

CV

Frédéric DIAS

September 2008

Curriculum vitae
Responsibilities
Ph.D. supervision
List of publications

Frédéric DIAS

born on 10/22/1962

married, 1 child

Work Address :

Centre de Mathématiques et de Leurs Applications

Ecole Normale Supérieure de Cachan

61 avenue du Président Wilson

94235 Cachan cedex

Tel : 01 47 40 59 24

Fax : 01 47 40 59 01

E-mail : dias@cmla.ens-cachan.fr

Web : www.cmla.ens-cachan.fr/Utilisateurs/dias/**EMPLOYMENT**

since 1999 : Professor, Department of Mathematics, Ecole Normale Supérieure de Cachan, France

1997-1999 : Director of Research CNRS, Non-Linear Institute of Nice, University of Nice–Sophia Antipolis

1990-1997 : Research Assistant CNRS, Non-Linear Institute of Nice, University of Nice–Sophia Antipolis

1988-1990 : Assistant Professor, Department of Mathematics, Worcester Polytechnic Institute, U.S.A.

1986-1987 : Postdoctoral Scholar, Department of Ocean Engineering, Woods Hole Oceanographic Institution, U.S.A.

DEGREES

1993 : Habilitation à Diriger des Recherches in Engineering, University of Nice–Sophia Antipolis.

1986 : Ph. D. in Civil Engineering, University of Wisconsin–Madison, U.S.A.

1984 : Engineer Diploma from Ecole Centrale des Arts et Manufactures.

HONORS2007 : La Recherche Prize on *Extreme waves : from physics to forecasting*2003 : Invitation to write a review in *Handbook of Mathematical Fluid Dynamics* on water waves as a dynamical system2003 : Invitation to write a review in *Physics Reports* on one-dimensional wave turbulence1999 : Invitation to write a review in *Annual Review of Fluid Mechanics* on capillary–gravity waves

1998 : Edmond Brun Prize of the French Academy of Sciences

VARIOUS ACTIVITIES

RESEARCH AND TEACHING ADMINISTRATION

- since 2001 : **Head of Mathematics Department**, Ecole Normale Supérieure de Cachan
 since 1999 : **Chief Editor of the European Journal of Mechanics B/Fluids** (Elsevier)
 since 2003 : President of Mathematics Hiring Committee of Ecole Normale Supérieure de Cachan
 since 2002 : Advisory Board Member of “Applied Mathematics and Nonlinear Science” (Chapman & Hall/CRC)
 1998-2007 : Advisory Board Member of “Mathématiques & Applications”, SMAI (Springer)
 2001-2004 : Member of the NATO Panel on Physical & Engineering Science & Technology
 since 2001 : Member of the French National Committee on Mechanics
 since 2005 : Secretary General of the French National Committee on Mechanics
 since 2005 : French Delegate to International Union of Theoretical and Applied Mechanics
 2003-2007 : Member of the Steering Committee of the Activity Group “Nonlinear waves and coherent structures”, SIAM
 since 2005 : Member of the International Advisory Committee of a LIMS (Lighthill Institute of Mathematical Sciences, London) proposal for the program - Waves, Tsunami & Floods : Dynamics and Applications

BOOKS

1. DIAS F. & PELINOVSKY E., Monograph, Mathematical models of tsunami waves, American Mathematical Society, in preparation
2. DIAS F. & KHARIF C. (Editors) 1999, Three-Dimensional Aspects of Air-Sea Interaction, *European Journal of Mechanics B/Fluids* **18** (3), Elsevier, 240 pages.
3. DIAS F., GHIDAGLIA J.-M. & SAUT J.-C. (Editors) 1996, Mathematical Problems in the Theory of Water Waves, *Contemporary Mathematics* **200**, American Mathematical Society, 235 pages.

POPULAR SCIENCE

- 2007 : When water waves become devastating (in french), *La Recherche Hors Série*, december 2007, 12–15.
 2006 : Tsunami, one year after (in french), *La Recherche* **393**, january 2006, 46–49.
 2004 : Showing the existence of standing waves (in french), *La Recherche*, march 2004.
 2003 : Wave breaking (in french), *Pour La Science* **303**, january 2003, 38–44.
 2001 : When water waves become devastating (in french), *La Recherche* **345**, september 2001, 50–51.
 1997 : Contribution on weirs to *International Encyclopedia of Heat and Mass Transfer*.

ORGANIZATION OF CONFERENCES

- 2008 : Co-chair with K. Melville of the Wave Session of ICTAM 2008, 24–30 August, Adelaide, Australia.
 2007 : Co-organizer with A. Ibrahimbegovic of the ECCOMAS Conference Multi-scale Computational Methods for Solids and Fluids, November 28–30, ENS-Cachan, France.
 2007 : Member of the organizing committee of RS2007 Workshop IV : Image processing for random shapes : Applications to brain mapping, geophysics and astrophysics, 21–25 May, UCLA, CA, USA.
 2007 : Member of the scientific committee of the Fifth IMACS International conference on Nonlinear Evolution Equations and Wave Phenomena : Computation and Theory, 16–19 April, Athens, GA, USA.

