

# Random Matrices and Random Landscapes, 24–29 July 2022

Conference in honour of Yan Fyodorov's 60th birthday

Congressi Stefano Franscini, Ascona, Switzerland

Organisers: G. Akemann (Bielefeld), B. Khoruzhenko (Queen Mary), A. Knowles (Geneva), D. Savin (Brunel)

## Sunday, 24 July 2022

18:00 WELCOMING RECEPTION AND DINNER

## Monday, 25 July

08:45–09:00 WELCOMING ADDRESS BY THE CSF & MONTE VERITÀ

09:00–09:50 Paul Bourgade *The Fyodorov–Hiary–Keating conjecture*

10:00–10:30 Nick Simm *Coefficients of random unitary matrices and Gaussian multiplicative chaos*

10:35–11:05 COFFEE

11:05–11:35 Christian Webb *Thick points of log-correlated fields and multiplicative chaos*

11:40–12:10 Evgeny Strahov *Multiple partition structures*

12:15–14:15 LUNCH

14:15–14:45 Leonid Pastur *On random matrices arising in deep neural networks*

14:50–15:20 Ali Bereyhi *Bayesian inference with nonlinear generative models*

15:25–15:55 COFFEE

15:55–16:25 Pierre Le Doussal *Counting what counts: extrema, eigenvalues, fermions*

16:30–17:00 Tom Spencer *Statistical mechanics and Random Matrix Theory*

19:00 DINNER

## Tuesday, 26 July

09:00–09:50 Sylvia Serfaty *Coulomb gases: results and open questions*

10:00–10:30 Grégory Schehr *Non-interacting fermions in a 2d rotating trap and random matrix theory*

10:35–11:05 COFFEE

11:05–11:35 Jean-Philippe Bouchaud *Covariance stability & eigenvector overlaps: an RMT approach*

11:40–12:10 Alice Guionnet *Large deviations for the largest eigenvalue of random matrices*

12:15–14:15 LUNCH

14:15–16:00 POSTER SESSION I: *Preview talks (14:15–15:00)*  
*Poster presentations (15:00–16:00)*

16:00–16:30 COFFEE

16:30–17:00 Kurt Johansson *The rough-smooth boundary in dimer models*

17:05–17:35 Gaultier Lambert *Universality for free fermions*

19:00 DINNER

### Wednesday, 27 July

09:00 – 09:50	Martin Zirnbauer	<i>Field theory of random Schrödinger operators</i>
10:00 – 10:30	Margherita Disertori	<i>Supersymmetric cluster expansions in random matrix models</i>
10:35 – 11:05	COFFEE	
11:05 – 11:35	Alexander Mirlin	<i>Generalized multifractality at Anderson-localization critical points</i>
11:40 – 12:10	Alexei Borodin	<i><math>\mathfrak{sl}(1 1)</math>-vertex models: Boson-Fermion correspondence and determinantal point process</i>
12:15 – 14:15	LUNCH	

### Thursday, 28 July

09:00 – 09:50	Giulio Biroli	<i>High dimensional rough landscapes from physics to machine learning</i>
10:00 – 10:30	David Belius	<i>High temperature TAP upper bound</i>
10:35 – 11:05	COFFEE	
11:05 – 11:35	Chiara Cammarota	<i>Signal reconstruction in rough landscapes: The BBP transition and beyond</i>
11:40 – 12:10	Konstantin Tikhonov	<i>Resonances in wave reflection from a disordered medium: nonlinear <math>\sigma</math>-model approach</i>
12:15 – 14:15	LUNCH	
14:15 – 16:00	POSTER SESSION II:	<i>Preview talks (14:15 – 15:00)</i> <i>Poster presentations (15:00 – 16:00)</i>
16:00 – 16:30	COFFEE	
16:30 – 18:00	OPEN PROBLEM SESSION	
19:00	CONFERENCE DINNER AT MONTE VERITÀ RESTAURANT	

### Friday, 29 July

09:00 – 09:50	Antti Kupiainen	<i>GFF and GMC and their applications to field theory</i>
10:00 – 10:30	Nathanaël Berestycki	<i>Multiplicative chaos of the Brownian loop soup</i>
10:35 – 11:05	COFFEE	
11:05 – 11:35	Bertrand Lacroix-A-Chez-Toine	<i>Counting equilibria of complex dynamics</i>
11:40 – 12:10	Ofer Zeitouni	<i>Random Jacobi matrices and log-correlation</i>
12:15 – 14:15	LUNCH	

**Poster session I:**

Tue, 26 July @ 16:00

- Poster 1: **Giovanni Cicutà**  
*Sparse random block matrices: Universality*
- Poster 2: **Ulle Kuhl**  
*Superradiance in Non-Weyl microwave graphs*
- Poster 3: **Jaehun Lee**  
*Noise sensitivity for the top eigenvector of a sparse random matrix*
- Poster 4: **Anna Maltsev**  
*Random matrix theory as a tool for analysing biological data*
- Poster 5: **Luca Molinari**  
*Graphene nanocones and pascal matrices*
- Poster 6: **David Padilla Garza**  
*Large Deviation Principle for the local empirical measure of Coulomb gases at intermediate temperature regime*
- Poster 7: **Mo Dick Wong**  
*Critical-subcritical moments of moments of random matrices*
- Poster 8: **Tim Wurfel**  
*Averages of characteristic polynomials for invertible ensembles, multi-contour integral formulas and universality*

**Poster session II:**

Thu, 28 July @ 16:00

- Poster 1: **Benson Au**  
*Spectral asymptotics for contracted tensor ensembles*
- Poster 2: **Jean Barbier**  
*The price of ignorance: how much does it cost to forget noise structure in low-rank matrix estimation?*
- Poster 3: **Indrajit Jana**  
*CLT for non-Hermitian random band matrices with variance profiles*
- Poster 4: **Anastasis Kafetzopoulos**  
*Local Marchenko-Pastur law*
- Poster 5: **Jaron Kent-Dobias**  
*Analytic continuation over complex landscapes*
- Poster 6: **Benjamin McKenna**  
*Landscape complexity of the elastic manifold*
- Poster 7: **Roman Riser**  
*Pseudo-hermitian random matrix theory: phase structure in metric parameter space*