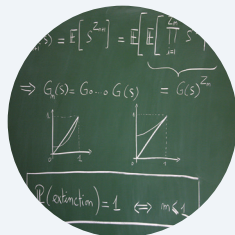# PGMO-COPI'14

GASPARD MONGE PROGRAM FOR OPTIMIZATION

CONFERENCE ON OPTIMIZATION & PRACTICES IN INDUSTRY
28 - 31 october 2014 Paris-Saclay (Ecole Polytechnique)

SCIENTIFIC PROGRAM

web

www.fondation-hadamard.fr/fr/PGMO

pgmo.copi.14@fondation-hadamard.fr

Scientific program

Tuesday 28th october 2014 - Amphithéâtre Faurre

Welcome (starting at 08:30)

09h00 - **Introduction** (**Patrick Le Quere**, Ecole Polytechnique, **Marc Ringeisen**, EDF R&D).

09h15 - **Scientific Conference by Viorel Barbu** (Al. I. Cuza University, Iasi, Romania).

10h00 - **Results of the PGMO PhD prize.**

10h10 - **PGMO PHD prize : First Conference.**

10h40 - Coffee break.

11h10 - **Scientific Conference by Daniel Bienstock** (Columbia University).

11h55 - **Scientific Conference by Francis Bach** (INRIA, Paris, France).

12h40 - Lunch.

14h00 - Coffee.

14h30 - **Review of PGMO projects 2013-2014 - Sandrine Charousset and Stéphane Gaubert.**

15h00 - **Conference by Marc Ringeisen** (EDF R&D).

15h45 - **Scientific Conference by Jean-Bernard Lasserre** (LAAS-CNRS, France).

16h30 - Coffee break.

17h00 - **PGMO PHD prize : Second Conference.**

17h30 - **Presentation of PGMO projects 2014-2015 - Sandrine Charousset and Stephane Gaubert.**

18h00 - End of the day.   Coffee breaks and lunches will be the opportunity for discussion around posters describing the activities of PGMO projects.

Wednesday 29th october 2014

Welcome (starting at 08:30)

09h00 (Amphi Faurre) - **Scientific Conference by Claudia Sagastizábal** (IMPA, Brasil).

09h45 (Amphi Faurre) - **Scientific Conference by René Henrion** (Weierstrass Institute, Germany).

10h30 - Coffee break.

11h00 - **Parallel Sessions** :

(Amphi Sauvy) *Contributed Session - Markets*

(Amphi Faurre) *Contributed Session - Hydropower (1/2)*

(Amphi Poisson) *Contributed Session - Unit Commitment (1/2)*

(Amphi Painlevé) *Invited Session - Game Theory (1/2)*

(Amphie Curie) *Contributed Session - Global optimization*

12h45 - Lunch.

14h00 - Coffee.

14h30 - **Parallel Sessions** :

(Amphi Faurre) *Invited Session - Stochastic Optimization (1/2)*

(Amphi Painlevé) *Invited Session - Game Theory (2/2)*

(Amphi Sauvy) *Contributed Session - Nuclear*

(Amphi Curie) *Contributed Session - Optimal Control*

(Amphi Poisson) *Invited Session - Recent Advances on Continuous Randomized black-box optimization (1/2)*

16h00 - Coffee break.

16h30 (Amphi Faurre) - **Scientific Conference by Laurent El Ghaoui** (University of Berkeley, USA).

17h20 - Cocktail (Introduced by **Hans Rugh,** FMJH Director).

PGMO-COPI'14

Thursday 30th october 2014

Welcome (starting at 08:30)

09h00 (Amphi Faurre) - **Scientific Conference by Ivar Ekeland** (Ceremade, Université Paris Dauphine, Paris, France).

09h45 (Amphi Faurre) - **Scientific Conference by Nicole El Karoui** (Université Pierre et Marie Curie and Ecole Polytechnique, Paris, France).

10h30 - Coffee break.

11h00 - **Parallel Sessions** :

(Amphi Sauvy) *Invited Session - Complexity of linear programming and games (1/3)*

(Amphi Faurre) *Invited Session - Stochastic Optimisation (2/2 : applications to energy management)*

(Amphi Painlevé) *Invited Session - Energy Markets*

(Amphi Poisson) *Invited Session - Recent Advances on Continuous Randomized black-box optimization (2/2)*

12h40 - Lunch.

