Danela Oana IVANOVICI

Laboratoire Jacques-Louis Lions, Sorbonne University
4 place de Jussieu, 75005 Paris France
Office : 15-16-102
Email : Oana.Ivanovici@math.cnrs.fr
Webpage : anadel.math.cnrs.fr

Nationality : French and Romanian
Married, one child (born in November 2011)

Curriculum Vitæ

Career

Education

2021 HDR (*Habilitation à diriger les recherches*), Sorbonne University

2006-2009 PhD in Mathematics, University Paris XI, Orsay (advisor Nicolas Burq)

2003-2006 Student at the Ecole Normale Supérieure, Paris, France ; contest : SI-Sciences/2003
Master in mathematics at ENS and Paris XI (rank 1), Graduate at ENS and Paris VI

2000-2003 Undergraduate student at the University of Bucharest and ENS IMAR, Romania

Professional positions

Permanent

10.2022 – CNRS senior researcher, Laboratoire Jacques-Louis Lions, Sorbonne University

2019-2022 CNRS junior researcher, Laboratoire Jacques-Louis Lions, Sorbonne University

2010-2019 CNRS junior researcher, Laboratoire J.A. Dieudonné, University Côte d'Azur

Temporary

09.2022 – Part-time Professor, Ecole Polytechnique, Palaiseau

05-07.2016 Visiting Member, Institut des Hautes Etudes Scientifiques, Bures-sur-Yvette

2009-2010 J.J.Sylvester Assistant Professor at Johns Hopkins University, Baltimore, MD, USA

2006 - 2009 Allocataire Monitrice Normalienne, University Paris XI, Orsay

Research interests

I am concerned with localization properties of solutions to hyperbolic PDEs, especially problems with a geometric component : how do boundaries and heterogeneous media influence spreading and concentration of solutions. While my first focus is on the wave and the Schrödinger equations on manifolds with boundary, strong connections exist with phase space localization for (clusters of) eigenfunctions, which are of independent interest. Motivations come from nonlinear dispersive models (in physically relevant settings), properties of eigenfunctions in quantum chaos (related to both physics of optic fiber design as well as number theoretic questions), or harmonic analysis on manifolds.

Scientific boards and steering committees

National :

2016 - 2020 Elected member of the National Committee for Scientific Research CoNRS (section 41). The CoNRS sections serve as hiring and evaluating committees for CNRS positions.

2018 – Member of several evaluation committees of the HCERES (Haut Conseil de l'Evaluation de la Recherche et de l'Enseignement Supérieur) ; (LAGA, Paris 13 (2018) ; LaMME, Evry, CMAP, Polytechnique (2019), LMRS Rouen (2021)) ;

2018 – Associate member of the INSMI's ERC committee. The goal is to help and encourage applicants to ERC grants.

Local :

2020 – Member of the Jacques-Louis Lions Laboratory board

2018 - 2019 Member of the Commitee of the Advanced Research Program of UCA.

2014 - 2018 Elected member of the UFR Sciences Council of the University of Nice.

2012 - 2018 Elected member of the permanent committee of humain ressources (CPRH) concerning the sections 25-26-60 of the CNU, University of Nice. The CPRH is in charge of overseeing hirings (professors-researchers, assistant-professors, research-teaching temporary positions, invited professors, etc) ;

Hiring Committees :

2015 - 2016 Member of hiring committees on a *Maitre de Conférence* Position (2016, Montpellier and Strasbourg ; 2015 Nice) ;

Scientific reviewing and refereeing :

2015, 2019 Referee for the ANR

2009 – Reviewer for international journals : 3-4 papers per year (Analysis PDE, Astérisque, Comm.PDE, J. of the Amer. Math.Soc., AMJ, Math. Ann. between others)

Diffusion :

20.02.2015 Member of the jury of the BD contest "Bulles au carré" (Images des Maths).

Editorial board :

06.2021 – **Advances in Discrete and Continuous Models**, Editor (PDE section).

Publications

Publications (available on ORCID , arXiv)

Dispersive estimates for the wave equation outside a cylinder, with F.Iandoli, preprint 2022

Dispersive estimates for the semi-classical Schrödinger equation in a strictly convex domain and applications, accepted in Annales of IHP, 2022

Long time dispersive estimates for the wave and the Klein-Gordon equations inside the Friedlander domain, Discrete and Continuous Dynamical Systems, 41(12), 5707-5742, 2021

Dispersion estimates for the wave equation inside strictly convex domains II: the general case ; with Gilles Lebeau, Fabrice Planchon and Richard Lascar ; submitted 2021 arxiv.org/pdf/1605.08800.

