

The ISF Research Workshop on Random Matrices and Integrability:
From Theory to Applications

Yad Hashmona, Judean Hills, March 25 – 30, 2009

Workshop Schedule

March 25, 2009

Wednesday

16:30 – 18:50 | *Registration*

19:00 – 19:30 | *Get-together*

19:30 – 20:30 | *Dinner*

March 26, 2009

Thursday

07:00 – 08:30 | *Breakfast*

08:00 – 08:50 | *Registration*

Morning session

Chair: Craig A. Tracy

08:50 – 09:00 | **Workshop opening**

09:00 – 09:40 | **Alexander R. Its**
Painlevé transcendents and their appearance in physics and random matrices

09:40 – 10:20 | **Mark Adler**
The τ function theory of matrix integrals, with applications

10:20 – 10:50 | *Coffee break*

10:50 – 11:30 | **Nicholas Witte**
The Sakai scheme—Askey table correspondence and determinantal point processes

11:30 – 12:10 | **Eugene Bogomolny**
Integrability and random matrices

12:10 – 12:50 | **Vladimir A.I. Osipov**
Integrable theory of characteristic polynomials, with applications

13:00 – 15:00 | *Lunch*

- 15:00 – 15:40 | **Shinobu Hikami**
Intersection theory from duality and replica
- 15:40 – 16:20 | **Jac Verbaarschot**
Replica, Toda lattice equations and QCD
- 16:20 – 16:50 | *Coffee break*
- 16:50 – 17:30 | **Kim Splittorff**
Replica quarks
- 17:30 – 18:10 | **Eugene Kanzieper**
Painlevé transcendents and quantum transport
- 18:10 – 19:00 | **Poster Session A**
- 19:00 – 20:00 | *Dinner*



Summer time starts: clocks are adjusted forward one hour on March 27 at 02:00 → 03:00

March 27, 2009

Friday

07:00 – 08:45 | *Breakfast*

Morning session

Chair: Vladimir Kravtsov

- 09:00 – 09:40 | **Martin Zirnbauer**
Superbosonisation meets free probability
- 09:40 – 10:20 | **Konstantin Efetov**
Bosonisation for random matrices and electron systems in arbitrary dimensions
- 10:20 – 11:00 | **Alexander Finkelstein**
Propagation of a wave packet in the presence of non-linearity and random scatterers
- 11:00 – 11:30 | *Coffee break*
- 11:30 – 12:10 | **Yan Fyodorov**
Extreme value statistics in models with logarithmic correlations
- 12:10 – 12:50 | **Alex Kamenev**
Dynamic correlation functions of 1D quantum liquids
- 13:00 – 15:00 | *Lunch*

Social program

- 15:00 – 16:00 | *Walking tour in the Biblical Village in Yad Hashmona*
- 18:00 | *Departure to Jerusalem*
- 19:30 – 21:00 | *Concert in The Church of Augusta Victoria*
- 21:30 – 22:30 | *Dinner*

March 28, 2009

Saturday

- 07:00 – 08:45 | *Breakfast*

Social program

- 09:00 – 18:00 | *Full day excursion in Jerusalem*
- 20:00 | *Workshop dinner*

March 29, 2009

Sunday

- 07:00 – 08:45 | *Breakfast*

Morning session

Chair: Alexander Its

- 09:00 – 09:40 | **Pierre van Moerbeke**
Dyson's non-intersecting Brownian motions and multi-component KP-hierarchy
- 09:40 – 10:20 | **Craig A. Tracy**
The asymmetric simple exclusion process: Integrable structure and limit theorems
- 10:20 – 10:50 | *Coffee break*
- 10:50 – 11:30 | **Herbert Spohn**
Stochastic growth models and matrix-valued diffusions
- 11:30 – 12:10 | **Oded Agam**
From random matrices to evaporating droplets
- 12:10 – 12:50 | **Anton Zabrodin**
Dyson gas simulation of growing patterns: Geometry and integrability
- 13:00 – 15:00 | *Lunch*

Afternoon session**Chair: Yan Fyodorov**

- 15:00 – 15:40 | **Paul Wiegmann**
2D Dyson diffusion and growing patterns
- 15:40 – 16:20 | **Eldad Bettelheim**
Multifractal spectra of critical curves
- 16:20 – 16:50 | *Coffee break*
- 16:50 – 17:30 | **Hans-Jürgen Sommers**
The real Ginibre ensemble: An integrable structure
- 17:30 – 18:10 | **Gernot Akemann**
Gap probabilities in non-Hermitian random matrix theory
- 18:10 – 19:00 | **Poster Session B**
- 19:00 – 20:00 | *Dinner*

March 30, 2009**Monday**

- 07:00 – 08:45 | *Breakfast*

Morning session**Chair: Eugene Bogomolny**

- 09:00 – 09:40 | **Vladimir Kravtsov**
Almost diagonal random matrices: Application to multifractal metal and insulator
- 09:40 – 10:20 | **Georg Schwiete**
Supersymmetry for disordered systems with interaction
- 10:20 – 10:40 | *Coffee break*
- 10:40 – 11:20 | **Reinhold Oppermann**
Universality class of replica symmetry breaking and its relation to growth phenomena
- 11:20 – 12:00 | **Fabio Franchini**
Horizons in random matrix theory, Hawking radiation, and flow of cold atoms
- 12:00 – 12:05 | *Closing*
- 13:00 – 15:00 | *Lunch and departures*

Poster Sessions

Poster Session A

March 26, 2009 | Thursday | 18:10—19:00

- A1 | **Alexander Alexandrov**
Decomposition formulae in matrix models
- A2 | **Alexander Klitz**
A Lagrangean formalism for Hermitean matrix models
- A3 | **Anjan Kundu**
Construction of quantum integrable anionic lattice and field models
- A4 | **David Schmidtt**
The super-integrable Toda models

Poster Session B

March 29, 2009 | Sunday | 18:10—19:00

- B1 | **Oleg Antoniuk**
Breaking of time-reversal symmetry of elastic waves in chaotic cavity by amplified feedback loop
- B2 | **Niko Jokela & Matti Järvinen**
The partition function of a multi-component Coulomb gas on a circle
- B3 | **Igor Rumanov**
The correspondence between Tracy-Widom and Adler-Shiota-van Moerbeke approaches in RMT