14h00 - Coffee.

14h30 (Amphi Faurre) - **Scientific Conference by Frédéric Roupin** (Université Paris 13, France).

15h15 (Amphi Faurre) - **Scientific Conference by Sourour Elloumi** (ENSIIE, Evry, France).

16h00 - Coffee break.

16h30 - **Parallel Sessions** :

(Amphi Painlevé) *Contributed Session - Game theory*

(Amphi Sauvy) *Contributed Session - Scheduling*

(Amphi Poisson) *Contributed Session - Unit Commitment (2/2)*

(Amphi Faurre) *Contributed Session - Industry*

18h15 - End of the day.

20h30 - 23h45 - Social Event.

Friday 31st october 2014

Welcome (starting at 08:30)

09h00 (Amphi Faurre) - **Scientific Conference by Jean Andre** (Air liquide, Paris, France).

09h45 (Amphi Faurre) - **Scientific Conference by Golbon Zakeri** (University of Auckland, New Zealand).

10h30 - Coffee break.

11h00 - **Parallel Sessions** :

(Amphi Poisson) *Contributed Session - Chance Constraint Programming and Quadratic Programming*

(Amphi Sauvy) *Invited Session - Complexity of linear programming and games (2/3)*

(Amphi Faurre) *Invited Session - Optimization tools for large scale industrial systems*

(Amphi Painlevé) *Contributed Session - Smart-Grid and energy*

12h40 - Lunch.

14h00 - Coffee.

14h30 (Amphi Faurre) - **Conference by Patrice Gérardin**, Director - Commerce Optimisation & Trading, EDF, France.

15h15 - **Parallel Sessions** :

(Amphi Painlevé) *Contributed Session - Learning and Metaheuristics*

(Amphi Faurre) *Contributed Session - Hydropower (2/2)*

(Amphi Poisson) *Contributed Session - Operational research*

(Amphi Sauvy) *Invited Session - Complexity of linear programming and games (3/3)*

16h45 (Amphi Faurre) - Closure of the Conference by **Marc Ringeisen**, EDF R&D.

17h00 - End of the day.

28 - 31 october 2014 Paris-Saclay (Ecole Polytechnique)

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Details of parallel sessions

Wednesday 29th october 2014 - Morning sessions   11h00 - 12h45

--- Amphi Sauvy : Contributed Session : MARKETS ---

M. Pistek, IITA of the ASCR, Czech Republic - *Electricity pay-as-bid market : the best response of producer.*

D. Aussel, University of Perpignan, France - *About variational reformulations of electricity market models.*

J. Sedoc, University of Pennsylvania / Chivalric Trading LLC - *Estimating Stock Covariance Using Factorial Hidden Markov Models.*

A. Tibau-Puig, @WalmartLabs - *Scalable Robust Pricing for margin-constrained revenue management.*

--- Amphi Faurre : Contributed Session : HYDROPOWER (1/2) ---

M. Brunet and T. Triboulet, EDF - *How to track and deal with errors in huge data in entry of a model ?*

V. de Matos, Plan4 Engenharia - *Assessment of Operation Policies for Different Levels of Reservoir Aggregation models in the Long Term Hydrothermal Scheduling.*

M. Towhidi, Ecole Polytechnique de Montréal - *Solving Stochastic Dynamic Programs for Multi-reservoir Hydropower Optimization.*

A. Philpott, University of Auckland - *Competition in hydro-dominated electricity markets.*

--- Amphi Poisson : Contributed Session : UNIT-COMMITMENT (1/2) ---

A. Bialecki, EDF - *Intra-Day Problem and Group Sparsity.*

F. D'Andreagiovanni, Zuse-Institut Berlin (ZIB) & Technical University Berlin, Germany - *A Unified View on Tight Formulations for the Unit Commitment Problem with Optimal Transmission Switching.*

K. Tavlaridis-Gyparakis, Ecole Polytechnique, University of Pisa - *Langrangian Heuristics based on Disaggregated Bundle Methods for the EdF Unit Commitment Problem.*

