

Thomas DUYCKAERTS

Curriculum Vitae

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Département de mathématiques
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Born December 14th, 1976 (Rouen, France)
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Last Name : Duyckaerts

First Name : Thomas

Position : (since September 2005) Assistant/Associate Professor (Maître de conférences) of mathematics at Cergy-Pontoise University.

RESEARCH INTERESTS

- High frequency analysis of linear wave and Schrödinger equations.
- Control and stability of linear partial differential equations.
- Nonlinear Schrödinger and Wave Equations.

EDUCATION

2004-2005 : Post-doctoral position, under the supervision of Enrique Zuazua, at the *Universidad Autónoma* of Madrid, Spain, supported by the european networks *Smart Systems* and *HYKE*.

2001-2004 : PhD Thesis “Étude haute fréquence de quelques problèmes singuliers d'évolution” (*High frequency analysis of a few singular evolution problems*) at Paris-Sud university, Orsay, France, under the supervision of Nicolas Burq. Defended on november 5, 2004.

1999-2000 : *Agrégation* (French teaching diploma) of Mathematics.

1998-1999 : Master of numerical analysis and partial differential equations at Orsay university. *Inégalité de Carleman avec termes au bord* under the supervision of Nicolas Burq.

1997-2001 : Student at the *École Normale Supérieure* in Paris.

PUBLICATIONS

- [1] **Dynamic of threshold solutions for energy-critical NLS** (2007) with Frank Merle, to be published in *Geometric and Functional Analysis*.
- [2] **Optimal decay rates of the solutions of hyperbolic-parabolic systems coupled by an interface.** *Asymptotic Analysis* 51 (1) (2007). 17–45.
- [3] **Inégalités de résolvante pour l'opérateur de Schrödinger avec potentiel multipolaire critique.** *Bulletin de la Société Mathématique de France*. 134 (2006), no. 2, 201–239.
- [4] **On the optimality of the observability inequalities for parabolic and hyperbolic systems with potentials** with Xu Zhang and Enrique Zuazua, to be published at *Annales de l'IHP - Analyse non-linéaire*.
- [5] **A critical, singular potential for the Schrödinger.** *Canadian Mathematical Bulletin*. 50 (2007) no 1, 35–47.

PREPRINTS

- [5] **Scattering for the non-radial 3D cubic nonlinear Schrödinger equation.** (2007) with Justin Holmer and Svetlana Roudenko.
- [6] **Weighted Strichartz estimates for radial Schrödinger equation on non-compact manifolds** (2007) with Valeria Banica.
- [7] **Dynamic of threshold solutions for energy-critical wave equation** (2007) with Frank Merle.

INVITED TALKS

- May 5, 2007 :** Partial Differential Equations Seminar of the *Ecole Normale Supérieure* (Paris). *Energy critical semilinear Schrödinger equation at the energy threshold*.
- March 9, 2007 :** Partial Differential Equations Seminar of Paris Nord University. *Energy critical semilinear Schrödinger equation at the energy threshold*.
- January 25, 2007 :** Seminar of Analysis, Evry University. *Optimality of an observability constant for some evolution equations with potential*.
- December 12, 2005 :** Seminar of Analysis, Cergy-Pontoise University. *Smoothing effect for Schrödinger equation with a singular multipolar potential*.
- October 20, 2005 :** Seminar of Numerical Analysis and Partial Differential Equations of Paris-Sud Orsay University. *Stabilization rate for an hyperbolic/parabolic coupled system*.
- March 29, 2005 :** Seminar of Partial Differential Equations of the *Ecole Normale Supérieure* (Paris). *Stabilization of the linear system of magnetoelasticity*.

March 24, 2005 : Numerical Analysis and Partial Differential Equations Seminar of *Laboratoire Paul Painlevé* (Lille 1 University, France). *Stabilization of the linear system of magnetoelasticity*.

November 23, 2004 : Conference Day “Dynamics and numerics of PDE” at the *Universidad Autónoma de Madrid*. *Schrödinger equation with a singular potential*.

March 2004 : Paris-Sud Orsay University Workshop “Partial Differential Equations” of Geneviève Raugel. *Smoothing effect for Schrödinger equation with a singular multipolar potential*.

January 2004 : Workshop of the CMAT at the *Ecole Polytechnique*. *Smoothing effect for Schrödinger equation with a singular multipolar potential*.

MEMBERSHIP

Since nov. 2006 : Member of the French Government ANR Grant *Ondes Non Lin* “Explosion, interaction and dispersion for nonlinear partial differential equations”. Responsible of the grant : Frank Merle.

Since nov. 2006 : Member of the French Government ANR Grant “Control of partial differential equations in fluid mechanics”. Responsible of the grant : Olivier Glass.

2004-2005 : Post-doctoral member of the European networks *Smart Systems* et and *HYKE*.

ACTIVITIES

Since oct. 2005 : In charge of the “Geometry, Partial Differential Equations and Mathematical Physics” Seminar at the University of Cergy-Pontoise, with Emmanuel Hebey and Vladimir Georgescu.

November 06, 2006 : Co-organizer with Clotilde Fermanian Kammerer of the conference day “Nonlinear Dispersive Partial Differential Equations” at Cergy-Pontoise University.

November 20, 2005 : Co-organizer with Frank Merle of the conference day “Qualitative properties of nonlinear waves”, at Cergy-Pontoise University.