

# CURRICULUM VITAE

## Dr. Agissilaos (Agis) Athanassoulis

### CONTACT INFORMATION

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### PERSONAL INFORMATION

Name: Agissilaos (Agis) Athanassoulis                      Languages: Greek, English, French

### RESEARCH INTERESTS

Semiclassical and Microlocal Analysis, Schrödinger equations, Wigner equations, Stochastic nonlinear waves

### EDUCATION

June 2007:    PhD in Applied & Computational Mathematics, Princeton University  
                  Thesis Title: “Smoothed Wigner Transforms and Homogenization of Wave Propagation”  
                  Advisor: Professor Ingrid Daubechies  
June 2005:    Master in Applied and Computational Mathematics, Princeton University  
June 2003:    Bachelor’s Degree in Mathematics, University of Athens

### EMPLOYMENT

January 2017 – present	Lecturer at the Department of Mathematics, University of Dundee
October 2013 – December 2016	Lecturer at the Department of Mathematics, University of Leicester
November 2012 – September 2013	Postdoctoral Associate at ACMAC and the University of Crete
October 2011 – October 2012	Mandatory military service
March 2011 – September 2011	Postdoc at the Department of Applied Mathematics and Theoretical Physics, University of Cambridge
March 2010 – February 2011	Postdoc at the Centre de Mathématiques Laurent Schwartz, École polytechnique, Palaiseau
November 2008 – February 2010	Postdoc at the Département de Mathématiques et Applications, École Normale Supérieure, Paris
November 2007 – October 2008	ERCIM “Alain Bensoussan” fellow, visitor at the Département de Mathématiques et Applications, École Normale Supérieure, Paris
July 2007 – October 2007	Postdoc at the Wolfgang Pauli Institute, Vienna

### PERSONAL GRANTS, AWARDS AND FELLOWSHIPS

November 2007 – October 2008	ERCIM “Alain Bensoussan” Fellow
September 2003 – June 2007	Stanley J. Seeger Fellow
October 2004 – September 2005	Alexander S. Onassis Foundation Fellow
September 2000 – June 2002	Greek State Foundation for Scholarships Fellow

**PEER REVIEWED JOURNAL PUBLICATIONS**

1. ‘*Semiclassical regularization of Vlasov equations and wavepackets for nonlinear Schrödinger equations*’, **Nonlinearity** 31-3 (2018) pp. 1045-1072
2. ‘*Localized instabilities of the Wigner equation as a model for the emergence of Rogue Waves*’, with G. Athanassoulis & T. Sapsis, **Journal of Ocean Engineering and Marine Energy** 3-4 (2017) pp. 353-372
3. ‘*Regularized semiclassical limits: linear flows with infinite Lyapunov exponents*’, with Th. Katsaounis & I. Kyza, **Communications in Mathematical Sciences** 14-7 (2016) pp. 1821-1858
4. ‘*Numerical simulations of X-rays Free Electron Lasers (XFEL)*’, with P. Antonelli, Z. Huang & P. Markowich, **Multiscale Modeling and Simulation (SIAM)**, 12-4 (2014) pp. 1607-1621
5. ‘*On the XFEL Schrödinger equation: highly oscillatory magnetic potentials and time averaging*’, with P. Antonelli, H. Hajaiej & P. Markowich, **Archive for Rational Mechanics and Analysis**, 211-3 (2014) pp. 711-732
6. ‘*On the selection of the classical limit for potentials with BV derivatives*’, with T. Paul, **Journal of Dynamics and Differential Equations**, 25-1 (2013) pp. 33-47
7. ‘*Strong and weak semiclassical limits for some rough Hamiltonians*’, with T. Paul, **Mathematical Models & Methods In Applied Sciences**, 22-12 (2012) 1250038
8. ‘*Semiclassical Propagation of Coherent States for the Hartree Equation*’, with T. Paul, F. Pezzotti & M. Pulvirenti, **Annales Henri Poincaré**, 12-8 (2011) pp. 1613-1634
9. ‘*Strong phase-space semiclassical asymptotics*’, with T. Paul, **SIAM Journal on Mathematical Analysis**, 43-5 (2011) pp. 2116-2149
10. ‘*Strong Semiclassical Approximation of Wigner Functions for the Hartree Dynamics*’, with T. Paul, F. Pezzotti & M. Pulvirenti, **Rendiconti Lincei - Matematica e Applicazioni**, 22-4 (2011) pp. 525-552
11. ‘*Smoothed affine Wigner transform*’, with T. Paul, **Applied and Computational Harmonic Analysis**, 28-3 (2010) pp. 313-319
12. ‘*Coarse-scale representations and smoothed Wigner transforms*’, with N. J. Mauser & T. Paul, **Journal de Mathématiques Pures et Appliquées**, 91-3 (2009) pp. 296-338
13. ‘*Exact equations for smoothed Wigner transforms and homogenization of wave propagation*’, **Applied and Computational Harmonic Analysis**, 24 (2008) pp. 378 - 392
14. ‘*Smoothed Wigner transforms in the numerical simulation of semiclassical (high-frequency) wave propagation*’, **Discrete and Continuous Dynamical Systems - Series A** S2 2007 (special issue)