C. Cardozo, EDF R&D / SUPELEC - *Frequency Constrained Unit Commitment.*

--- Amphi Painlevé : Invited Session : GAME THEORY (1/2) ---

P. Coucheney, Université de Versailles - *Finding optimal strategies of almost acyclic simple stochastic games.*

X. Venel, Université Paris 1/Panthéon Sorbonne - *Stochastic games with partial observation and Borel evaluation.*

G. Vigeral, Université Paris-Dauphine - *Limit game: asymptotic analyis of two person zero-sum dynamic games.*

--- Amphi Curie : Contributed Session : GLOBAL OPTIMISATION ---

A. Frangioni, Dipartimento di Informatica, Università di Pisa - *Handling Inexactness in Nondifferentiable Optimization : a Computational Comparison.*

P. Feliot, IRT-SystemX/Supélec - *A Bayesian subset simulation approach to constrained global optimization of expensive-to-evaluate black-box functions.*

A. Auger, INRIA Saclay, LRI University Paris-Sud - *Towards a Complexity Theory for Black-Box Optimization.*

Wednesday 29th october 2014 - Afternoon sessions   14h30 - 16h00

--- Amphi Faurre : Invited Session : STOCHASTIC OPTIMIZATION (1/2) ---

A. Dallagi, EDF Energy R&D, UK Centre - *European energy equilibrium and decomposition.*
M. De Lara, CERMICS, Ecole des Ponts ParisTech - *Decomposition Methods in Multistage Stochastic Optimization.*
V. Leclere, Ecole des Ponts, ParisTech - *Dual Approximate Dynamic Programming: Theoretical and Practical Questions.*

--- Amphi Painlevé : Invited Session : GAME THEORY (2/2) ---

V. Perchet, Université Paris-Diderot - *Online multi-class classification via Blackwell's approachability.*
Y. Viossat, Université Paris-Dauphine - *Links between no-regret dynamics and fictitious play.*
P. Mertikopoulos, CNRS & Université Joseph Fourier - *Regularized Best Responses, Reinforcement Learning, and Applications to Routing.*

--- Amphi Sauvy : Contributed Session : NUCLEAR ---

C. Pira, LIPN, Université Paris 13 - *Column generation for an electricity production planning problem with stochastic outage durations.*
B. Detienne, Team ReAlOpt, Inria, IMB, Université de Bordeaux - *Extended formulations for robust maintenance planning at power plants.*
R. Cada, University of West Bohemia, Czech Republic - *Using Topology for Nuclear Fuel Reloading Pattern Optimization.*

--- Amphi Curie : Contributed Session : OPTIMAL CONTROL ---

F. Silva, XLIM, Université de Limoges - *On the asymptotic behavior of stochastic optimal control problems governed by stochastic differential equations submitted to small perturbations.*
J. F. Bonnans, CMAP, Ecole Polytechnique - *Second order necesssary optimality conditions in Pontryagin form for stochastic optimal control problems.*

--- Amphi Poisson : Invited Session : RECENT ADVANCES ON CONTINUOUS RANDOMIZED BLACK-BOX OPTIMIZATION (1/2) ---

A. Auger, Inria - *Recent Advances in Continuous Randomized Black-Box Optimization: an Overview.*
N. Hansen, Inria - *CMA-ES: A Function Value Free Second Order Optimization Method.*
I. Loshchilov, Ecole Polytechnique Federale de Lausanne, Switzerland- *LM-CMA-ES : an alternative to L-BFGS for large-scale black-box optimization.*

Details of parallel sessions

Thursday 30th october 2014 - Morning sessions   11h00 - 12h30

--- Amphi Sauvy : Invited Session : COMPLEXITY OF LINEAR PROGRAMMING AND GAMES (1/3) ---

Y. Disser, TU Berlin - *The Simplex Algorithm is NP-mighty.*
F. Meunier, Ecole des Ponts, France - *Colorful linear programming, Nash equilibrium, and pivots.*
E. Tsigaridas, POLSYS, Inria Paris-Rocquencourt - *Exact Algorithms for Solving Stochastic Games.*

--- Amphi Faurre : Invited Session : STOCHASTIC OPTIMIZATION (2/2) ---
Applications : Energy Management

P. Carpentier, ENSTA ParisTech, UMA - *Chance-constrained optimal management of a hydropower dam.*
F. Wahid, Ecole Polytechnique and University of Auckland - *HERBS : Hydro-Electric Reservoir Bidding System.*
A. Waserhole, Sun'R SmE - ENSTA - *SunHydrO : Pumped-storage for an improved renewable energy integration. Contributing to the spinning reserve.*

