Olivier LAFITTE
Full Professor in Paris 13th, University since September 1st, 2001
born July 1st, 1965 in Talence, F-33
Married, two children
Private adress: 13, rue de Trevise F-75009 Paris

1 Books

[0]**The wave diffracted by a wedge with mixed boundary conditions**
Mémoire de la Société Mathématique de France Nelle Série, 88 (2002)

2 List of publications

In the period 2011-2016

[35]**Une solution explicite monodimensionnelle d'un modèle simplifié de couplage stationnaire thermohydraylique-neutronique.** S. Dellacherie, O.Lafitte Ann. Math. Québec DOI 10.1007/s40316-016-0073-7

[34]**Block-diagonalization of ODEs in the semi-classical limit and C^ω versus C^∞ stationary phase** Olivier Lafitte, Mark Williams and Kevin Zumbrun: SIAM J. Math. Anal 48 (3) pp1773-1797.

[33]**Solutions to the cold plasma model at resonances.** Bruno Despres, Lise-Marie Imbert-Gerard and Olivier Lafitte, to appear in Journal de l'Ecole Polytechnique, 2015 https://hal.archives-ouvertes.fr/hal-01097364

[32]**A simple monodimensional model coupling an enthalpy transport equation and a neutron dffusion equation** Stephane Dellacherie, Erell Jamelot, Olivier Lafitte: Applied Maths Letters 62 (2016) 35-41.

High frequency analysis of multidimensional ZND detonations. Olivier Lafitte, Mark Williams, Kevin Zumbrun SIAM J. Math. Anal., 47(3), 1800-1878.

[31]**Mechanical stress related to brain atrophy in Alzheimer's disease.** Marcel Levy Noriega et al, Journal of Alzheimer and Dementia DOI: http://dx.doi.org/10.1016/j.jalz.2015.03.005Published online: June 15 2015. Featured article: Jan 2016.

[30]**Numerical Eulerian method for linearized gas dynamics in the high frequency regime** Youness Noumir . Francois Dubois . Olivier Lafitte Numerische Mathematik Numer. Math. (2014) 127:641-683

[29] **Theoretical study of an abstract bubble vibration model.** Yohan Penel, Stéphane Dellacherie, Olivier Lafitte. Zeitschrift fur Analysis

und ihre Anwendungen Journal for Analysis and its Applications Volume 32, Issue 1, 2013, pp. 19-36

[28] **Study of a low mach number nuclear core model for single-phase flows** M. Bernard et al, ESAIM: PROCEEDINGS, December 2012, Vol. 38, p. 118-134

[27] **Simultaneous study of the diffraction by a 2D-convex obstacle through boundary layer method and microlocal analysis** Daniel Bouche and Olivier Lafitte Asymptotic Analysis 79 (2012) 347-378

[26] **The Erpenbeck high frequency instability theorem for Zeldovitch-von Neumann-Doring detonations**: O. Lafitte, M. Williams, K. Zumbrun Arch. Ration. Mech. Anal. 204, No. 1, 141-187 (2012)

3 Publications before 2011

[25] **Existence and stability of viscous shock profiles for 2-D isentropic MHD with infinite electrical resistivity.** Barker, Blake; Lafitte, Olivier; Zumbrun, Kevin Acta Math. Sci. Ser. B Engl. Ed. 30 (2010), no. 2,

[24] **Theoretical and numerical study of a thermal convection problem with temperature-dependent viscosity in an infinite layer** F. Pla, H. Herrero and O. Lafitte, Physica D 239 (6) 1108-1119, 2010.

[23] **Stability of isentropic Navier-Stokes shocks in the high-Mach number limit.** Humpherys, Jeffrey; Lafitte, Olivier; Zumbrun, Kevin Comm. Math. Phys. 293 (2010), no. 1,1-36 (2010)

[22] **Stability of isentropic Navier-Stokes shocks** Barker, Blake; Humpherys, Jeffrey; Lafitte, Olivier; Rudd, Keith; Zumbrun, Kevin Appl. Math. Lett. 21 (2008), no. 7, 742-747

[21] **The linear and nonlinear Rayleigh-Taylor instability for the quasi-isobaric profile.** Lafitte, Olivier Phys. D 237 (2008), no. 10-12,

