

# PGMO DAYS 2016 - PROGRAM

## GASPARD MONGE PROGRAM FOR OPTIMIZATION AND OPERATIONS RESEARCH



### Tuesday, November 08<sup>th</sup>

**Welcome coffee** (starting at 08:30)

**09:00** : Introduction by Jean-Paul CHABARD (Scientific Director EDF R&D) and Pierre Pansu (FMJH)

**09:20** : Scientific Conference by Mérouane Debbah (Huawei)

**10:10** : PGMO PhD prize ceremony part 1

**10:20** : PhD Prize : talk 1 by Pauline Sarrabezolles

**10:50** : Coffee Break

**11:20** : Scientific conference by Giuseppe Calafiore (Politecnico di Torino)

**12:10** : Industrial conference by Michel Prenat (Thales Optronique)

**Lunch / Coffee** (13:00 — 14:30)

**14:30** : Scientific conference by Claire Mathieu (ENS)

**15:20** : Scientific conference by Patrick Jaillet (MIT)

**16:10** : Coffee Break

**16:40** : PGMO PhD prize ceremony part 2

**16:45** : PGMO PhD Prize : talk 2 by Bruno Ziliotto

**17:15** : Review of the PGMO program, and of the IROE and IRSDI research initiatives, by Stéphane Gaubert, Gilles Stoltz, Sandrine Charousset, Georges Hébrail and Michel Prenat.

*Breaks will be the opportunity for discussion around posters describing the activities of PGMO projects.*

### Wednesday, November 09<sup>th</sup> *Parallel sessions on PGMO main topics*

**Amphithéâtre 1 : Mean Field Games** (invited Session, organized by Daniela Tonon)

**Daniela Tonon** - On the variational formulation of some Mean field game systems

**Yves Achdou** - A Mean Field Equilibrium as a Model for Mining Industries

**Luis Briceño-Arias, Dante Kalise, Francisco José Silva Alvarez** - Proximal methods to solve stationary mean field game systems with local couplings

**Room A140 : Decomposition methods**

**Halil Sen, Boris Defienne, Ruslan Sadykov, Francois Vanderbeck** - Revisiting Benders decomposition

**Shahin Gelareh** - BENMIP-- A Generic Benders Decomposition Solver: Challenges and Progress

**Kostas Tavlariadis-Gyparakis, Antonio Frangioni** - SMS++: a Structured Modeling System with Application in Energy Optimization

**Amphithéâtre 2 : Optimization, Games and Renewable Energy - OGRE 1** (invited Session summary organized by Michel De Lara)

**Michel De Lara** - Charting optimization problems with multiple agents and information

**El-Ghazali Talbi** - A Multiobjective Evolutionary Algorithm for Household Appliances Scheduling

**Yezekael Hayel** - Efficient Coupled Energy-Transport Management for Smart Cities

**Room A139 : OR 1 - Graphs and Optimization** (Invited Session, organized by Marie-Christine Costa, Sourour Elloumi)

**Axel Parmentier** - Lower bounds in resource constrained shortest path algorithms

**Viet Hung Nguyen, Paul Weng** - Efficient algorithm for fair perfect matching

**Youcef Magnouche, Ali Ridha Mahjoub, Sébastien Martin** - The multi-terminal vertex separator problem

**Room A116 : Large Scale Optimization and Statistics 1**

**Vianney Perchet, Francis Bach** - Highly-Smooth Zero-th Order Online Optimization

**Dmitry Ostrovsky, Anatoli Juditsky, Zaid Harchaoui** - Adaptive filtering by convex optimization

**Rémy Degenne, Vianney Perchet** - Combinatorial semi-bandit with known covariance

**Room A128 : Control 1**

**Dario Prandi** - Neuro-geometry of vision and applications to image processing

**Jean-Baptiste Caillaud, Jean-Baptiste Pomet, Jeremy Rouot** - Averaging for minimum time control problems and applications

**Achille Sassi, Hasnaa Zidani, Jean-Baptiste Caillaud, Emmanuel Trélat, Max Cerf** - Kernel Density Estimation applied to the chance-constrained Goddard problem

**Amphithéâtre 1 : Games 1** (Invited Session of GdR « Théorie des jeux », organized by Guillaume Vigerat)

**Rida Laraki** - Acyclic Gambling Games

**Saeed Hadikhannoo** - Learning in Anonymous Games with Actions in Banach Spaces: Application in First Order Mean Field Games