Dispersion estimates for wave and Schrödinger equations outside a ball and counterexamples ; with Gilles Lebeau ; preprint,

Strichartz estimates for the wave equation on a 2D model convex domain ; with Gilles Lebeau and Fabrice Planchon, Journal of Differential Equations, vol. 300, p. 830–880, 2021

New counterexamples to Strichartz estimates for the wave equation on a 2d model convex domain ; with Gilles Lebeau and Fabrice Planchon, Journal de l'Ecole Polytechnique - Mathématiques, 8 :1133-1157, 2021 .

Square function and heat flow estimates on domains, with Fabrice Planchon, Comm. PDE, vol.42 (2017), issue 9, pages 1447-1466.

Dispersion estimates for wave and Schrödinger equations outside strictly convex obstacles and counterexamples ; with Gilles Lebeau ; Comptes Rendus Mathématiques, 355 (2017), pages 774-779.

Dispersion estimates for the wave equation inside strictly convex domains I: the Friedlander model case ; with Gilles Lebeau and Fabrice Planchon ; Annals of Mathematics, vol. 180, issue 1(2014), pages 323-380 .

Counterexamples to the Strichartz estimates for the wave equation in general domains II. Journal of the European Math. Soc. vol.14, issue 5, (2012), pages 1357-1388

On the energy-critical Schrödinger equation in 3D non-trapping domains, with Fabrice Planchon. Annales de l'IHP Analyse Non Linéaire vol. 27, issue 5 (2010), pages 1153-1177.

On the Schrödinger equation outside strictly convex obstacles. Analysis and PDE vol. 3, no.3. (2010), pages 261-293.

Counterexamples to Strichartz estimates for the wave equation in domains. Mathematische Annalen vol. 347, issue 3 (2010), page 627-672.
`http://www.springerlink.com/content/f8242848k8360107`

Precise smoothing effect in the exterior of balls. Asymptotic Analysis, vol. 53, no.4 (2007), pages 189-208.

Analyse des effets géométriques sur les équations dispersives, HDR thesis (2021), Sorbonne Université.

Équations dispersives et problèmes aux limites. Ph.D Thesis (2009) ; Université Paris Sud, Faculté des Sciences d'Orsay, Essonne ; 227 pages.

Book chapters

Estimations de Strichartz pour l'équation des ondes dans un domaine strictement convexe : le cas général, Publications de la SMF, Séminaires et Congrès, 30 (2017), pages 69-79.

This is a chapter of the book "PDE's, Dispersion, Scattering Theory and Control Theory", edited by K.Ammari and G.Lebeau.

Proceedings

Estimations de Strichartz pour les ondes dans le modèle de Friedlander en dimension 3.
Séminaire Laurent Schwartz (XEDP) 2013-2014.

Strichartz estimates for the wave equation in 3D strictly convex domains.
Oberwolfach Report 2013, "Nonlinear Waves and Dispersive Equations".

Dispersive and Strichartz estimates for the wave equation inside a strictly convex domain.
Proceedings of the "Journées EDP", "Journées EDP" Port d'Albert 2010 ; 20 pages.

Dispersive estimates for the wave equation in two dimensional strictly convex domains.
Oberwolfach Report No. 41/ 2010, "Nonlinear Waves and Dispersive Equations".

Graduate students

Ph.D. students

2014-2017 PhD Thesis of **Len Meas**, LJAD, co-direction with Gilles Lebeau (50% each) ;

Graduate students committees

09.2018 Member of the Defense Committee of Davis Lafontaine, LJAD ;
06.2018 Member of the Defense Committee of Chenmin Sun, LJAD ;

Mentoring of young researchers

2021-2023 Post-doctoral fellow (funded by the l'ERC) **Jingrui Niu**, LJLL ;
2018-2022 Post-doctoral fellow (funded by the l'ERC) **Felice Iandoli**, LJLL ;
2018 Post-doctoral fellow (funded by the ANR) : **Lucrezia Cossetti**, LJAD ;
2017-2018 Post-doctoral fellow (funded by the ANR) : **Jiqiang Zheng**, LJAD ;

Master students

02.-06.2021 superviser of a TER (M1 Thesis) at Sorbonne Université ;
03-04.2018 superviser of a Master 2 Thesis, LJAD ;
05-06.2014 superviser of a Master 1 Thesis of a student of ENS Rennes .

