

Graduate Summer School: Mathematics of Topological Phases of Matter

Sunday August 29, 2021

- 4:00–8:00 *Check in at Lake Arrowhead*
- 6:30–8:00 *Dinner*
- 8:00–9:00 *Welcome & Opening Session*
- 9:00–10:00 *Social Hour (Iris)*

Monday August 30, 2021

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–10:30 **Jeongwan Haah** (Microsoft Research)
Locally indistinguishable ground states
- 10:30–11:00 *Break*
- 11:00–12:00 **Nathan Seiberg** (Institute for Advanced Study)
Virtual Talk: Quantum Field Theory of Exotic Systems
- 12:00–1:00 *Lunch (on your own)*
- 2:00–3:30 **Xie Chen** (California Institute of Technology)
Foliated Fracton and Beyond
- 3:30–4:00 *Break*
- 4:00–5:00 **David Aasen** (Microsoft Station Q)
Topological Defect Networks for Fracton Models
- 6:30–8:00 *Dinner*
- 8:00–9:00 *Q&A with Xie Chen, Jeongwan Haah and Nathan Seiberg*
- 9:00–10:00 *Social Hour (Iris)*



Tuesday August 31, 2021

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–10:30 **Dmitri Nikshych** (University of New Hampshire)
learning low degree functions in logarithmic number of random queries
- 10:30–11:00 *Break*
- 11:00–12:00 **Eric Rowell** (Texas A&M University - College Station)
Classification of Modular Tensor Categories
- 12:00–1:00 *Lunch (on your own)*
- 2:00–3:30 **Eric Rowell** (Texas A&M University - College Station)
Classification of Modular Tensor Categories
- 3:30–4:00 *Break*
- 4:00–5:00 **Colleen Delaney** (Indiana University)
Modular Isotopes
- 6:30–8:00 *Dinner*
- 8:00–9:00 *Q&A with Zhenghan Wang, Eric Rowell and Colleen Delaney*
- 9:00–10:00 *Social Hour (Iris)*

Wednesday September 1, 2021

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–10:30 **Matthew Hastings** (Microsoft Research)
Introduction to Quantum Cellular Automata
- 10:30–11:00 *Break*
- 11:00–12:00 **Lukasz Fidkowski** (University of Washington)
Floquet topological phases and QCA
- 12:00–1:00 *Lunch (on your own)*
- 2:00–3:30 **Jeongwan Haah** (Microsoft Research)
Nontrivial Clifford QCAs
- 3:30–4:00 *Break*

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- 4:00–5:00 **Fiona Burnell** (University of Minnesota, Twin Cities)
Introduction to Quantum Cellular Automata
- 6:30–8:00 *Dinner*
- 8:00–9:00 **Daniel Ranard** (Massachusetts Institute of Technology)
Approximate QCAs and a converse to the Lieb-Robinson bounds
- 9:00–10:00 *Social Hour (Iris)*

Thursday September 2, 2021

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–10:30 **Matthew Hastings** (Microsoft Research)
Building Manifolds from Error Correcting Codes
- 10:30–11:00 *Break*
- 11:00–12:00 **Xie Chen** (California Institute of Technology)
Symmetry Protected Topological Phases
- 12:00–1:00 *Lunch (on your own)*
- 2:00–3:30 **Fiona Burnell** (University of Minnesota, Twin Cities)
Building Manifolds from Error Correcting Codes
- 3:30–4:00 *Break*
- 4:00–5:00 **Lukasz Fidkowski** (University of Washington)
Symmetry Protected Topological phases, cobordism, and QCA
- 6:30–8:00 *Dinner*
- 8:00–9:00 **Michael Freedman** (Microsoft Research)
Generating Reference Data and Controlling Accuracy in DFT and Hybrid DFT Simulations
- 9:00–10:00 *Social Hour (Iris)*

Friday September 3, 2021

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–10:00 **Nathan Seiberg** (Institute for Advanced Study)
Virtual Talk: Quantum Field Theory of Exotic Systems
- 10:00–11:00 *Q&A with Xie Chen, Lukasz Fidkowski and Nathan Seiberg*
- 11:00 *1st Shuttle Leaves Lake Arrowhead*
- 11:00–12:00 *Checkout*
- 12:00–12:40 *Lunch (on your own)*
- 12:45 *2nd Shuttle Leaves Lake Arrowhead*

