

HORAIRE / *PROGRAM*

TENSEURS

INFORMATION, COMPLEXITÉ ET COMBINATOIRES QUANTIQUES

14 au 25 novembre 2022

TENSORS

QUANTUM INFORMATION, COMPLEXITY AND COMBINATORICS

November 14–25, 2022

Le lundi 14 novembre 2022 / *Monday, November 14, 2022*

09:30–10:30 Harm Derksen (Northeastern University)

«On the subrank of generic tensors»

“On the subrank of generic tensors”

10:30–11:00 Pause-café / *Coffee break* (Salle / *Room* 6245)

11:00–12:00 Jop Briet (CWI)

«Noisy decoding by shallow circuits and analytic rank for polynomial maps»

“Noisy decoding by shallow circuits and analytic rank for polynomial maps”

12:00–14:00 Déjeuner / *Lunch*

14:00–15:00 Cosmin Pohoata (Institute for Advanced Study)

«Random tensors and skeletons of octohedra»

“Random tensors and skeletons of octohedra”

Le mardi 15 novembre 2022 / Tuesday, November 15, 2022

09:30–10:30 Kevin Pratt (Carnegie Mellon University)
«Structure and randomness as barriers to fast(er) matrix multiplication»
“Structure and randomness as barriers to fast(er) matrix multiplication”

10:30–11:00 Pause-café / *Coffee break* (Salle / Room 6245)

11:00–12:00 Vishwas Bhargava (University of Waterloo)
«Tensor decomposition algorithms via algebraic complexity»
“Tensor decomposition algorithms via algebraic complexity”

12:00–14:00 Déjeuner / *Lunch*

14:00–15:00 Swastik Kopparty (University of Toronto)
«Tensor rank and the bias of multilinear forms over finite fields»
“Tensor rank and the bias of multilinear forms over finite fields”

Le mercredi 16 novembre 2022 / Wednesday, November 16, 2022

09:30–10:30 Jan Draisma (Universität Bern)

«A tensor restriction theorem over finite fields»

“A tensor restriction theorem over finite fields”

10:30–11:00 Pause-café / *Coffee break* (Salle / Room 6245)

11:00–12:00 Alex Cohen (MIT)

«An optimal inverse theorem for tensors over large fields (Online)»

“An optimal inverse theorem for tensors over large fields (Online)”

12:00–14:00 Déjeuner / *Lunch*

14:00–15:00 Thomas Karam (University of Cambridge)

«High-rank subtensors for high-rank tensors»

“High-rank subtensors for high-rank tensors”

Le jeudi 17 novembre 2022 / *Thursday, November 17, 2022*

09:30–10:30 Tim (Junting) Hsieh (Carnegie Mellon University)
«Polynomial-Time Power-Sum Decomposition of Polynomials»
“Polynomial-Time Power-Sum Decomposition of Polynomials”

10:30–11:00 Pause-café / *Coffee break* (Salle / *Room* 6245)

11:00–12:00 Alhussein Fawzi (Google DeepMind)
«Machine learning for computing tensor rank»
“Machine learning for computing tensor rank”

12:00–14:00 Déjeuner / *Lunch*

14:00–15:00 Ben Lee Volk (Reichman University)
«Tensor Reconstruction Beyond Constant Rank»
“Tensor Reconstruction Beyond Constant Rank”

Le vendredi 18 novembre 2022 / *Friday, November 18, 2022*

09:30–10:30 Visu Makam (Institute for Advanced Study)
«Finding barriers for lower bounds on tensor rank (Online)»
“*Finding barriers for lower bounds on tensor rank (Online)*”

10:30–11:00 Pause-café / *Coffee break* (Salle / Room 6245)

11:00–12:00 Josh Alman (Columbia University)
«Generalizations of Matrix Multiplication can solve the Light Bulb Problem (Online)»
“*Generalizations of Matrix Multiplication can solve the Light Bulb Problem (Online)*”

12:00–14:00 Déjeuner / *Lunch*

14:00–15:00 Hamed Hatami (McGill University)
«A Borsuk-Ulam lower bound for sign-rank»
“*A Borsuk-Ulam lower bound for sign-rank*”

Le lundi 21 novembre 2022 / *Monday, November 21, 2022*

09:30–10:30 Tobias Fritz (University of Innsbruck)
«Vergleichsstellensätze for ordered semirings I»
“*Vergleichsstellensätze for ordered semirings i*”