Networks and Grants

Current funding

2018-2024 PI of the ERC starting grant ANADEL (1,3 M euros over 5 years ; the project has been extended for one year due to Covid 19 pandemic)

Previous funding

2017-2018 Principal Investigator of the grant "Analyse des équations dispersives", funded by French ANR (120 000 euros over 18 months ; ends 06/2018)

2013-2018 Permanent member of the ERC SCAPDE project (coordinated by Gilles Lebeau)

2012-2016 Member of the ANR GEODISP grant - "Geometry and dispersion for nonlinear waves" (coordinated by Fabrice Planchon)

2008-2011 Member of the ANR "EDP - Dispersives" grant, coordinated by Nicolas Burq

Track Record

Organisation of scientific meetings :

20-26. 02.2022 The workshop Dynamics of hamiltonian PDEs, La Thuile, Italie (ERC)

17-21. 06.2019 Co-organiser of the conference Dispersive Waves and related topics in honor of Gilles Lebeau, Bergen, Norway (ERC ANADEL)

11-13. 06.2019 Co-organiser of the colloquium Quantum Resonances and related Topics" in honor of André Martinez, IHP, Paris (ERC ANADEL)

11-15. 02.2019 Co-organiser of the workshop Dynamics of hamiltonian PDEs, La Thuile, Italie (ERC ANADEL)

20-23. 10.2018 Co-organiser of GE2MI conference on PDE's, Control Theory and Related Topics, Inatel Foz Do Arelho, Portugal (ERC ANADEL)

05-09. 02.2018 Co-organiser of the workshop Dynamics of hamiltonian PDEs, La Thuile, Italie (ANR ANADEL)

23-27. 10.2017 Co-organiser of the workshop Propagation of Singularities in Dispersive PDEs, WPI, Viena (ANR ANADEL)

20-22. 01.2016 Co-organiser of the conference Seventh Itinerant Meeting in PDEs, Nice

21-24. 10.2013 Co-organiser of the conference Blow-up, Dispersion and Solitons, LJAD Nice

Organisation of seminars :

09.2013-12.2015	Organiser of the seminar : Géométrie et Analyse of the team "*Géométrie, Analyse et Systèmes dynamiques*", LJAD Nice
2009-2010	Organiser of the seminar : "*Analysis and PDE*" of the Mathematics Department of the Johns Hopkins University .

Invitations abroad :

2022	two weeks at Schrödinger Institut, Viena, Austria ;
2019	two weeks at MSRI, Berkeley, CA, US ;
2018	one week at BICMR, Beijing, China ;
2018	two weeks at Centro de Giorgi and Université de Pise, Italy ;
2017	one week at Wolfang Pauli Institute, Viena, Austria ;
2015	two weeks at MSRI, Berkeley, US ;
2015	one week at Centro de Giorgi and Université de Pise, Italy ;
2014	one week at Wolfang Pauli Institute, Viena, Austria ;
2010	one week at Northwestern University, 5 days at NYU ;
2009	one week at Hausdorff Center for Mathematics, Bonn, Germany ;
2008	two weeks at MSRI, Berkeley ; one month at l'ETH Zurich, Switzerland .

Plenary lectures at international conferences and workshops :

