

Schedule

Thursday, September 20, 2007

- 8:00 – 8:45 Registration
- 8:45 – 9:00 Opening remarks – Kazem Mahdavi, University of Texas, Tyler
- 9:00 – 10:00 Samuel Lomonaco, University of Maryland
Quantum algorithms for the Jones polynomial
- 10:00 – 10:15 Coffee Break
- 10:15 – 11:15 Peter Shor, Massachusetts Institute of Technology
On the difficulty of approximating the Jones polynomial of the trace closure of a knot
- 11:15 – 11:30 Break
- 11:30 – 12:30 Yong Zhang, University of Utah
From Extraspecial Two-Groups to GHZ States
- 12:30 – 2:00 Lunch
- 2:00 – 3:00 Travis Schedler, University of Chicago
Noncommutative Batalin-Vilkovisky structures (based on joint work with Victor Ginzburg)
- 3:00 – 3:15 Break
- 3:15 – 4:15 Alioscia Hamma, University of Southern California
Topological order and entanglement

Friday, September 21, 2007

- 9:00 – 10:00 John M. Myers, Harvard University
Expressing the distinction between theory and experiment within the mathematics of quantum mechanics.
- 10:00 – 10:15 Coffee Break
- 10:15 – 11:15 Vladimir Korepin, Stony Brook University
Entanglement in Spin Chains
- 11:15 – 11:30 Break
- 11:30 – 12:30 Howard Brandt, Army Research Laboratory
Charge renormalization, Apery's number, and the trefoil knot
- 12:30 – 2:00 Lunch
- 2:00 – 3:00 Eric Rowell, Texas A&M University
Properties of Modular Categories and their Quantum Computational Consequences
- 3:00 – 3:15 Break
- 3:15 – 4:15 Sergey Bravyi, IBM
Measurement-based quantum computation with Kitaev's toric code states

4:30-5:30 Goong Chen, Texas A&M University
Mathematical Formulations of Atom Trap Quantum Gates

Saturday, September 22, 2007

9:00 – 10:00 Gavin Brennen, University of Innsbruck
Quantum simulators for topological order

10:00 – 10:15 Coffee Break

10:15 – 11:15 Paul Benioff, Argonne National Laboratory
Space of Quantum Theory Representations of Numbers; Fields of Iterated Quantum Reference Frames

11:15 – 11:30 Break

11:30 – 12:30 Masud Haque, Max Plank Institute
Quantum information concepts used to probe condensed-matter systems, particularly topologically ordered states

12:30 – 2:00 Lunch

2:00 – 3:00 Howard Barnum, Los Alamos National Laboratory
Information-Processing Characterizations of Quantum and Classical Theory in Convex and Categorical Frameworks

3:00 – 3:15 Break

3:15 – 4:15 Eun-Ah Kim, Stanford University
TBA

Sunday, September 23, 2007

9:00 – 10:00 Louis Kauffman, University of Illinois, Chicago
Anyonic Topological Computing, Knots and Spin Networks

10:00 – 10:15 Coffee Break

10:15 – 11:15 John Armstrong, Tulane University
A Categorification of Quandle Coloring Numbers by Anafunctors