--- Amphi Painlevé : Invited Session : ENERGY MARKETS ---

E. Pierre, EDF R&D - *Capital Investment and Liquidity Management with Collaterized debt.*
I. Ben Tahar, Université Paris Dauphine - *A mean Field Approach to technological transition.*
P. Tukedjiev - *Approximating backward stochastic differential equations with Malliavin weights and least-squares regression.*

--- Amphi Poisson : Invited Session : RECENT ADVANCES ON CONTINUOUS RANDOMIZED BLACK-BOX OPTIMIZATION (2/2) ---

T. Glasmachers, Ruhr-Universität Bochum, Germany - *Natural Evolution Strategies for Direct Search.*
D. Brockhoff, Inria Lille, Nord Europe - *Covariance Matrix Adaptation in Multiobjective Optimization.*
Y. Akimoto, Shinshu University - *A linear time natural gradient algorithm for black-box optimization in high dimension.*

Thursday 30th october 2014 - Afternoon sessions   16h30 - 18h15

--- Amphi Painlevé: Contributed Session : GAME THEORY ---

A. Hochart, CMAP, Ecole Polytechnique and INRIA - *Generic uniqueness of the bias vector of mean-payoff zero-sum games.*

B. Pauwels, IFP Energies Nouvelles/Université Paul Sabatier - *Pareto-based definitions of the optimal value and optimal solutions of a fuzzy program.*

V. Perchet, Université Paris-Diderot - *New results in bandit problems with applications.*

--- Amphi Sauvy : Contributed Session : SCHEDULING ---

B. Kaddour, EDF R&D et E. Thomas, Infotel-ERDF - *The operational planning of interventions at ERDF.*

S. U. Ngueveu, LAAS-CNRS - *Scheduling with non-reversible energy sources.*

S. Demassey, CMA, Mines ParisTech - *BtrPlace : Flexible VM Management in Data Centers.*

S. Chretien, Universite de Franche Comte - *Scheduling independent parallel machines with convex programming.*

--- Amphi Poisson : Contributed Session : UNIT COMMITMENT (2/2) ---

Y. Sahraoui, EDF R&D OSIRIS/Ecole Polytechnique LIX - *MILP model for a real-world short-term hydro-power unit-commitment problem.*

R. Taktak, LIX-Polytechnique - *Optimal Short-term Unit Commitment Problem in Hydro Valleys.*

P. Cote, Rio Tinto Alcan - *Short-term unit commitment and loading problem of a multi reservoir hydropower system.*

T. Schulze, University of Edinburgh - *A Long Term Rolling Horizon Evaluation of Stochastic Unit Commitment in The British Power System.*

--- Amphi Faurre : Contributed Session : INDUSTRY ---

C. Musso, ONERA - *Simulation–based algorithms for the optimization of sensor deployment.*

P. Girardeau, Artelys - *Analyzing the benefits of power infrastructure investments.*

A. Top, Arcelik/Istanbul Technical University - *Optimization of heating and condensation system of a water-condensed type washer dryer regarding energy consumption.*

Details of parallel sessions

Friday 31st october 2014 - Morning sessions   *11h00 - 12h30*

--- Amphi Poisson : Contributed Session : CCP - QP ---

J. Cheng, Lri, Universite Paris-Sud, France - *A Modified Sample Approximation Method for Chance Constrained Problems.*

A. Lisser, Université de Paris Sud, France - *Elliptically distributed joint probabilistic constraints with row dependence.*

J. C. Gilbert, INRIA - *Implementation of an augmented Lagrangian algorithm for solving convex QPs, which can deal with infeasible problems.*

I. M. Bomze, University of Vienna - *Narrowing the difficulty gap for the Celis-Dennis-Tapia problem.*

--- Amphi Sauvy : Invited Session : COMPLEXITY OF LINEAR PROGRAMMING AND GAMES (2/3) ---

M. Akian, INRIA and CMAP - *Complexity of policy iteration for stochastic zero-sum games.*

B. Scherrer, INRIA - *Improved and Generalized Upper Bounds on the Complexity of Policy Iteration.*

X. Allamigeon, INRIA, CMAP Ecole Polytechnique, CNRS - *The Tropical Shadow-Vertex Algorithm Solves Mean Payoff Games in Polynomial Time On Average.*