07.2023	"Spectral Theory and Mathematical Relativity" summer program, Schrödinger Institute, Viena, Austria
05.2023	"Advances in nonlinear analysis and nonlinear waves : conference in honor of Frank Merle", IHES, France
03.2023	Workshop "Women in nonlinear dispersive equations", Banff, Canada (online)
09.2022	Workshop "At the interface between Semiclassical Analysis and Numerical Analysis of Wave Scattering Problems", Oberwolfach, Germany
09.2022	"First School and Workshop", Pisa, Italy
09.2021	Workshop "Hamiltonian systems and dispersive PDE's", Sirius Math. Center, Russia (postponed)
07.2021	Workshop "Semiclassical analysis meets numerical analysis", University of Bath, UK (postponed)
06.2021	Minisymposium on microlocal and time-frequency analysis, 8th European Congress of Mathematics, Portoroz, Slovenia (online)
10.2019	Conference "Recent Developments in Microlocal Analysis" MSRI, Berkeley, CA
07.2019	"The Ninth Congress of Romanian Mathematicians", Galati, Romania
06.2019	Conference "Nonlinear Dispersive Waves, Solitons and related topics" Mittag-Leffler, Djursholm, Sweden
06.2019	Conference "Journées équations aux dérivées partielles" Obernai, France
11.2018	Workshop "Nonlinear Dispersive PDE's", Rome Sapienza, Italy
09.2018	Conference "Linear and Nonlinear Wave Phenomena : Stability, Propagation of Regularity and Turbulence" Cortona, Tuscany
05.2018	Tianyuan Advanced Seminar on Harmonic Analysis and PDE, Beijing, China
03.2018	Workshop "Atelier d'Analyse Harmonique 2018", Paul Langevin Center, Aussois
03.2018	Workshop on "Microlocal Analysis and its Applications in Spectral Theory, Dynamical Systems, Inverse Problems and PDE", Murramarang Resort, Australia
02.2018	Workshop "Dynamics of hamiltonian PDE", La Thuile, Italy
10.2017	Workshop "Propagation of Singularities in Dispersive PDEs", WPI, Vienna, Austria
10.2017	Workshop "Microlocal analysis, resonances and control theory in PDEs", Italy
06.2017	Conference "Dynamical Geometrical Analysis" in Orsay
06.2017	Workshop "Nonlinear Waves and Dispersive Equations", Oberwolfach, Germany
12.2016	Workshop "Nonlinear Dispersive equations in Valdivia", Valvidia, Chile
09.2016	Workshop "Recent progress on the qualitative properties of nonlinear dispersive waves and systems", Vienna, Austria
06.2016	Workshop "Nonlinear evolution problems", Oberwolfach, Germany
05.2016	International Conference during the semester "Nonlinear Waves", IHES France
04.2016	Conference "Evolution equations on singular spaces", CIRM, France
12.2015	Conference "Semiclassical Analysis and Non-self-adjoint Operators", Marseille
10.2015	Workshop "New challenges in PDE : Deterministic dynamics and randomness in high and infinite dimensional systems", MSRI, Berkeley, California, USA
08.2014	The French-Roumain Colloquium in Applied Mathematics, Lyon, France.
07.2014	Conference "Blow up and dispersion in Nonlinear PDEs", WPI Vienna, Austria
06.2014	Conference "Microlocal Analysis and Applications", University of Nice, France .
12.2013	Conference "Analyse Microlocale" Paris 6 University, France
09.2013	Workshop "Nonlinear Wave Equations", Lisbonne, Portugal
09.2013	Anniversary Conference of the Faculty of Science, Univ. of Bucarest, Romania.

Plenary lectures at international conferences and workshops :

09.2013	Conference : "Nonlinear Waves and Dispersive Equations", Oberwolfach, Germany.
06.2013	Conference "PDE's, scattering theory and control theory", Monastir, Tunisia.
05.2013	Workshop "Nonhomogeneous boundary-value problems for nonlinear waves", AIM, Palo Alto, California, US.
11.2012	Workshop "Blow-up, dispersion and scattering", Rome, Italy.
09.2012	Workshop "Régimes asymptotiques pour l'équation de Schrödinger non linéaire", CIRM, Marseille, France.
09.2012	French - Vietnamien Congress SMF-VSM , PDE session, Hué, Vietnam.
06.2011	Workshop IHP, Paris.
02.2011	Winter School "Dynamics and PDE", Saint Etienne de Tinée, France.
02.2011	The 100 anniversary of the Royal Spanish Mathematical Society, Avila, Spain.
09.2010	Conference : "Nonlinear Waves and Dispersive Equations", Oberwolfach, Germany.
07.2010	Summer School "Singularités dans les équations aux dérivées partielles", IHES, Paris.
06.2010	Conference "Journées EDP", Port d'Albret, France.
05.2010	Beijing Research Center, China, conference in harmonic analysis and PDE .