**Panayotis Mertikopoulos, Yannick Viossat** - Imitation dynamics with payoff shocks

**Room A140 : Industrial applications** (Invited Session, organized by Sandrine Charousset)

**Eric Gourdin** - Location and routing problems in modern telecommunication networks

**Mathieu Leconte, Ioannis Steiakogiannakis, Georgios Paschos** - Distributed multi-commodity routing optimization in Software-Defined Networks

**Bayram Kaddour, Olivier Beaude** - Enedis strategic planning

**Amphithéâtre 2 : Optimization, Games and Renewable Energy - OGRE 2** (Invited Session, organized by Michel de Lara)

**Bernardo Pagnoncelli, Tito Homem-De-Mello, Rodrigo Carrasco, Mailyng Carrasco** - Microgrid energy management with renewables and storage

**Didier Aussel, Anton Svensson** - Multi-leader-follower-games: a state of art of applications to energy problems and of their (global vs local) reformulations

**Luce Brotcorne, Léonard von Niederhäusern** - Energy Pricing Problems for Demand side and Revenue Management

**Room A139 : OR 2 - Mathematical programming in Energy** (Invited Session, organized by Marie-Christine Costa, Sourour Elloumi)

**Sandra Ulrich Ngueveu** - Piecewise linear bounding of energy conversion functions and resulting MILP-based solution methods

**Thomas Ridremont, Cédric Bentz, Marie-Christine Costa, Pierre-Louis Poirion** - Mixed-integer Bilevel programs for designing robust networks. An application to wind power collection.

**Pierre-Louis Poirion, Cédric Bentz, Marie-Christine Costa, Thomas Ridremont, Camille Zakhour** - Optimal design of a robust wind-farm under power constraints.

**Room A116 : Large Scale Optimization and Statistics 2**

**Eugene Ndiaye, Olivier Fercoq, Alexandre Gramfort, Joseph Salmon** - Gap Safe Screening Rules for Sparse-Group Lasso

**Emilio Carrizosa, Amaya Nogales Gómez, Dolores Romero Morales** - Clustering categories in support vector machines

**Quoc Tran-Dinh, Olivier Fercoq, Volkan Cevher** - A Smooth Primal-Dual Optimization Framework for Nonsmooth Composite Minimization

**Room A128 : Semidefinite programming** (Invited Session, organized by Xavier Allamigeon)

**Didier Henrion, Simone Naldi and Mohab Safey El Din** - Exact Algorithms for Linear Matrix Inequalities

**Hamza Fawzi** - Semidefinite programming lifts and sparse sums of squares

**Xavier Allamigeon, Stéphane Gaubert, Mateusz Skomra** - Solving Generic Nonarchimedean Semidefinite Programs using Stochastic Game Algorithms

9:00/10:30

11:00/12:30

**Amphithéâtre 1 : Games 2** (Invited Session of GdR « Théorie des jeux », organized by Guillaume Vigerat)  
**Marie Laclau, Frédéric Koessler, Tristan Tomala** - Competitive Information Design  
**Stefano Lovo** - Markov Perfect Equilibria in Stochastic Revision Games  
**Sylvain Sorin** - Limit value of dynamic zero-sum games with vanishing stage duration

13:45/15:15

**Room A140 : Numerical methods for optimal transport** (Invited Session organized by Quentin Mérigot)  
**Jean-Marie Mirebeau** - Monotone and consistent discretizations of diffusion PDEs using Obtuse Superbases  
**Marco Cuturi** - Algorithmic Wasserstein Distances and Applications to Histogram Regression  
**Boris Thibert** - Semi-discrete optimal transport and applications in non-imaging optics

## Amphithéâtre 2 : Energy 1

**Claudia Sagastizábal, Wim van Ackooij, Rene Henrion, Alexander Kruger, Michel Thera, Wellington de Oliveira** - Bilevel Models for Unit Commitment with Demand-Side Management  
**Fabio D'Andreagiovanni, Giovanni Felici, Fabrizio Lacalandra** - Zero-price Energy Offering by (Multiband) Robust Optimization  
**Mahbubeh Habibian, Golbon Zakeri, Anthony Downward, Miguel Anjos, Michael Ferris** - Co-optimization of Demand Response and Reserve Offers

