Online Workshop on  
“Topology, Disorder, and Hydrodynamics in Non-equilibrium Quantum Matter”  
November 29 - December 3, 2021  
organized by  
Jörg Schmiedmayer (TU Vienna), Maksym Serbyn (ISTA, Klosterneuburg), Romain Vasseur (UMass Amherst)

- Monday, November 29th, 2021
  11:00 – 11:35  Benjamin Doyon (KCL, London)  
  Emergent hydrodynamics in many-body systems
  11:35 – 12:10  Immanuel Bloch (MPI Quantum Optics, Garching)  
  Quantum Gas Microscopy of Kardar-Parisi-Zhang Superdiffusion
  12:10 – 14:00  Lunch Break
  14:00 – 14:35  Pasquale Calabrese (SISSA, Trieste)  
  Quantum generalized hydrodynamics
  14:35 – 15:10  Zoran Hadzibabic (U Cambridge)  
  Two sounds and turbulence in shaken 2D Bose gases
  15:10 – 15:30  Coffee/Tea Break
  15:30 – 16:05  Isabelle Bouchoule (U Paris-Saclay)  
  Losses in 1D Bose gases
  16:05 – 16:40  David Weiss  
  TBA
  16:40 – 17:15  Ehud Altman  
  TBA

- Tuesday, November 30th, 2021
  11:00 – 11:35  Dmitry Abanin (U Genève)  
  Influence matrix approach to quantum many-body dynamics
  11:35 – 12:10  Ulrich Schneider (U Cambridge)  
  Observing novel phase transitions with Bosons in optical lattices
  12:10 – 14:00  Lunch Break
  14:00 – 14:35  Ivan Khaymovich (MPI Dresden)  
  Localization beyond convergence of locator expansion in correlated long-range systems
  14:35 – 15:10  Siddharth Parameswaran (U Oxford)  
  Asymptotically exact nonlinear responses in interacting many-body systems (virtual)
  15:10 – 15:30  Coffee/Tea Break
15:30 – 16:05  **Michael Knap** (TU Munich)
Anomalous transport and operator growth in constrained quantum matter

16:05 – 16:40  **Monika Aidelsburger** (LMU Munich)
Non-ergodicity and emergent Hilbert-space fragmentation in tilted Fermi-Hubbard chains

16:40 – 17:15  **Rahul Nandkishore** (U of Colorado, Boulder)
Fracton dynamics

- **Wednesday, December 1st, 2021**

11:00 – 11:35  **Frank Pollmann** (TU Munich)
Efficient Simulation of Quantum Transport in 1D

11:35 – 12:10  **Jens H Bardarson** (KTH Stockholm)
Time-evolution of local information: thermalization dynamics of local observables

12:10 – 14:00  **Lunch Break**

14:00 – 14:35  **Marko Znidaric** (U Ljubljana)
Non-Hermitian phantoms in random circuits

14:35 – 15:10  **Zala Lenarcic** (Jozef Stefan Institute, Ljubljana)
Extracting complexity of quantum dynamics using machine learning

15:10 – 15:30  **Coffee/Tea break**

15:30 – 16:05  **Jacopo De Nardis** (Ghent U)
Subdiffusive hydrodynamics of nearly-integrable anisotropic spin chains

16:05 – 16:40  **Cheng Chin** (U of Chicago)
Dynamics of topological defects driven by density-dependent gauge field

- **Thursday, December 2nd, 2021**

11:00 – 11:35  **Roderich Moessner** (MPI Dresden)
Topological Route to New and Unusual Coulomb Spin Liquids

11:35 – 12:10  **Hannes Pichler** (IQOQI, Innsbruck)
Probing Quantum Spin Liquids with Rydberg Atom Arrays

12:10 – 14:00  **Lunch Break**

14:00 – 14:35  **Marco Schiro** (CNRS, Paris)
Measurement-Induced Entanglement Transitions in the Quantum Ising Chain: From Infinite to Zero Clicks

14:35 – 15:10  **Philipp Dumitrescu** (Flatiron)
Dynamic phases in quasiperiodically driven quantum many-body systems

15:10 – 15:30  **Coffee/Tea Break**

15:30 – 16:05  **Sarang Gopalakrishnan** (CUNY, New York)
Entanglement transitions and symmetries

16:05 – 16:40  **Matteo Ippoliti** (SU)
Monitored quantum dynamics via spacetime duality

16:40 – 17:15  **Gil Refael** (Caltech, Pasadena)
Topological two frequency conversion in doubly driven Weyl semimetal
• Friday, December 3rd, 2021

11:00 – 11:35 Norbert Schuch (U Vienna)
Classification of Matrix Product Unitaries

11:35 – 12:10 Tomaz Prosen (U Ljubljana)
Exact results on dynamics of dual unitary circuits and their perturbations

12:10 – 14:00 Lunch Break

14:00 – 14:35 Christoph Naegerl (U Innsbruck)
Dynamics of impurities in strongly interacting one-dimensional quantum gases

14:35 – 15:10 Maximilian Pruefer (TU Vienna)
Probing emergent universal phenomena with one-dimensional Bose gases

15:10 – 15:30 Coffee/Tea Break

15:30 – 16:05 Adam Nahum
TBA

16:05 – 16:40 Wen Wei Ho (SU)
Exact emergent quantum state designs from quantum chaotic dynamics

All talks take place at Erwin Schrödinger Institute - virtual! Online participation is possible via zoom. Zoom coordinates are available on request (secr@esi.ac.at) and after registration until November 26, 2021.