10:30–11:00 Pause-café / *Coffee break* (Salle / *Room* 6245)

11:00–12:00 Omar Fawzi (ENS de Lyon)
«Larger Corner-Free Sets from Combinatorial Degenerations»
“*Larger Corner-Free Sets from Combinatorial Degenerations*”

12:00–14:00 Déjeuner / *Lunch*

14:00–15:00 Uma Girish (Princeton University)
«Parallel Repetition for Three-Player Games on Binary Inputs»
“*Parallel Repetition for Three-Player Games on Binary Inputs*”

Le mardi 22 novembre 2022 / Tuesday, November 22, 2022

09:30–10:30 Tobias Fritz (University of Innsbruck)
«Vergleichsstellensätze for ordered semirings II»
“*Vergleichsstellensätze for ordered semirings II*”

10:30–11:00 Pause-café / *Coffee break* (Salle / Room 6245)

11:00–12:00 Yuval Wigderson (Stanford University)
«Matrix spaces and graphs (Online)»
“*Matrix spaces and graphs (Online)*”

12:00–14:00 Déjeuner / *Lunch*

14:00–15:00 Robert Robere (McGill University)
«Duality Theorems for Amortized Circuit Complexity»
“*Duality Theorems for Amortized Circuit Complexity*”

Le mercredi 23 novembre 2022 / Wednesday, November 23, 2022

09:30–10:30 Peter Vrana (Budapest University of Technology and Economics)
«Tensors and entanglement I : Asymptotic entanglement transformations
(Online)»
“*Tensors and entanglement I: Asymptotic entanglement transformations
(Online)*”

10:30–11:00 Pause-café / *Coffee break* (Salle / Room 6245)

11:00–12:00 David Bugar (Budapest University of Technology and Economics)
«Tensors and entanglement II : Interpolating between Rényi entanglement
entropies via geometric means»
“*Tensors and entanglement II: Interpolating between Rényi entanglement
entropies via geometric means*”

12:00–14:00 Déjeuner / *Lunch*

14:00–15:00 Dor Minzer (MIT)
«The Complexity of Satisfiable CSPs»
“*The Complexity of Satisfiable CSPs*”

15:00–15:30 Pause-café / *Coffee break* (Salle / Room 6245)

15:30–16:30 Guillaume Rabusseau (Université de Montréal)
«Lower and Upper Bounds on the VC-Dimension of Tensor Network Models»
“*Lower and Upper Bounds on the VC-Dimension of Tensor Network Models*”

Le jeudi 24 novembre 2022 / Thursday, November 24, 2022

09:30–10:30 Norbert Schuch (University of Vienna)

«Fundamental theorems of tensor networks and what to use them for (Online)»
“Fundamental theorems of tensor networks and what to use them for (Online)”

10:30–11:00 Pause-café / *Coffee break* (Salle / Room 6245)

11:00–12:00 Michael Walter (University of Amsterdam)

«Tensors, Symmetries, and Optimization (Online)»
“Tensors, Symmetries, and Optimization (Online)”

12:00–14:00 Déjeuner / *Lunch*

14:00–15:00 David Pérez-García (Universidad Complutense de Madrid)

«A canonical form for tensor networks (Online)»
“A canonical form for tensor networks (Online)”

15:00–15:30 Pause-café / *Coffee break* (Salle / Room 6245)

15:30–16:30 Albert H. Werner (University of Copenhagen)

«Optimization at the boundary of the tensor network variety»
“Optimization at the boundary of the tensor network variety”

Le vendredi 25 novembre 2022 / *Friday, November 25, 2022*

09:30–10:30 **Alessandra Bernardi** (University of Trento)
«On the dimension of Tensor Network Varieties»
“On the dimension of Tensor Network Varieties”

10:30–11:00 Pause-café / *Coffee break*

11:00–12:00 **Benjamin Lovitz** (Northeastern University)
«Nullstellensatz-inspired algorithms for certifying entanglement of subspaces»
“Nullstellensatz-inspired algorithms for certifying entanglement of subspaces”

12:00–14:00 Déjeuner / *Lunch*

14:00–15:00 **Freek Witteveen** (University of Copenhagen)
«Random tensor networks with nontrivial links (Online)»
“Random tensor networks with nontrivial links (Online)”