**Room A139 : OR 3 - Combinatorial Optimization** (Invited Session, organized by Marie-Christine Costa and Sourour Elloumi)  
**Bruno Escoffier** - Reoptimization algorithms for combinatorial problems  
**Guillaume Sagnol, Thibaut Sauvage** - A Completely-positive representation of the cone of flow matrices  
**Spyros Angelopoulos, Christoph Dürr, Thomas Lidbetter** - The expanding search ratio of a graph

## Room A116 : Black-Box Optimization

**Benjamin Doerr, Carola Doerr, Timo Kötzing** - Optimizing Multi-Valued Decision Variables with Evolutionary Algorithms  
**Anne Auger** - Revisiting the Benchmarking of Derivative Free Optimization Algorithms  
**Carola Doerr, Johannes Lengler** - Cost of Elitist Selection in Discrete Black-Box Optimization

**Room A128 : Icode** (Invited Session of the Institute for Control and Decision of the Idex Paris Saclay, organized by Yacine Chitour)

**Paolo Mason** - Optimal control methods for the stability of switched systems  
**Antoine Girard** - Robust controllers for nonlinear systems with performance guarantees: an approach based on discrete abstractions.  
**Frédéric Jean** - Inverse Optimal control: the sub-riemannian case

15:45/17:45

## Amphithéâtre 1 : Games and Probabilities

**Rene Henrion, Wim van Ackooij, Pedro Perez Aros** - Aspects of Nonsmoothness for Gaussian Probability Functions  
**Piernicola Bettiol** - Differential Games confined to path-wise constraints  
**Matteo Fischetti, Ivana Ljubic, Michele Monaci, Markus Sinnl** - Interdiction Games and Monotonicity  
**Charles Bertucci** - Optimal stopping in mean field games

## Room A140 : OR 5

**Margaux Nattaf, Christian Artigues, Pierre Lopez** - An exact method for a continuous scheduling problem with concave efficiency functions  
**Stephane Chretien, Nathalie Herr, Jean-Marc Nicod, Christophe Varnier** - Scheduling independent parallel machines with convex programming  
**Stephane Chretien, Paul Clarkson, Alistair Forbes** - A convex relaxation of the optimal sensor placement problem in power grids  
**Jia Liu, Immanuel Bomze, Abdel Lisser, Jianqiang Cheng, Peter Dickinson** - New formulations, relaxations and penalizations for mixed binary Qps

**Amphithéâtre 2 : Energy Management and economic valuation** (Invited Session, organized by Jean-Philippe Chancelier) – (15H45-17H15)

**Teemu Pennanen** - Asset valuation and optimal investment  
**François Pacaud** - Optimization of a district microgrid  
**Tristan Rigaut** - Energy Efficiency Investment and Management for Subway Stations

## Amphithéâtre 2 : Energy 2 (17h15-17h45)

**Rodolphe Griset** - Nuclear Power Plant Outage Planning : an exact optimization approach to test robustness to demand variations and power plant availability

**Room A139 : OR 4 - Robust and bilevel optimization** (Invited Session, organized by Marie-Christine Costa and Sourour Elloumi)

**Pierre-Louis Poirion, Sonia Toubaline, Claudia D'Ambrosio, Leo Liberti** - On the Binary Bilevel Problem  
**Dritan Nace, Akli Fundo, David Savourey, Fatjon Gjata** - The robust flight level assignment problem  
**Céline Gicquel, Safia Kedad-Sidhoum, Quan Vu** - A multi-stage stochastic programming approach for remanufacturing planning under uncertainty

**Room A116 : Tropical methods** (Invited Session, organized by Xavier Allamigeon) - (15H45-17H15)

**Anne Bouillard** - Computing optimal worst-case performance bounds with Network Calculus  
**Laure Daviaud** - About the description of functions computed by max-plus automata  
**Marianne Akian, Mustapha Bouhtou, Jean Bernard Eytard, Stéphane Gaubert** - Price incentives in mobile networks: a tropical approach

## Room A116 : Applications (17h15-17h45)

**Bayarbaatar Amgalan** - An integrated method for uncovering key effects on cancer-activated multi-dimensional network

## Room A128 : Control 2

**Dominikus Noll** - Robust control for mixed system uncertainty  
**Philippe Mahey, Jonas Koko, Arnaud Lenoir, Luc Marchand** - Information relaxation and spatial decomposition of a stochastic optimal control problem  
**Francisco José Silva Alvarez, Joseph Frédéric Bonnans, Justina Gianatti** - On the convergence of discrete optimal controls  
**Michael Orioux, Jean Baptiste Caillaud, Jacques Féjoz** - Problème de transfert en temps optimal