--- Amphi Faurre : Invited Session : OPTIMIZATION TOOLS FOR LARGE SCALE INDUSTRIAL SYSTEMS ---

R. Camy, EDF - *Résolution de problèmes inverses de thermique par des algorithmes d'optimisation.*

D. Sinoquet, IFP Energies nouvelles - *Applications of Derivative Free Optimization methods.*

S. Da Veiga, Snecma - *Robust multi-objective optimization with surrogate models.*

F. Heliodore, Alstom Grid - *Methodology for management of power systems emergency situations.*

--- Amphi Painlevé: Contributed Session : SMART-GRIDS AND ENERGY ---

O. Sassi, Lorraine University - *Integrated model for optimal electric vehicle scheduling and charging in the business context.*

B. Heymann, CMAP - *Stochastic dynamic programming applied to microgrid management.*

F. Piu, University of Bergamo - *Transmission lines switching in electric power networks by means of nonlinear stochastic programming.*

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Friday 31st october 2014 - Afternoon sessions   15h15 - 16h45

--- Amphi Painlevé : Contributed Session : LEARNING AND METAHEURISTICS ---

N. Beldiceanu, Mines de Nantes - *Linking Prefixes and Suffixes for Constraints Encoded Using Automata with Accumulators.*
M. Basseur, University of Angers - *Toward an Efficient Exploration of Fitness Landscapes.*
K. Aissat, LORIA, University of Lorraine - *Real-time Ride-sharing with Intermediate Locations.*

--- Amphi Faurre : Contributed Session : HYDROPOWER (2/2) ---

M. Brunet and N. Oudjane, EDF - *How to calculate optimal water values under the constraints of the operational process ?*
Q. Desreumaux, Sherbrooke University - *The Role of Hydrologic Information in Stochastic Dynamic Programming applied to hydropower reservoir management.*
S. E. Fleten - *Linear decision rules applied to hydropower scheduling.*

--- Amphi Poisson : Contributed Session : OPERATIONAL RESEARCH ---

M. C. Costa, ENSTA Paris-Tech and CEDRIC - *Cabling optimization of a windfarm and capacitated K-Steiner tree.*
R. Mahjoub - *Efficient exact algorithms for Graph Partitioning Problems.*
D. P. Nguyen, CEA, LIST, Embedded Real Time System Laboratory - *Stochastic graph partitioning.*

--- Amphi Sauvy : Invited Session : COMPLEXITY OF LINEAR PROGRAMMING AND GAMES (3/3) ---

X. Allamigeon, INRIA, CMAP Ecole Polytechnique, CNRS - *Long and winding central paths.*
T. D. Hansen, Stanford University - *Strategy iteration is strongly polynomial for 2-player turn-based stochastic games with a constant discount factor.*
A. Deza, McMaster University, Ontario, Canada - *Optimization algorithms: worst-case behaviour and related conjectures.*

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Information

Taxi réservation

For booking a taxi, you can use these numbers: **Taxis Bleus : 36 09 (+33 1 49 36 10 10) or Taxis G7 : 36 07 (+33 1 47 39 47 39)**.
In case of difficulties, don't hesitate to call us at least 2 hours in advance to book it. Please find our telephone number on this page.