[20] **Linear growth rate for Kelvin-Helmholtz instability appearing in a moving mixing layer** Rattana Chong, Olivier Lafitte , F Pla and Juliette Cahen Physica Scripta Vol. 2008 T 132, December 2008

[19] **Study of the linear ablation growth rate for the quasi-isobaric model of Euler equations with thermal conductivity.** Lafitte, Olivier Indiana Univ. Math. J. 57 (2008), no. 2

[18] **High frequency and numerical Eulerian methods for aeroacoustic problems** (avec Y. Noumir) J. Comput. Appl. Math. 204 (2007), no. 2,

[17] **Dirichlet to Neumann map for domaines with corners and**

2

approximate boundary conditions (avec L. Halpern) J. Comput. Appl. Math. 204 (2007), no. 2, 505-514,

[16] **Study of the semiclassical regime for ablation front models** (avec B. Helffer) Arch. Ration. Mech. Anal. 183 (2007), no. 3, 371-409

[15] **A geometric optic based numerical method for high frequency electromagnetic fields computations near fold caustics II: The energy** J. Comput. Appl. Math. 167, (1), 91-134 (2004) (avec J.D. Benamou, R.Sentis, I. Solliec)

[14] **A geometric optic based numerical method for high frequency electromagnetic fields computations near fold caustics I** J. Comput. Appl. Math. 156, (1), 93-125 (2003) (avec J.D. Benamou, R. Sentis, I. Solliec)

[13] **Asymptotic methods for the eigenvalues of the Rayleigh equation for the linearized Rayleigh-Taylor instability** (avec B. Helffer) Asymptotic Analysis 33 (2003) 3-4, 189-235.

[12] **The Richards equation for the modeling of a nuclear waste repository** (avec C. Le Potier) Elliptic and parabolic problems, Rolduc-Gaeta, World Scientific 2002 152-159

[11] **Existence and positivity of a system of k-epsilon with a production term of the Rayleigh-Taylor type**, Appl. Maths. Letters 15 (3), 2002

[10] **Sur la phase linéaire de l'instabilité de Rayleigh-Taylor**: Exposé au Séminaire d'équations aux Dérivées partielles, CMAT, Ecole Polytechnique, Avril 2001

[9] **Asymptotic results for the linear stage of the Rayleigh-Taylor instability** (avec C. Cherfils-Clerouin, P.A.Raviart) Mathematical Fluid mechanics, 47-71, Advances in Mathematical FluidMechanics, Birkhauser, Basel, 2001.

[8] **Analytic solutions of the Rayleigh equation for affine density profiles** (avec C. Cherfils) (Phys. Rev. E, 62 (2) pp 2967-2970, 2000).

[7] **Diffraction in the high frequency regime by a thin layer of dielectric material II : the wave diffracted in the shadow** SIAM Journal of Applied Mathematics, 59 (3) 1053-1079 (1999)

[6] **Diffraction in the high frequency regime by a thin layer of dielectric material I: the impedance boundary condition** SIAM Journal of Applied Mathematics 59 (3) 1028-1052 (1999)

[5] **Diffraction for a Neumann boundary condition** Commun. in Partial Differential Equations, 22 (3-4), 555-580 (1997)

[4] **Second term of the asymptotic expansion of the diffracted wave in the shadow** Asymptotic Analysis (13) 319-359 (1996)

[3] **The kernel of the Neumann operator for a strictly diffractive analytic problem** Commun. in Partial Differential Equations, 20 (3-4), 419-483 (1995)

[2] **Equation de Maxwell et opérateur dimpédance sur le bord dun obstacle convexe absorbant** (avec G. Lebeau) C. R. Acad. Sci Paris t 316, Série I, p 1177-1182, 1993.

[1] **Calcul microlocal de la solution de l'équation des ondes dans la zone dombre dun obstacle strictement convexe de frontière analytique** C.R. Acad. Sci Paris t 316, Série I, p 153-157, 1992.

