

Free Entropy Theory and Random Matrices

Monday February 24, 2025

- 8:00–8:55 *Check-in/Breakfast (hosted by IPAM)*
- 8:55–9:00 *Welcome and Opening Remarks*
- 9:00 *Moderator - Brent Nelson*
- 9:00–9:50 **Dan-Virgil Voiculescu** (University of California, Berkeley (UC Berkeley))
Around Free Entropy
- 10:00–10:15 *Break*
- 10:15–11:05 **Ben Hayes** (University of Virginia)
Invitation to 1-bounded entropy theory- Minicourse
- 11:15–11:30 *Break*
- 11:30–12:20 **Ben Hayes** (University of Virginia)
Invitation to 1-bounded entropy theory - Minicourse
- 12:30–2:30 *Lunch (on your own)*
- 2:30 *Moderator - Nikhil Srivastava*
- 2:30–3:10 **Benoit Collins** (Kyoto University)
operator norm estimates for sums of tensor-valued random Haar unitaries
- 3:20–3:50 *Break*
- 3:50–4:30 **Jennifer Pi** (University of California, Irvine (UCI))
A Classical Approach for Relating Free Entropic Quantities
- 4:40–5:00 *Lightning Poster Round*
- 5:00–6:30 *Poster Session & Reception (Hosted by IPAM)*

Tuesday February 25, 2025

- 8:00–8:55 *Check-in/Breakfast (hosted by IPAM)*
- 9:00 *Moderator - Ben Hayes*
- 9:00–9:50 **Ramon van Handel** (Princeton University)
Strong convergence I - Minicourse
- 10:00–10:15 *Break*

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- 10:15–11:05 **Ramon van Handel** (Princeton University)
Strong convergence II - Minicourse
- 11:15–11:30 *Break*
- 11:30–12:30 *Working Groups*
- 12:30–2:00 *Lunch (on your own)*
- 2:00 *Moderator - Thomas Sinclair*
- 2:00–2:40 **Ping Zhong** (University of Houston)
Limiting Eigenvalue Distribution and Outliers of Deformed Single Ring Random Matrices
- 2:50–3:20 *Break*
- 3:20–4:00 **Tatiana Brailovskaya** (Duke University)
Matrix concentration and strong convergence
- 4:10–4:50 **Yoonkyeong Lee** (Michigan State University)
On conjugate systems with respect to completely positive maps

Wednesday February 26, 2025

- 8:00–8:55 *Check-in/Breakfast (hosted by IPAM)*
- 9:00 *Moderator - Rolando de Santiago*
- 9:00–9:40 **Hariharan Narayanan** (Tata Institute of Fundamental Research)
On the randomized Horn problem and the surface tension of hives
- 9:50–10:05 *Break*
- 10:05–10:45 **Samuel Johnston** (King's College London)
Horn's problem and free probability
- 11:10–12:00 *Working Groups*
- 12:00 *Group Photo*
- 12:00–2:00 *Lunch (on your own)*
- 2:00 *Moderator - Rolando de Santiago*
- 2:00–2:40 **Marwa Banna**
Strong Convergence for Multiplicative Brownian Motions on the General Linear Group
- 2:50–3:20 *Break*

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- 3:20–4:00 **March Boedihardjo** (Michigan State University)
Injective norm of random tensors
- 4:10–4:50 **David Gao** (University of California, San Diego (UCSD))
Sofic actions on sets and graphs

Thursday February 27, 2025

- 8:00–8:55 *Check-in/Breakfast (hosted by IPAM)*
- 9:00 *Moderator - Brent Nelson*
- 9:00–9:40 **Jesse Peterson** (Vanderbilt University)
A hierarchy of Haagerup-type approximation properties
- 9:50–10:05 *Break*
- 10:05–10:45 **Hui Tan** (University of California, Los Angeles (UCLA))
Some applications of Shlyakhtenko's M -valued semicircular systems.
- 10:55–11:10 *Break*
- 11:10–12:00 *Working Groups*
- 12:00–2:00 *Lunch (on your own)*
- 2:00 *Moderator - Nikhil Srivastava*
- 2:00–2:40 **Vadim Gorin** (University of California, Berkeley (UC Berkeley))
The Airy-beta line ensemble
- 2:50–3:20 *Break*
- 3:20–4:00 **Theo McKenzie** (Stanford University)
Precise Eigenvalue Location for Random Regular Graphs
- 4:10–4:50 **Ella Hiesmayr** (UMPA ENS Lyon)
Spectral large deviations of sparse random matrices

Friday February 28, 2025

- 8:00–8:55 *Check-in/Breakfast (hosted by IPAM)*
- 9:00 *Moderator - Rolando de Santiago*
- 9:00–9:40 **Chi-Fang Chen** (University of California, Berkeley (UC Berkeley))
A new approach to $1/N$ expansion in random matrix theory
- 9:50–10:05 *Break*
- 10:05–10:45 **Jorge Garza Vargas** (California Institute of Technology)
A new approach to strong convergence
- 10:55–11:10 *Break*
- 11:10–11:50 **Félix Parraud** (Queen's University)
The spectrum of tensor of random and deterministic matrices
- 12:00–2:00 *Lunch (on your own)*
- 2:00 *Moderator - Ben Hayes*
- 2:00–2:40 **Aldo Garcia Guinto** (Michigan State University)
Schreier's Formula for some Free Probability Invariants
- 2:50–3:20 *Break*
- 3:20–4:00 **Octavio Arizmendi** (Center of Investigations in Mathematics (CIMAT))
Limit Theorems in Finite Free Probability
- 4:10–4:50 *Working Groups & Debrief*