How to get to the conference

--- By the RER B or C and bus ---

You can take the RER B or RER C, up to **Massy Palaiseau** station.
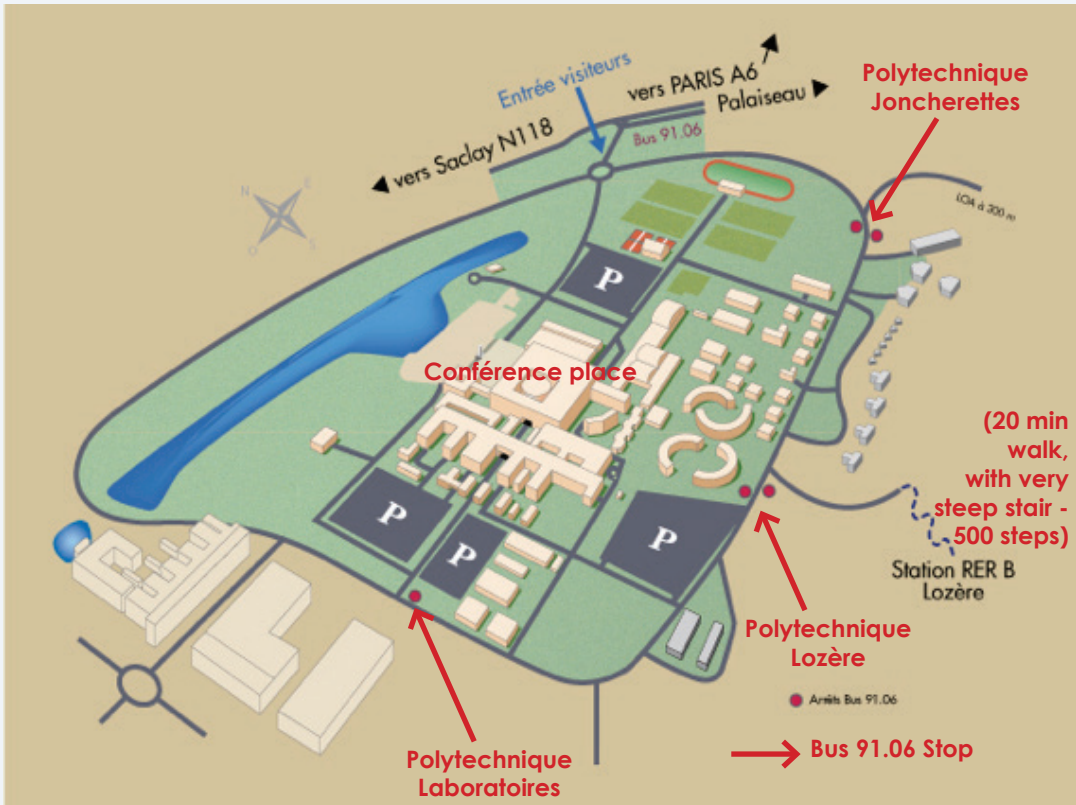
Bus **91-06** or **91-10**

From Massy Palaiseau station, take the 91-06 (B, C) or the 91-10 bus, direction Christ (Rn 306) up to **Polytechnique Lozere** station. (7-8 min around).

You will fnd public transportation schedules at the conference reception.

Massy - Palaiseau Station

PGMO-COPI'14

Organization Committee
telephone number:
+33 6 44 30 22 37.
Don't hesitate to call us!

Ecole Polytechnique Campus

Conference adress :
Rond-Point Denfert Rochereau (via Google Maps)
Or Place Gustave Ferrie (via Mappy – Michelin)
[Campus de l'École Polytechnique]
91120 PALAISEAU

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Information

How to get to the conference

--- By car : using Nationale N118 ---

--- By car : using AUTOROUTE A6 ---

ROUTE FROM PARIS TO ECOLE POLYTECHNIQUE CAMPUS

ROUTE FROM PARIS TO ECOLE POLYTECHNIQUE CAMPUS

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Information

Conference site map

AMPHI MAP

Amphi Faurre

Amphi Curie
Amphi Painlevé

Amphi Poisson

Amphi Sauvy

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--- You can park in the "Visitors parking", indicated in the map above. ---

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How to go to Charles de Gaulle and Orly airports

By public transport

--- To Charles de Gaulle airport ---

BUS 91-06 or **91-10** :
From Polytechnique Lozere station, take the 91-06 (B, C) or the 91-10 bus up to **Massy Palaiseau station**. (7-8 min around).
You will find public transportation schedules at the conference reception.

From Massy Palaiseau station, take the RER B, direction Charles de Gaulle 2, up to **Charles de Gaulle 1 or 2 station**, depending on your destination.

--- To Orly ---

BUS 91-06 or **91-10** :
From Polytechnique Lozere station, take the 91-06 (B, C) or the 91-10 bus up to **Massy Palaiseau station**. (7-8 min around).

From Massy Palaiseau station, take the RER B direction Charles de Gaulle 1 & 2 up to **Antony station.**

OrlyVal
From Antony station, take the Orly Val to **Orly Ouest** or **Orly Sud** station (ticket : 9 euros).

By taxi
Taxis Bleus : **36 09 (+33 1 49 36 10 10)** - Taxis G7 : **36 07 (+33 1 47 39 47 39)**.

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