Talks at universities :

15.11.2021	"Journées du Laboratoire Jacques-Louis Lions", Paris
21.12.2018	Seminar Laboratoire Jacques-Louis Lions, Paris
03.12.2018	Colloquium, LJAD, Nice
12.10.2018	PDE Seminar, LAGA Paris 13 University
13.03.2017	Seminar "Problèmes spectraux en physique mathématique", IHP, Paris
14.04.2016	Seminar, Laboratory of Condensed Matter Physics (LPMC), Nice.
23.02.2014	"Geometric Analysis and PDE" seminar, Univ. of Cambridge, England.
15.10.2013	X-EDP Seminar, Ecole Polytechnique, Paris.
22.11.2012	"Géométrie, Analyse et Dynamique" Seminar, Univ. de Nice Sophia-Antipolis.
24.09.2012	"Analyse Algébrique" Seminar , Univ. Paris 6.
22.11.2010	Analysis Seminar, Northwestern University, IL.
08.04.2010	PDE/Applied Math Seminar, University of Maryland (College Park), MD.
19.10.2009	Princeton Analysis Seminar, Princeton University, NJ.
05.10.2009	JHU Analysis Seminar, Johns Hopkins University, Baltimore, MD.
02.02.2009	"Problèmes Spectraux en Physique Mathématique" Seminar, IHP.
25.09.2008	"Numerical Analysis and PDE" Seminar, Paris Sud Univ., Orsay.
23.03.2008	Seminar of Mathematical Physics and PDE. University Paris XIII, Villetaneuse.
27.06.2007	PDE Seminar, University of Osaka, Japan.
20.06.2007	PDE Seminar, University of Kyoto, Japan.

Note : Events have been postponed and canceled worldwide because of the coronavirus pandemic. Below one may find a list of conferences/workshops I was supposed to attend in 2020.

07.2020	"Semiclassical analysis meets numerical analysis", Univ. Bath, UK (canceled)
06.2020	Workshop "Asymptotic Behaviour of Nonlinear Wave Equations", Bielefeld University, Germany (canceled)
06.2020	Conférence en l'honneur des 60 ans de Chris Sogge, JHU, MD (postponed)
03.2020	"Nonlinear PDE Workshop", Cambridge (canceled)

Invitations abroad :

2019	two weeks at MSRI, Berkeley, CA, US ;
2018	one week at BICMR, Beijing, China ;
2018	two weeks at Centro de Giorgi and University of Pisa, Italy ;
2017	one week at Wolfang Pauli Institute, Viena, Austria ;
2015	two weeks at MSRI, Berkeley, CA, US ;
2015	one week at Centro de Giorgi and University of Pisa, Italy ;
2014	one week at Wolfang Pauli Institute, Viena, Austria ;
2010	one week at Northwestern University, five days at NYU.
2009	one week at Hausdorff Center for Mathematics, Bonn, Germany.
2008	two weeks at MSRI, Berkeley ; one month at ETH Institute Zurich, Switzerland.
2007	two weeks at Kyoto University - projet JSPS-CNRS.
2002	one week at Stefan Banach International Mathematics Institute, Varsovie, Pologne.

Teaching activities

2022 - ...	**Teaching at Ecole Polytechnique, Palaiseau**
2022 - 2023	Course on Measure and integration MAA301 (12*2H)/ **Instructor** ;
2022 - 2023	Distributions, analyse de Fourier et EDP (10*4H)/**Teaching Assistant** ;
2011-2016	**Teaching (substitute) at the University of Nice, France**
2012-2013	Master course in PDE : *Wave equation in domains with boundary* (15H)/ **Instructor** ;
2015-2016	Master course in Analysis (36H)/ **Teaching Assistant** ;
2011-2015	Undergraduate (L3) : Integration and Probabilities (40H/year)/**Teaching Assistant** ;
2011-2015	Preparation for admission exams in Superior Schools (20H/year)/ **Instructor** ;
2009-2010	**Teaching at Johns Hopkins University**
Fall 2009	Master Course : Math. 726 Topics in Analysis (30H)/ **Instructor** ;
Fall 2010	Undergraduate : Math. 201 Linear Algebra (50H -180 students)/**Instructor** ;
Spring 2010	Math.302 Differential Equations with Applications (70H)/ **Instructor** ;
Spring 2010	Math. 405 Introduction to Real Analysis (30H)/**Instructor**.
2006-2009	**Teaching at Paris XI University, Orsay**
2006-2009	Math.151 Calculus (33H/year)/ **Teaching Assistant**
2006-2009	Math.152 Advanced Calculus (33H/year)/ **Instructor**.