**INVITED TALKS – CONFERENCES & WORKSHOPS** (totally or partially funded)

Numerics for Cosmology – The Schrödinger method, Wolfgang Pauli Institute, May 2018

Waves in Fluids, University of Dundee, September 2017

The Fifth Scottish PDE Colloquium, University of St Andrews, June 2017

11<sup>th</sup> AIMS Conference on Dynamical Systems, Differential Equations and Applications, “Dispersive Effects in Nonlinear PDEs” Special Session, Orlando FL, July 2016

The Fourth Scottish PDE Colloquium, University of Dundee, June 2016

SIAM Conference on Nonlinear Waves and Coherent Structures, “Large Time Behavior in Schrödinger Equations from Different Perspectives” Minisymposium, Cambridge, August 2014

The Second Scottish PDE Colloquium, ICMS, Edinburgh, May 2014

British Computational PDEs Colloquium: New Trends, ICMS, Edinburgh, January 2014

SMAW2012, ACMAC, Heraklion, Greece, June 2012

FACM 2011, New Jersey Institute of Technology, NJ, June 2011

Kinetic Description of Multiscale Phenomena, University of Wisconsin-Madison, WI, May 2011

DEASE meeting, Heraklion, Greece, May 2009

Applied Analysis and Fast Computation in Phase-Space II, WPI, Vienna, Austria, November 2008

Transformée en ondelettes continues et ondelette de Morlet, 1978-2008 : Colloque international en l'honneur de Jean Morlet, CIRM, Marseille, France, October 2008

Applied Analysis and Fast Computation in Phase-Space I, WPI, Vienna, Austria, September 2008

#### **INVITED TALKS – SEMINARS**

Applied and Computational Mathematics Seminar, School of Mathematics, University of Edinburgh, February 2018

PDE Seminar, Department of Mathematics and Statistics, Reading, October 2017

Mathematics Seminar, School of Applied Mathematical and Physical Sciences, NTUA, June 2017

Mathematics Seminar, University of St Andrews, January 2017

Mathematics Seminar, University of Dundee, September 2016

Applied Mathematics & Mathematical Physics Seminar, Department of Mathematics, Imperial College London, February 2015

Scientific Computing Seminar, Department of Applied Mathematics, Brown University, September 2014

Sand Lab Seminar, Department of Mechanical Engineering, MIT, September 2014

Applied and Computational Mathematics Seminar, Department of Mathematics, University of Wisconsin – Madison, September 2014

PDE Seminar, Department of Mathematics, University of Athens, May 2014

Mathematical Physics Seminar, Dipartimento di Matematica “G. Castelnuovo”, Università di Roma “La Sapienza”, December 2013

Mathematics Seminar, University of Dundee, July 2013

Applied and Numerical Analysis Seminar, DAM, University of Crete, Greece, December 2012

