

HORAIRE / *PROGRAM*

ATELIER

MÉTHODES DE CALCUL POUR LE TRANSPORT OPTIMAL

18 au 22 juillet 2016

WORKSHOP

COMPUTATIONAL OPTIMAL TRANSPORTATION

July 18–22, 2016

CONFÉRENCES : salle 1035 (Pavillon J.-Armand-Bombardier)

PAUSES-CAFÉ : Atrium (Pavillon J.-Armand-Bombardier)

LECTURES: *Room 1035 (Pavillon J.-Armand-Bombardier)*

COFFEE BREAKS: *Atrium (Pavillon J.-Armand-Bombardier)*

Le lundi 18 juillet 2016 / Monday, July 18, 2016

09:00–09:30 Inscription et café croissants (Salle Atrium)
Registration and Coffee & Croissants (Room Atrium)

Optimal transportation Monge-Ampère and PDE methods (salle/Room 1035)

09:30–10:15 Jean-Marie Mirebeau (Université Paris-Sud)
“Monotone and consistent discretizations of HJB PDEs using Obtuse Superbases”

10:15–10:30 Pause-café / *Coffee break* (Salle / Room Atrium)

10:30–11:15 Brittany D. Froese (New Jersey Institute of Technology)
“Meshfree finite difference methods for the Monge-Ampère equation”

11:15–11:30 Pause-café / *Coffee break* (Salle / Room Atrium)

11:30–12:00 Vincent Duval (INRIA Paris)
“Finite difference discretization of the quadratic Monge Kantorovich problem using minimal convex extensions of Brenier solutions”

12:00–14:00 Pause-déjeuner / *Lunch break*

Optimal transportation in economics and finance (salle/Room 1035)

14:00–14:45 Guillaume Carlier (Université Paris-Dauphine)
“Cournot-Nash equilibria and optimal transport: Theory and numerics”

14:45–15:15 Pause-café / *Coffee break* (Salle / Room Atrium)

15:15–16:00 Young-Heon Kim (University of British Columbia)
“Optimal martingale transport in general dimensions”

16:00–16:10 Pause / *Break*

16:10–16:30 Xavier Dupuis (LUISS Guido Carli)
“Semi-discrete principal-agent problem”

Le mardi 19 juillet 2016 / Tuesday, July 19, 2016

09:00–09:30 Café croissants / *Coffee & Croissants* (Salle / Room Atrium)

Optimal transportation in machine learning (salle/Room 1035)

09:30–10:15 Marco Cuturi (Kyoto University)
“Wasserstein regression”

10:15–10:30 Pause-café / *Coffee break* (Salle / Room Atrium)

10:30–11:15 Gabriel Peyré (Université Paris-Dauphine)
“From Monge to Gromov-Wasserstein: Optimal transport and barycenters between several metric spaces”

11:15–11:30 Pause-café / *Coffee break* (Salle / Room Atrium)

11:30–12:00 Giulio Trigila (New York University)
“Explanation of variability and removal of confounding factors from data through optimal transport”

12:00–14:00 Pause-déjeuner / *Lunch break*

Optimal transportation theory in unequal dimensions (salle/Room 1035)

14:00–14:45 Robert McCann (University of Toronto)
“Optimal transportation between unequal dimensions”

14:45–15:15 Pause-café / *Coffee break* (Salle / Room Atrium)

15:15–16:00 Brendan Pass (University of Alberta)
“Multi- to one- dimensional transportation”

Le mercredi 20 juillet 2016 / *Wednesday, July 20, 2016*

09:00–09:30 Café croissants / *Coffee & Croissants* (Salle / *Room Atrium*)

Refractors, semi-discrete and Voronoi (salle/Room 1035)

09:30–10:15 Cristian E. Gutierrez (Temple University)
“On the numerical solution of the far field refractor problem”

10:15–10:30 Pause-café / *Coffee break* (Salle / *Room Atrium*)

10:30–11:15 Bruno Levy (LORIA/INRIA Lorraine)
“A fast numerical solver for semi-discrete L_2 optimal transport”

11:15–11:30 Pause-café / *Coffee break* (Salle / *Room Atrium*)

11:30–12:00 Rustum Choksi (McGill University)
“Self-assembly of shapes via generalized centroidal Voronoi tessellations”

Après-midi libre / *Free afternoon*

Le jeudi 21 juillet 2016 / Thursday, July 21, 2016

09:00–09:30 Café croissants / *Coffee & Croissants* (Salle / Room Atrium)

Theory and numerics of JKO schemes (salle/Room 1035)

09:30–10:15 Filippo Santambrogio (Université Paris-Sud)
“Sobolev estimates in the JKO scheme”

10:15–10:30 Pause-café / *Coffee break* (Salle / Room Atrium)

10:30–10:55 Léonard Monsaingeon (Instituto Superior Técnico)
“A numerical splitting scheme for very degenerate advection-diffusion-reaction equations”

11:00–11:25 Maxime Laborde (Université Paris-Dauphine)
“A splitting method for nonlinear diffusions with nonlocal, nonpotential drifts”

11:35–12:15 Martial Agueh (University of Victoria)
“A splitting method for kinetic models of granular media”

12:15–14:00 Pause-déjeuner / *Lunch break*

Numerical tools (salle/Room 1035)

14:00–14:45 Jun Kitagawa (Michigan State University)
“Convergence for a Newton algorithm under regularity conditions for optimal transport”

14:45–15:00 Pause-café / *Coffee break* (Salle / Room Atrium)

15:00–15:25 Bernhard Schmitzer (Université Paris-Dauphine)
“Efficient sparse multi-scale methods for optimal transport”

15:30–15:55 Aude Genevay (Université Paris-Dauphine)
“Stochastic optimization for large-scale optimal transport”

15:55–16:05 Pause / *Break*

16:05–16:30 Lénaïc Chizat (Université Paris-Dauphine)
“A scaling algorithm for unbalanced optimal transport”

Le vendredi 22 juillet 2016 / Friday, July 22, 2016

09:00–09:30 Café croissants / *Coffee & Croissants* (Salle / Room Atrium)

Optimal transportation on graphs (salle/Room 1035)

09:30–10:15 Justin Solomon (MIT)
“Toward quadratic optimal transport on graphs”

10:15–10:45 Pause-café / *Coffee break* (Salle / Room Atrium)

10:45–11:30 Dejan Slepcev (Carnegie Mellon University)
“Variational problems on graphs and their continuum limits”

11:30–13:30 Pause-déjeuner / *Lunch break*

Numerical methods for OT for the Euler equation using OT (salle/Room 1035)

13:30–13:55 Michael Lindsey (University of California, Berkeley)
“Optimal transport via a Monge-Ampère optimization problem”

14:00–14:25 Jean Louet (Université Paris-Dauphine)
“Entropic regularization of the Monge problem”

14:30–15:00 Pause-café / *Coffee break* (Salle / Room Atrium)

15:00–15:25 Luca Nenna (INRIA Paris)
“Multi-marginal optimal transport and generalized solution of Euler equations”

15:30–15:55 Thomas Gallouët (École Polytechnique)
“Discretization of the incompressible Euler equation: a Lagrangian approach based on semi discrete optimal transport”