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RPMBT 15 Conference Program

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Sunday, July 26 Tutorials

10:00 – 11:30
Mohit Randeria (OSU) “BCS-BEC Crossover and unitary Fermi gas”

11:45 – 1:15
Gabriel Kotliar (Rutgers) “Dynamical Mean Field Theory”

Lunch 1:30 – 2:30

2:30 – 4:00
Subir Sachdev (Harvard) “Quantum Critical Phenomena”

4:15 – 5:45
Samir Mathur (OSU) “AdS/CFT: String theory meets many-body physics”

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Monday, July 27

9:00 – 9:45 Subir Sachdev (Harvard)
"Where is the quantum critical point in the cuprate superconductors?"

9:45 – 10:30 T. Senthil (MIT)
"Physics of Underdoped Cuprates: A Phenomenological Synthesis and a Microscopic Theory"

10:30 – 11:00 Coffee

11:00 – 11:45 Walter Metzner (MPI, Stuttgart)
"Renormalization Group for Symmetry Broken Phases near Quantum Critical Points"

11:45 – 12:00 Markus Muller (ICTP, Trieste)
"Relativistic transport in clean graphene – a nearly perfect quantum liquid"

12:00 – 12:15 Timo Lahde (Washington, Seattle)
"Is Suspended Graphene an Insulator?"

12:30 – 2:30 Lunch

2:30 – 3:15 Thomas Schafer (NC State)
"Nearly perfect fluidity in quark, nuclear, and atomic liquids"

3:15 – 4:00 Achim Schwenk (Triumf)
"Renormalization and the nuclear many-body problem"

4:00 – 4:30 Coffee

4:30 – 5:15 Ulrich Schneider (Mainz/Munich)
"Fermionic Quantum gases with tunable interactions in optical lattices: An experimental realization of the Hubbard model"

5:15 – 5:30 C. J. Bolech (Rice)
"The Many-Body Physics of One-Dimensional Systems of Fermionic Atoms in Optical Lattices at Finite Temperatures"

5:30 – 6:15 Eugene Demler (Harvard)
"Nonequilibrium dynamics of ultracold atoms"

6:30 Dinner (PRB Atrium)

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Tuesday, July 28

9:00 – 9:45	Nicolay Prokofiev (U. Mass. Amherst) "Diagrammatic Monte Carlo: what happens to the sign-problem?"
9:45 – 10:30	Naoki Kawashima (ISSP, Japan) "Cold Atoms and Simulation of Bosonic Systems"
10:30 – 11:00	Coffee
11:00 – 11:45	Dean Lee (NC State) "Cold atoms and nuclear physics: Lattice calculations and the question of universality"
11:45 – 12:00	Arturo Polls (Barcelona) "Nucleon-Nucleon Correlations and the Depletion of the Nuclear Fermi Sea"
12:00 – 12:15	D. E. Galli (Milan) "Inverse Problems and Quantum Dynamics: The Genetic Inversion via Falsification of Theories (GIFT) Method"
12:30 – 2:30	Lunch
2:30 – 3:15	Gabriel Kotliar (Rutgers) "Dynamical Mean Field Theory and the Many Body Problem in 4f and 5f Materials"
3:15 – 4:00	Jordi Boronat (Barcelona) "Two-Dimensional Quantum Dipoles"
4:00 – 4:30	Coffee
4:30 – 5:15	Matthias Troyer (ETH, Zurich)
5:15 – 6:00	Discussion on Computational Many Body Physics
6:30	Dinner + Poster Session (PRB Atrium)

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Wednesday, July 29

9:00 – 9:05 Arturo Polls: Feenberg and Kummel Prizes

9:05- 9:15 Mikko Saarala (Chair, Kummel Prize Committee)

9:15 – 10:00 Joaquin Drut (OSU): Kummel Prize talk
"The unitary Fermi gas and GPUs: Two challenges for Many-Body Physics."

10:00 – 10:15 Siu Chin (Chair, Feenberg Prize Committee)

10:15 – 11:00 Dirk Walecka (Stanford): Feenberg Prize talk
"A Body of Many Quantum Theorists"

11:00 – 11:30 Coffee

11:30 – 12:15 Dam Son (INT, Seattle)
"Toward an AdS/cold atom correspondence"

12:15 – 1:00 John Thomas (Duke)
"Quantum Viscosity in a Strongly Interacting Fermi Gas"

1:00 Lunch

3:00 Leave for COSI, Columbus (Center of Science and Industry)

4:00 – 5:00 Public Lecture at COSI
Martin Zwierlein (MIT)
"The coldest matter in the Universe - Bose-Einstein condensates of atoms and molecules"

5:00 – 6:00 Reception at COSI

6:00 Banquet at COSI

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Thursday, July 30

9:00 – 9:45 Sean Hartnoll (Harvard)
"Quantum Critical Superconductivity from the AdS/CFT Correspondence"

9:45 – 10:30 John McGreevy (MIT)
"Holographic Descriptions of Quantum Liquids"

10:30 – 11:00 Coffee

11:00 – 11:45 AdS/CFT Discussion Session

11:45 – 12:00 R. Krotschek (Linz)
"Two-Dimensional ^{3}He: A Crucial System for Understanding Fermion Dynamics

12:00 – 12:15 Raymond Bishop (Manchester)
"Magnetic Ordering of Antiferromagnets on a Spatially Anisotropic Triangular Lattice"

12:30 – 2:30 Lunch

2:30 – 3:15 Doerte Blume (Washington State)
"Few-body aspects of dilute trapped Fermi gases"

3:15 – 4:00 Julia Meyer (Ohio State)
"Critical phenomena in interacting quantum wires"

4:00 – 4:30 Coffee

4:30 – 5:15 Kedar Damle (Tata Institute)
"Impurities in deconfined phases and critical points"

5:15 – 6:00 Ashvin Vishvanath (Berkeley)
"Defect induced Helical Metal in a Topological Insulator"

6:30 Dinner + Poster Session (PRB Atrium)

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Friday, July 31

9:00 – 9:45 Wilhelm Zwerger (Munich)
"Attractive Fermi Gases at infinite coupling"

9:45 – 10:30 Shina Tan (Yale)
"Exact relations for strongly correlated Fermi gases and Generalized functions method"

10:30 – 11:00 Coffee

11:00 – 11:45 Martin Zwierlein (MIT)
"Observation of Fermi Polarons in a tunable Fermi liquid of ultracold atoms"

11:45 – 12:30 Sandro Stringari (Trento)
"First and second sound in strongly interacting superfluid Fermi gases"

Lunch 12:30

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