

Workshop 2 on “Mathematical structures of Tensor Networks”**October 3 - 7, 2022**

of the Thematic Programme on

“Tensor Networks: Mathematical Structures and Novel Algorithms”

August 29 - October 21, 2022, organized by

Frank Pollmann (TU Munich), Norbert Schuch (U Vienna), Frank Verstraete (Ghent U)● **Monday, October 3rd, 2022**09:00 – 09:30 **Registration and Welcome**09:30 – 10:15 **Hong-Hao Tu (TU Dresden)***Tensor networks for fermionic parton wave functions*10:15 – 10:50 **Coffee break**10:50 – 12:00 **Paul Fendley (U Oxford)***Defects and Duality on the Lattice – (Blackboard talk)*12:00 – 14:00 **Lunch break**14:00 – 14:45 **András Molnár (U Vienna)***Matrix product operator algebras*14:45 – 15:30 **Coffee break**15:30 – 16:40 **Carolyn Wille (U Oxford)***An effective field theory for (holographic) random matchgate tensor networks – (Blackboard talk)*● **Tuesday, October 4th, 2022**09:00 – 10:10 **Bruno Nachtergaele (UC Davis)***Ogata’s construction of an index for SPT phases of quantum spin chains. – (Blackboard talk)*10:10 – 10:50 **Coffee break**10:50 – 12:00 **Angelo Lucia (U Complutense de Madrid)***Thermalization of quantum memories - a tensor networks approach – (Blackboard talk)*12:00 – 14:00 **Lunch break**14:00 – 14:45 **Yoshiko Ogata (U Tokyo)***A derivation of braided C^* -tensor categories from gapped ground states satisfying the approximate Haag duality*14:45 – 15:30 **Coffee break**15:30 – 16:40 **David Pérez-García (U Complutense de Madrid)***A canonical form for PEPS – (Blackboard talk)*17:00 – **Poster session**

- **Wednesday, October 5th, 2022**

09:00 – 10:10 **Jürgen Fuchs (U Karlstad)**

String nets and RCFT correlators – (Blackboard talk)

10:10 – 10:50 **Coffee break**

10:50 – 12:00 **Christoph Schweigert (U Hamburg)**

Tensors, state-sum TFTs and the evaluation of (extruded) graphs – (Blackboard talk)

12:00 – 14:00 **Lunch break**

14:00 – 14:45 **Dominic Williamson (U Sydney)**

Condensation and stability of topological order in tensor networks

14:45 – 15:30 **Coffee break**

15:30 – 16:40 **Laurens Lootens (Ghent U)**

Dualities in one-dimensional quantum lattice models: symmetric Hamiltonians and matrix product operator intertwiners – (Blackboard talk)

19:00 – **Conference dinner**

Registration required. See your profile page for details and registration.

- **Thursday, October 6th, 2022**

09:30 – 10:15 **Erez Zohar (HU Jerusalem)**

Gauged Gaussian Fermionic PEPS: a tool for studying lattice gauge theories

10:15 – 10:50 **Coffee break**

10:50 – 12:00 **David T. Stephen (U of Colorado, Boulder)**

Higher Chern number and matrix product state representations – (Blackboard talk)

12:00 – 14:00 **Lunch break**

14:00 – 14:45 **Andreas Ludwig**

TBA

14:45 – 15:30 **Coffee break**

15:30 – 16:40 **Adam Nahum (ENS Paris)**

Entanglement transitions in tree tensor networks – (Blackboard talk)

- **Friday, October 7th, 2022**

09:00 – 09:45 **Anne Nielsen (AU)**

TBA

09:45 – 10:30 **Jens Eisert (FU Berlin)**

Some new ideas on tensor networks to capture entanglement in quantum many-body systems

10:30 – 11:15 **Coffee break**

11:15 – 12:25 **Tobias Osborne (ITP Hannover)**

Quantum Simulation of Conformal Field Theory – (Blackboard talk)

All talks take place at ESI Boltzmann Lecture Hall! Wearing an FFP2 mask is mandatory!