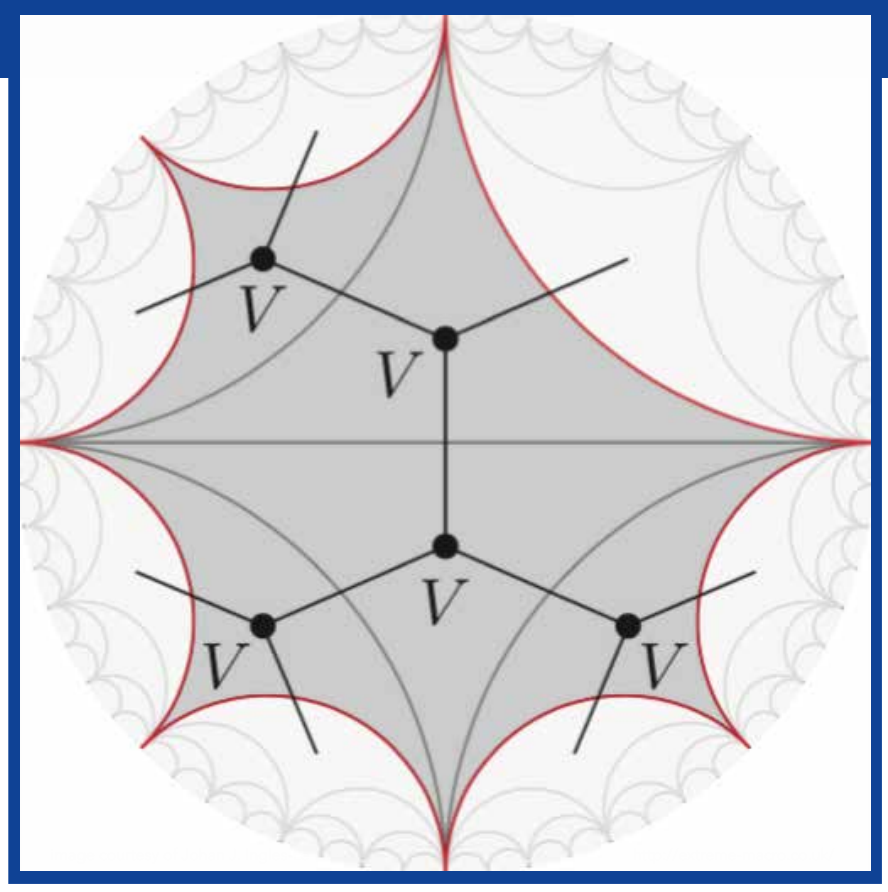
MAX-PLANCK-GESELLSCHAFT

Optimising, Renormalising, Evolving and Quantising Tensor Networks

Max Planck Institute for the Physics of Complex Systems

International Workshop
18 - 22 June 2018



In the 25 years since the introduction of the density matrix renormalization group, tensor networks have become canonical in quantum physics. The methods and applications have ramified, generating many new insights. This meeting will explore these developments under several broad, physically-motivated themes, including chaos and hydrodynamics in quantum thermalisation, quantizing tensor networks, representing and evolving open quantum systems, renormalizing tensor networks, new network structures, and connections to machine learning. The meeting will take advantage of a back-to-back meeting on machine learning (25th - 29th June) in quantum many-body physics.

Topics:

- Chaos and hydrodynamics in quantum thermalisation
- Quantizing tensor networks
- Out-of-equilibrium quantum dynamics
- Representing and evolving open quantum systems
- Renormalising tensor networks
- Connections between MERA and AdS/CFT
- Tensor network Monte Carlo
- New network structures
- Connections between tensor networks and machine learning

Invited speakers:

Ehud Altman (US)
Mohammad Amin (CA)
Garnet K. Chan (US)
Philip Crowley (UK)
Terry Farrelly (DE)
Jutho Haegeman (BE)
Robert König (DE)
Robert M. Konik (US)
Andreas Läuchli (AT)
Adam Nahum (UK)
Vadim Oganesyan (US)
David Pérez García (ES)
Frank Pollmann (DE)
Tomaž Prosen (SI)
Gil Refael (US)
Zohar Ringel (IS)
Shinsei Ryu (US)
Ulrich Schollwöck (DE)
Norbert Schuch (DE)
David Schwab (US)
Steven H. Simon (UK)
E. Miles Stoudenmire (US)
Frank Verstraete (AT)
Michael Walter (NL)
Lei Wang (CN)

Scientific coordinators:

Andrew G. Green
London, United Kingdom

Roger Melko
Waterloo, Canada

Tobias J. Osborne
Hannover, Germany

Organisation:

Katrin Lantsch
MPIPKS Dresden

Applications received before 25 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:
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We also offer individual fellowships (phd, postdoc, sabbatical). Applications are accepted continuously. For details, please check www.pks.mpg.de/visitors