Academic titles .
Habilitation (HDR) 2001
PhD 1992, under the supervision of Gilles Lebeau
Admitted in the french Corps des Mines (1987):Rank 3
Admitted in the French Ecole Polytechnique (1984): Rank 6
Third prize in the International Olympiads of Mathematics (1983)
Second prize in the French High school mathematical competition: Concours General (1982)

Track Distinguished Professor (2015) (Professeur de classe exceptionnelle)
Full Professor (2001) in Paris-Nord University (LAGA)
Scientific advisor in the French Atomic Energy Commission (2001-)
Researcher in the French Atomic Energy Commission (1990-2001)
Associate researcher at the CMLA, ENS Cachan (1997-1999)
Lecturer in MIT (Applied Math for Engineers, 1993-1994)

Administrative involvment and scientific administrative activities

1. Head of the graduate school of applied mathematics of the University Paris Nord (MACS) since 2003.

2. Responsible of the international agreements of the graduate school. Agreement signed with Universidad Autonoma de Madrid (2010), with Technishe Universitet Munchen (2013), with Universit de Montral (2015)

3. Organiser of the Seminar of Applied Mathematics and Physics of the CEA (1999-2008)

4. Organiser of various scientific meetings concerning modelisation

5. Member of the scientific committee of Waves 2011, Waves 2013, Siam Annnual Meeting 2013, Waves 2015.

6. Member of the organization committee of Microlocal analysis and applications 2014 (Confrence de l'honneur de Gilles Lebeau), Journées de Mathématiques Appliquées (Conférence en l'honneur de Laurence Halpern), 2015

7. Reviewer for various journals

8. Advisor of the PhD thesis of Yohan Penel, Youness Noumir, Ccile Baudry, Thierry Crestaux, Benoit Lize, Amine Bey, Kieran Delamotte

9. 2001- Scientific advisor of the French Atomic Energy Commission (CEA)

Academic stays abroad

1. Visiting Scholar and lecturer in MIT, 1993-1994

2. Short invitations (one week or two weeks): (number of stays between parenthesis) in KTH, Sweden (1), Université de Montreal (4), University of Michigan at Ann Arbor (1), Indiana University (Bloomington) (5), University of North Carolina (1), Institute for Plasma Physics in Garching, Germany (3), Universidad Autonoma de Madrid (4), Complutense University of Madrid(1), Universidad de Castilla la Mancha (2), Wolfgang Pauli Institute, Wien(1).

3. Participation to various conferences.

4. Invited for a short course on the theory of propagation of nerve influx (Indiana University, 2010)

5. Invited in the Erasmus TS program to deliver short courses in University of West Timisoara (one stay each year 2005-)

6. Invited in the Erasmus TS program and in the Faculty of Applied Mathematics at TUM, Garching, Germany (2014,2015)

7. Visiting professor at IU, Bloomington, Spring 2017 (January 17, May 17)

Teaching

1. Applied maths for Engineers 2 (Massachusetts Institute of Technology, 1994)

2. Fourier integral operators and asymptotics for the waves (Master course in Paris 13, 1996)

3. Distributions and applications (Master course in the Ecole des Mines de Paris, 1997-)

4. Optimization theory and applications (Master course in the Ecole Centrale de Marseille, 1996-)

5. Series and Fourier series (course in the bachelor's degree of Physics, 2001-2003)

6. Calculus for economics and social sciences (Bachelor degree of mathematics applied to social sciences, 2001-2002)

7. Modelling a nerve influx (Master course in the Graduate school of applied mathematics for engineering MACS, 2007-2009)

8. The Evans function for the nerve influx: invited short course in Indiana University Math Department, Bloomington, IN (2010)

9. Mathematical study of hydrodynamic instabilities (course in the joint Master program between University of Paris 6 and University of Paris 13) (2003-2006)

10. Fourier series and application to signal theory (course in the Technology Diploma of Informatics, 2008-2013)

11. Elementary ordinary differential equations (course in the Technology Diploma of Informatics, 2008-2011)

12. Modelization of hydrodynamic instabilities (Master course of Université Paris 6, 2005-2009)

13. Numerical quantum mechanics (Master course in the Graduate school of applied mathematics for engineering MACS, 2012-)

14. Optimization: theory and algorithms (Master course in the Graduate school of applied mathematics for engineering MACS, 2003-)

15. Invited course in the Master of Technishe Universitat Munchen (2014,2015): Modeling of instabilities using ordinary differential equations.

16. Mathematics for engineers (common course of the graduate school Sup-Galilée (2005-2010), then course in the Graduate school of applied mathematics for engineering (MACS) (2010-))