

## TRINH TUAN PHONG

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### EDUCATION

2010-09/2015	<i>Ph.D. in Mathematics</i> LAGA, University of Paris 13, France Date of Ph.D. thesis defense: September 15th 2015
2009-2010	<i>Master 2 in Mathematics</i> LAGA, University of Paris 13, France
2008-2009	<i>Master 1 in Mathematics</i> International Master Program, Inst. of Mathematics, Hanoi, Vietnam
2004-2008	<i>B.S. in Mathematics</i> Hanoi National University of Education, Hanoi, Vietnam

### THESES/DISSERTATION

1. *Random and periodic operators in dimension 1: Decorrelation estimates in spectral statistics(10/2010-12/2012) and resonances(01/2013-2015)*  
Advisor: Prof. Frédéric Klopp
2. *Semicircle law on short scales and delocalization of eigenvectors for Wigner random matrices, according to an article of László Erdős, Benjamin Schlein and Horng-Tzer-Yau*  
M.A. thesis, Mathematics, 2010  
Advisor: Prof. Frédéric Klopp

### PUBLICATIONS

1. *Resonances for 1D half-line periodic operators: I. Generic case, 28 pages, 2015* (submitted)

**Abstract.** The present paper addresses questions on resonances for a 1D Schrödinger operator with truncated periodic potential. Precisely, we consider the half-line operator  $H^{\mathbb{N}} = -\Delta + V$  and  $H_L^{\mathbb{N}} = -\Delta + V\mathbb{1}_{[0,L]}$  acting on  $\ell^2(\mathbb{N})$  with Dirichlet boundary condition at 0 with  $L \in \mathbb{N}$ . We describe the resonances of  $H_L^{\mathbb{N}}$  near the boundary of the essential spectrum of  $H^{\mathbb{N}}$  as  $L \rightarrow +\infty$  in the generic case.

2. *Resonances for 1D half-line periodic operators: II. Special case, 27 pages, 2015* (submitted)

**Abstract.** The present paper is devoted to the study of resonances for a 1D Schrödinger operator with truncated periodic potential. Precisely, we consider the half-line operator  $H^{\mathbb{N}} = -\Delta + V$  and  $H_L^{\mathbb{N}} = -\Delta + V\mathbb{1}_{[0,L]}$  acting on  $\ell^2(\mathbb{N})$  with Dirichlet boundary condition at 0 with  $L \in \mathbb{N}$ . We describe the resonances of  $H_L^{\mathbb{N}}$  near the boundary of the essential spectrum of  $H^{\mathbb{N}}$  as  $L \rightarrow +\infty$  in a special situation.

3. *Decorrelation estimates for a 1D tight binding model in the localized regime*, Annales Henri Poincaré, March 2014, Volume 15, Issue 3, pp. 469-499

**Abstract.** In this article, we prove decorrelation estimates for the eigenvalues of a 1D discrete tight binding model near two distinct energies in the localized regime. Consequently, for any  $n \geq 2$ , the asymptotic independence for local level statistics near  $n$  distinct energies is obtained.

4. *Global attractor for a semilinear parabolic system*, (with C.T.Anh), Vietnam Journal of Mathematics 37:1 (2009) 49-66

**Abstract.** The aim of this paper is to prove the existence of a global attractor of the semigroup generated by the first initial boundary value problem for a semilinear parabolic system in the potential form in an arbitrary (bounded or unbounded) domain.

5. *Global attractor for a semilinear parabolic equation involving Grushin operator*, (with C.T.Anh, T.D.Ke, P.Q.Hung), Electron. J. Diff. Eqns., Vol. 2008(2008), No. 32, pp. 1-11

**Abstract.** The aim of this paper is to prove the existence of a global attractor for a semilinear degenerate parabolic equation involving the Grushin operator.

#### RECENT PRESENTATIONS

- 07.2014 Summer school on “PDEs and Applied Mathematics ”, VIASM, Hanoi, Vietnam, July 14-25, 2014
- 07.2013 Young seminar of the trimester “Variational and Spectral Methods in Quantum Mechanics ”, Inst. Henri Poincaré, July 3, 2013
- 05.2013 Partial Differential Equations Seminar, IRMAR, University of Rennes 1
- 06.2012 Conference on Disordered Quantum Systems, Inst. Henri Poincaré, Paris, June 18-22, 2012 (Poster)
- 04.2012 Seminar for Ph.D. students, Department of Mathematics, University of Paris 13, April 12, 2012

#### CONFERENCES

- 07.2014 Summer school on “PDEs and Applied Mathematics ”, VIASM, Hanoi, Vietnam, July 14-25, 2014
- 07.2013 Trimester “Variational and Spectral Methods in Quantum Mechanics ”, Inst. Henri Poincaré, July-September, 2013
- 05.2012 Mathématiques des systèmes quantiques désordonnés, IMJ, University of Paris 6 and University of Paris 13, May 28-30, 2012
- 03.2012 Arizona School of Analysis and Mathematical Physics, Tucson, Arizona, March 12-16, 2012
- 11.2011 Interactions EDPs/Probas : modèles probabilistes pour la simulation moléculaire, GdR Chant, University of Grenoble 1, November 23-25, 2011
- 04.2011 The conference of Semi-classical waves, University of Paris 13, April 5-7, 2011
- 03.2011 Challenges in Aperiodic Media, University of Lyon 1, 28 February-2 March, 2011

#### TEACHING EXPERIENCE

- 2014-2015 One-year-teaching position (ATER), University of Paris Dauphine
- 2013-2014 One-year-teaching position (ATER), University of Paris 13

2011-2013	Teaching assistant, University of Paris 13
2008-2009	Teaching assistant, National University of Vietnam, Vietnam

#### AWARDS AND HONORS

2007	First prize, National Student Olympiad in Mathematical Analysis
2005	Vallet scholarship, Rencontres du Vietnam organisation
2003	First prize, the Mathematical Olympiad for high school students in Hanoi
2003	Vallet scholarship, Rencontres du Vietnam organisation

#### SKILLS/INTERESTS

English	Professional working proficiency
French	Professional working proficiency
Vietnamese	Native language
Computers	C++, Latex, Maple, Ms Words, Internet
Leisure activities	Music, badminton, yoga (elementary level), reading