Séminaire Problèmes Spectraux en Physique Mathématique, IHP, Paris, April 2011

Séminaire X-EDP, CMLS, École polytechnique, Palaiseau, France, February 2010

Séminaire Laboratoire Jacques-Louis Lions, Université Pierre et Marie Curie, Paris, France, June 2008

Groupe de Travail “Analyse Non Linéaire”, Université Pierre et Marie Curie - École Normale Supérieure, Paris, France, April 2008

#### **CONTRIBUTED PRESENTATIONS**

2nd IMA Conference on Nonlinearity and Coherent Structures, Norwich, June 2017

Quantum Structures 2016, Leicester, July 2016

Days on Diffraction, St. Petersburg, Russia, May 2015

SET for Britain final, Westminster, March 2015

NLS: Theory and Applications, ACMAC, Heraklion, Greece, May 2013

HYP 2010, Beijing, China, June 2010

DSPDEs’10, Barcelona, Spain, May 2010

HYP 2008, University of Maryland, College Park, MD, June 2008

Days on Diffraction, St. Petersburg, Russia, May 2008

12th Panhellenic Analysis Conference, Athens, Greece, May 2008

Classical and Modern Harmonic Analysis, Edinburgh, UK, April 2008

Trends in Harmonic Analysis, Strobl, Austria, June 2007

Frontiers in Applied and Computational Mathematics, NJIT, NJ, May 2007

5th International Conference on Differential Equations and Dynamical Systems, Edinburg, TX, December 2006

#### **ORGANISATION OF SEMINARS AND WORKSHOPS**

“[Scottish Numerical Methods Network 2018](#)”, jointly with [B. Goddard](#) and [G. Barrenechea](#), 2017-18

[Mathematics Seminar at the University of Dundee](#). 2017-present

[Minisymposium “Waves in Fluids”](#) at the [British Applied Mathematics Colloquium 2018](#) with [M. Carr](#), March 2018

“[Schrödinger Equations: Asymptotics, Integrability and Beyond](#)” [LMS Network](#), jointly with [R. Schubert](#) and [G. El](#), 2016-17.

[Applied Mathematics Seminar at the University of Leicester](#), 2015-2016.

“Applied Analysis and Fast Computation in Phase-Space” [Session I](#) and [Session II](#), Wolfgang Pauli Institute, Vienna, Fall 2008.

## **SERVICE**

I have been a referee for several journals, including: SIAM Journal on Mathematical Analysis, SIAM Journal on Applied Mathematics, Multiscale Modeling and Simulation, Nonlinearity, Communications in Mathematical Sciences, Communications in Computational Physics and Journal of Mathematical Physics.

I am also a reviewer for Zentralblatt MATH.

## **PROFESSIONAL SOCIETIES MEMBERSHIP**

I am a member of the Edinburgh Mathematical Society, of the London Mathematical Society and of the Institute of Mathematics and its Applications.

## **TEACHING**

I am an Associate Fellow of the [Higher Education Academy](#).

### **In the University of Dundee (UK):**

2nd year Calculus (MA22001); 3rd year Ordinary Differential Equations (MA31002); graduate Stochastic Processes (MA51005).

### **In the University of Leicester (UK):**

1st year Linear Algebra; graduate Numerical Analysis ([MAGIC066](#)).

### **In the University of Crete (Greece):**

3rd year Numerical Methods for Ordinary Differential Equations.

### **In Princeton University (USA):**

During my graduate studies in Princeton I was a Teaching Assistant in several courses (Calculus for engineering students, for Prof. Ingrid Daubechies; Game Theory, for Prof. Hale Trotter; Introduction to Applied Mathematics, for Prof. Ingrid Daubechies).

## **OUTREACH**

In March 2015 I was selected to present my work at the SET for Britain Final, in the House of Commons.

In September 2017 I presented the mathematics behind PageRank to high-school students in Dundee, in the context of Maths Week Scotland.