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Born 15 April 1985
French citizenship

Michel Duprez

Post-doc

Professional experience

2016 – 2017 **Post-doc position**, *I2M, LSIS*, Université Aix-Marseille.
Supported by Labex Archimède.

Professional experience

2015 – 2016 **Full-time ATER (assistant professor)**, *LMB, University of Franche-Comté, France*.

Duration: 192h.

2012 – 2015 **Ph.D. Scholarship**, *LMB, University of Franche-Comté, France*.

2011 – 2015 **Teaching contract**, *LMB, University of Franche-Comté, France*.

Duration: 64-96h/year.

Education

2012 – 2015 **Ph.D. in Applied Mathematics**, *University of Franche-comté, France*, Advisers:
Farid Ammar Khodja and Franz Chouly.

Subject: Controllability of some parabolic systems.

Supported by Franche-Comté region.

Will be defended on November 26, 2015.

2011 – 2012 **Master of research: partial differential equations and numerical analysis**,
University of Franche-Comté, France.

Advisers of the report: Farid Ammar Khodja and Franz Chouly.

Subject: Approximate controllability, optimization and numerical convergence of a scheme for parabolic linear equations.

2011 **Agrégation of Mathematics**.

Rank: 146th.

2010 – 2011 **Master of Professional Studies “Histoire des sciences”**, *University of Franche-Comté, France*.

Advisor: Stefan Neuwirth.

Subject: “Les Sphériques de Ménélaüs”.

2010 **Capes of mathematics**.

Rank: 58th.

Research interests

Theoretical study of the controllability of system of partial differential equations.

Carleman inequalities, moments method, algebraic resolvability.

Error estimates of numerical schemes.

Goal oriented method, Continuous/discontinuous finite elements.

Crowd motions.

Non-local transport equation.

Publications

- [1] **Partial null controllability of parabolic linear systems**, *Math. Control Relat. Fields*, **2** (2016), p. 185-216.
In collaboration with F. Ammar-Khodja (LMB, Besançon) et F. Chouly (LMB, Besançon)
- [2] **Indirect controllability of some linear parabolic systems of m equations with $m - 1$ controls involving coupling terms of zero or first order**, *Journal de Mathématiques Pures et Appliquées*, **106** (2016), p. 905-934.
In collaboration with P. Lissy (Ceremade, Paris)
- [3] **Controllability of a 2×2 parabolic system by one force with space-dependent coupling term of order one**, To appear in *ESAIM: Control, Optimisation and Calculus of Variations*.
- [4] **Criterion of positivity for semilinear problems with applications in biology**, Accepted in *Positivity*.
In collaboration with A. Perasso (Chrono-Environnement)
- [5] **Positive and negative results on the internal controllability of parabolic equations coupled by zero and first order terms**, Submitted.
In collaboration with P. Lissy (Ceremade, Paris)
- [6] **Perturbations of controlled systems**, Submitted.
In collaboration with G. Olive (Université de Bordeaux)
- [7] **Controllability and optimal control of the transport equation with a localized vector field**, In collaboration with M. Morancey (I2M, Marseille) and F. Rossi (LSIS, Marseille). Submitted to *25th Mediterranean Conference on Control and Automation*.
- [8] **Time optimal control for continuous mass displacement**, In collaboration with F. Rossi (LSIS, Marseille). Submitted to *56th IEEE Conference on Decision and Control*.

Poster

- [9] **Indirect controllability of some linear parabolic systems coupled by an operator of first order**, poster in conference “*Contrôle des EDP et applications*”, November 2015 in Marseille..

Research abroad

- March 2016 **Laboratoire de Mathématiques de Clermont-Ferrand**, with Arnaud Münch.
July 2015 **Ceremade (Paris)**, with P. Lissy and J. Salomon.
May 2015 **Faculté de mathématiques de Séville (Spain)**, with M. Gonzalez-Burgos.
Feb. 2015 **Ceremade (Paris)**, with P. Lissy.
May 2014 **Institut de mathématiques de Marseille**, with F. Hubert, A. Benabdallah and Franck Boyer.

Responsibilities / Co-organized meetings

- July 2015 **Co-organizer of “Journées de Modélisation BioMathématique de Besançon”**, *Besançon (France)*.
<http://http://mb2.univ-fcomte.fr>
- March 2015 **Co-organizer of “Journée Thématiques théoriques et numériques en contrôle et problèmes inverses pour les EDPs”**, *Besançon (France)*.
<http://trimestres-lmb.univ-fcomte.fr/pdena.html>
- 2014 – 2015 **Co-organizer of Ph.D. student seminar**, *LMB, Besançon (France)*.
- 2014 – 2015 **Representative of PH.D. students in “Conseil de l’école doctorale Carnot-Pasteur”**.
- 2013 et 2014 **Co-organizer of “Journées des Ecoles Doctorales Carnot-Pasteur”**.

Oral communications in conference with personal invitation

- Dec. 2016 **Workshop on control, inverse problems and stabilization of infinite dimensional systems**, *Marrakesh*.
- Dec. 2016 **Workshop on Parabolic Control with Hyperbolic Effects**, *Toulouse*.
- June 2016 **Nonlinear Partial Differential Equations and Applications**, *Paris*.
- May 2016 **CANUM**, *Obernai (France)*.
- March 2016 **Journée des Jeunes Edépistes Français**, *Bordeaux*.
- August 2015 **Partial differential equations, optimal design and numerics**, *Benasque, Spain*.
- July 2015 **Journées de Modélisation BioMathématique de Besançon**, *Besançon, France*.
- March 2015 **Journées bisontines sur le contrôle quantique : systèmes d’EDPs et applications à l’IRM**, *Besançon, France*.
- Sept. 2014 **Conference “Contrôle, Problème inverse et Applications”**, *Clermont-Ferrand, France*.
- June 2014 **Journée des Écoles Doctorales**, *Dijon, France*.

Oral communications in seminar or workshop

- Jan. 2017 **Classical and Quantum dynamics Seminary**, *Marseille*.
- Nov. 2016 **working group of control**, *Marseille*.
- Oct. 2016 **Applied mathematics Seminary**, *Marseille*.
- March 2016 **PDE’s Seminary**, *Clermont-Ferrand*.
- March 2016 **PDE’s Seminary**, *Nancy*.
- Feb. 2016 **MIP’s Seminary**, *Toulouse*.
- Feb. 2016 **A3 Analysis Seminary**, *Amiens*.
- January 2016 **Radon Group Seminars**, *Linz, Austria*.
- October 2015 **PDE’s Seminary**, *Besançon, France*.
- January 2015 **Control workshop**, *Marseille, France*.
- June 2014 **Math/Bio workshop**, *Marseille, France*.
- April 2013 **Ph.D. Seminary**, *Besançon, France*.

IT and languages

IT **Python, Maple, Matlab, Scilab, Fenics.**

Languages **French(mother tongue), English (C1 European level), German (C1 European level).**