

Quantum Spectra and Transport

June 30 – July 4, 2013

All talks take place in Lecture Hall 2 of the Math Department
Building (2nd floor)

Sunday, June 30:

09:00—09:30 Registration (Einstein Institute of Mathematics, 2nd floor).

09:30—09:40 Welcome

09:40—10:20 **Barry Simon** (Caltech)

Yosi and Me

10:30—11:00 Coffee Break

11:00—11:40 **Fritz Gesztesy** (University of Missouri, Columbia)

Spectral Shift Functions and Some of their Applications in Mathematical Physics

11:50—12:30 **Pavel Exner** (Czech Academy of Sciences)

The Intriguing δ'

12:40—14:30 Lunch

14:30—15:10 **Svetlana Jitomirskaya** (University of California, Irvine)

Analytic One-Frequency Cocycles

15:20—16:00 **Vojkan Jaksic** (McGill University)

Jacobi Matrices and Non-Equilibrium Statistical Mechanics

16:10—16:40 Coffee Break

16:40—17:20 **Israel Klich** (University of Virginia)

From Frustration to Quantum Glassiness via Exotic Entropy Scaling

Monday, July 1:

09:00—09:40 **Juerg Froehlich** (ETH Zurich)

Information Loss and Entanglement in the Quantum Theory of Measurements

09:50—10:20 Coffee Break

10:20—11:00 **Italo Guarneri** (University of Insubria)

Inverted Oscillators and Collapse of Wave Packets

11:10—11:50 **Rupert Frank** (Caltech)

Strichartz Inequality for Orthonormal Functions

12:00—14:00 Lunch

14:00—14:40 **Ira Herbst** (University of Virginia)

Exponential Decay of Eigenfunctions of Elliptic Partial Differential Operators

14:50—15:30 **Hermann Schulz-Baldes** (Erlangen)

Invariants for J -Unitaries on Real Krein Spaces and the Classification of Transfer Operators

15:40—16:10 Coffee Break

16:10—16:50 **Gian Michele Graf** (ETH Zurich)

Bulk-Edge Duality for Topological Insulators

17:00—17:40 **Netanel Lindner** (Caltech)

New Platforms for Topological Quantum Computing

Tuesday, July 2:

09:00—09:40 **Michael Berry** (University of Bristol)

Phase-space Physics: Diabolism, Whorls and Tendrils, Wigner Disease, Superoscillations...

09:50—10:30 **Stefan Teufel** (Tuebingen)

Adiabatic Theorems for Particles Coupled to Massless Fields

10:40—11:10 Coffee

11:10—11:50 **Jean Bellissard** (Georgia Institute of Technology)

Modeling Liquid Metals and Bulk Metallic Glasses

12:00—12:40 **Ruedi Seiler** (Technische Universität Berlin)

Universally Typical Sets for Ergodic Sources of Multidimensional Data

12:50—14:30 Lunch

14:30—19:00 Free Afternoon (Trip to the old city)

19:30— Conference Dinner at Darna Restaurant

Wednesday, July 3:

09:00—09:40 **Michael Aizenman** (Princeton University)

Resonant Delocalization over Some Infinite and Finite Graphs

09:50—10:20 Coffee Break

10:20—11:00 **Alexander Elgart** (Virginia Tech)

Matrix Valued and Trimmed Anderson Models

11:10—11:50 **Abel Klein** (University of California, Irvine)

Unique Continuation Principle for Spectral Projections of Schrödinger Operators and Optimal Wegner Estimates for Non-Ergodic Random Schrödinger Operators

12:00—14:00 Lunch

14:00—14:40 **Shmuel Fishman** (Technion)

Anderson Localization for the Nonlinear Schrödinger Equation (NLSE): Results and Puzzles

14:50—15:30 **Alain Joye** (University of Grenoble)

Spectral Transition for Random Quantum Walks on Trees

15:40—16:10 Coffee Break

16:10—16:50 **Jonathan Robbins** (University of Bristol)

Quantum Statistics on Graphs

17:00—17:40 **Lorenzo Sadun** (University of Texas at Austin)

Statistical Mechanics of Large Random Graphs

Thursday, July 4:

09:00—09:40 **Percy Deift** (New York University)

Computing the Eigenvalues of a Random Symmetric Matrix: Universality Results

09:50—10:20 Coffee Break

10:20—11:00 **Uzy Smilansky** (Weizmann Institute)

Tournaments and their Spectra

11:10—11:50 **Boris Gutkin** (Duisburg-Essen University)

Königsberg Bridges, Periodic Orbits and Ensembles of Truncated Unitary Matrices

12:00—14:00 Lunch

14:00—14:40 **Jean-Pierre Eckmann** (Universite de Geneve)

Uniqueness of the Invariant Measure for Networks of Interactions

14:50—15:30 **Claude-Alain Pillet** (Universite de Toulon)

Entropic Fluctuations of Quantum Dynamical Semigroups

15:40—16:10 Coffee Break

16:10—16:50 **Eric Akkermans** (Technion)

Universal Current Fluctuations and Large Deviations in the Symmetric Exclusion Process and Diffusive Systems on an Arbitrary Graph

17:00—17:40 **Martin Fraas** (ETH Zurich)

Atomic Clocks: Stationary States and Entropy Production