

## **Monday Sep. 6**

2.15-2.30pm      Welcome

### Session 1: Quantum Monte Carlo Methods (chair S.R. Manmana)

2.30pm – 3pm      Sandro Sorella (R)      Recent progress in auxiliary field quantum Monte Carlo

3pm – 3.30pm      Manuel Weber      Quantum Monte Carlo simulation of spin-boson models using retarded interactions

30 Minutes coffee break

### Session 2: Quantum Phases (chair R.M. Noack)

4pm – 4.30pm      Roderich Moessner (R)      DTC on a NISQ platform

4.30pm – 5pm      Michael Schuler      Torus Spectroscopy of 2+1D Quantum Critical Points

5pm – 5.30pm      Snir Gazit (R)      Quantum phases and phase transitions between fractionalized and physical electrons in metals and semi-metals

after 5.30pm Scientific Exchange, Gather.Town, Dinner

(R): remote participation, online talk

## **Tue Sep. 7**

### Session 3: Nonequilibrium experiments (chair F. Heidrich-Meisner)

9.30am – 10am      Monika Aidelsburger (R)      Realization of fragmented models in tilted Fermi-Hubbard chains

10am – 10.30am      Claus Ropers      Ultrafast Microscopy and Diffraction of Charge-Density-Wave Materials

30 minutes coffee break

### **11am – 11.45am                  Poster-Slam I**

### Session 4: Materials related studies (chair K. Schönhammer)

11.45am – 12.15pm      Roser Valenti      Playing with Kitaev models and materials

12.15pm – 12.45pm      Benjamin Lenz      Investigation of a strongly correlated material by quantum cluster techniques: Electronic, magnetic and spectral properties of Sr<sub>2</sub>IrO<sub>4</sub>

12.45pm – 1.15pm      Jan Lotze      Suppression of effective spin-orbit coupling by thermal fluctuations in spin-orbit coupled antiferromagnets

1.15pm – 2.15pm lunch

### Session 5: Poster session I

2.15pm – 4pm

60 minutes coffee break and scientific exchange (on-site or Gather.Town)

### Session 6: Superconductivity and Stripe Order (chair P. Corboz)

5pm-5.30pm      Reinhard Noack      Hybrid-space DMRG studies of doped and of frustrated Hubbard models

5.30pm-6pm      Alexander Wietek (R)      Stripes, spin liquids, and the pseudogap in frustrated and doped Hubbard models at finite temperature

6pm-6.30pm      Steve White (R)      Phase diagrams of 2D t-J models

after 6.30pm Scientific Exchange, Gather.Town, Dinner

## **Wed Sep. 8**

### Session 7: Tensor Networks I (chair A. Honecker)

9am – 9.30am	Max Bramberger	DMFT studies of correlated materials using a MPS-based impurity solver on the imaginary axis
9.30am – 10am	Sebastian Paeckel	Full quantum dynamics of intramolecular singlet fission using the projected purification
10am – 10.30am	David Jansen	Computing dynamical quantities in electron-phonon systems using matrix-product states and local basis optimization

30 minutes coffee break

11am – 11.45am (virtual) scientific exchange / gather.town

### Session 8: Tensor Networks II (chair R.M. Noack)

11.45am – 12.15pm	Örs Legeza	Tensor network state methods for models with non local interactions
12.15pm – 12.45pm	Philippe Corboz	Tensor network studies of SrCu <sub>2</sub> (BO <sub>3</sub> ) <sub>2</sub> under pressure

12.45pm-2pm lunch

### Session 9: Poster session II

2pm – 4pm

60 minutes coffee break and scientific exchange (on-site or Gather.Town)

### Session 10: Quantum Information I (chair S.R. Manmana)

5pm – 5.30pm	Yujie Liu	Realizing topologically ordered states on a quantum processor
5.30pm – 6pm	Roger Melko (R)	Rydberg arrays and the frontier of in silico quantum many body simulation
6pm – 6.30pm	Ehud Altman (R)	Phases and phase transitions of information flow in quantum circuits

**conference dinner**

## Thu Sep. 9

### Session 11: Quantum Information II (chair R.M. Noack)

9.30am – 10am	Zi Yang Meng (R)	To hear the shape of quantum drum via "Qiu Ku"
10am – 10.30am	Francesco Parisen Toldin	Entanglement studies of interacting fermionic models

30 minutes coffee break

### Session 12: Frustrated Magnetism I (chair F. Assaad)

11am – 11.30am	Frédéric Mila	CTMRG and DMRG investigation of chiral transition at commensurate melting of surfaces and of Rydberg chains
11.30am – 12pm	Andreas Honecker	Quantum Monte-Carlo simulations of some highly frustrated magnets
12pm – 12.30pm	Lukas Weber	Quantum Monte Carlo for frustrated trimer magnets

12.30pm – 2pm lunch and scientific exchange

### Session 13: Nonequilibrium Theory (chair P. Corboz)

2pm – 2.30pm	Stefan Kehrein	Quantum Chaos and Thermalization in the SYK Model
2.30pm – 3pm	Janez Bonca	Thermalization of the spin imbalance in a system with the Poisson distribution of adjacent energy gaps
3pm – 3.30pm	Fabian Essler (R)	Quantum Dynamics in interacting Bose gases

3.30 coffee break

### Session 14: Frustrated Magnetism II (chair F. Assaad)

4pm – 4.30pm	David Luitz (R)	Low temperature physics of the pyrochlore Heisenberg antiferromagnet
4.30pm – 5pm	Steve Nagler (R)	The 1-D magnet KCuF3: spinons, entanglement and KPZ dynamics

5pm concluding remarks and departure