- 2005 : Co-organizer with S. Grilli of the Workshop Results of the Sumatra earthquake and tsunami offshore survey 2005, 19–24 October, Fondation des Treilles, Tourtour, France.
- 2004 : Member of the scientific committee of the SIAM Workshop Nonlinear waves and coherent structures, 2–4 October, Orlando, Florida, USA.
- 2004 : Selection of papers for the ICTAM 2004 Workshop, XXI International Congress of Theoretical and Applied Mechanics, 15–21 August, Warsaw, Poland.
- 2004 : Co-organizer with J.-M. Gambaudo of the Workshop Dynamics and patterns : at the interface between mathematics, mechanics and nonlinear physics, 16–18 June, Nice, France.
- 2002 : Co-organizer with J.-M. Vanden-Broeck of the Workshop Analytical and numerical models for water waves, 21–23 March, Cachan, France.
- 1998 : Co-organizer with C. Kharif of the IUTAM/ISIMM Symposium Three-Dimensional Aspects of Air-Sea Interaction, 17–21 May, Nice, France.
- 1995 : Co-organizer with J.-M. Ghidaglia and J.-C. Saut of the Workshop Problems in the Theory of Nonlinear Hydrodynamic Waves, 15–19 May, Luminy, France.
- 1991 : Organizer of an international meeting in Nice in the framework of a European Contract between the Universities of Nice, Stuttgart, Utrecht and Edinburgh.

GRADUATE COURSES

- 2004 : Weakly nonlinear wave packets and the nonlinear Schrödinger equation, Summer School, Non-linear Waves in Fluids : Recent Advances and Modern Applications, International Centre for Mechanical Sciences, Udine, Italy
- since 2001 : Spectral Methods, Graduate Programme on Numerical Methods for Continuum Mechanics, Ecole Normale Supérieure de Cachan
- 2000-2001 : Water waves, Graduate Programme on Partial Differential Equations and Scientific Computing, University of Paris-South
- 2000-2001 : Industrial Mathematics, Ecole Normale Supérieure de Cachan
- 1992-1999 : Water Waves, Graduate Programme on Dynamical Systems, University of Nice

CONTRACTS

- since 2009 : ANR MANUREVA
- since 2009 : Contrat with Cyprus University of Technology on extreme waves
- since 2009 : ARC – Contrat with University of New South Wales on wave breaking
- since 2008 : PICS with Russia on coherent structures and their role in turbulence.
- since 2007 : ANR HEXECO on extreme hydrodynamics, from offshore to onshore
- since 2007 : Farman Institute – Contract on multi-scale analysis of structure behavior in extreme environment
- since 2006 : EC – Tsunami Risk and Strategies for the European Region (TRANSFER)
- since 2004 : CEA – Contract with the French Atomic Energy Commission on incompressible fluid mechanics.
- since 2006 : GTT – Contract with Gaz Transport & Technigaz on wave impact.
- since 2006 : GDRE (PI for ENS-Cachan) - Contract on regular and chaotic hydrodynamics.
- 2006-2007 : ZENON (French PI) – Contract with Higher Institute of Technology, Nicosia, Cyprus.
- 2003-2004 : ALLIANCE (French PI) – Contract with University of East Anglia on large amplitude interfacial waves.
- since 2002 : INSU – National Programme on Atmosphere and Oceans
- 1997-2007 : NATO – Contract with Landau Institute on wave turbulence.
- 1998-1999 : LCPC (Laboratoire Central des Ponts et Chaussées) – Contract on the flow of non-newtonian fluids used in construction.
- 1998-1999 : ALLIANCE (French PI) – Contract with University of Surrey on short-crested waves.
- 1997-1999 : PROCOPE (French PI) – Contract with Stuttgart University on absolute and convective instabilities.

- 1997-1999 : INTAS – Contract with three Russian Institutes on nonlinear waves in natural media.
 1996-2001 : DGA – Contract on wave breaking.
 1996-1997 : NSF-CNRS (French PI) – Contract with MIT on nonlinear waves.

LONG-TERM STAYS ABROAD

1. may 2005 : 3-week expedition on Indonesian waters to survey the seafloor following the 26 December 2004 tsunami
2. january – february 2005 : 7-week stay at Worcester Polytechnic Institute, Worcester, USA
3. february – march 2004 : 4-week visit at Fields Institute for Research in Mathematical Sciences, Toronto, Canada
4. septembre 2002 : 3-week visit at Norwegian University of Science and Technology, Trondheim, Norway
5. août 2001 : 3-week visit at Isaac Newton Institute, Cambridge, UK
6. 1994 – 1995 : 9-month stay at Massachusetts Institute of Technology (Department of Mechanical Engineering), USA

SEMINARS

About 30 seminars in France and the following talks abroad :

1. 2008, *Modeling of extreme water waves and tsunamis*, National Technical University of Athens, Greece.
2. 2007, *Modeling of extreme water waves and tsunamis*, University College Dublin, Ireland.
3. 2007, *On three water-wave problems*, USC, USA.
4. 2007, *On the generation of tsunamis and on new numerical models for tsunami propagation and runup*, JRC, Ispra, Italy.
5. 2007, *On the generation of tsunamis by earthquakes and on the effect of dissipation on water waves*, University of Adelaide, Australia.
6. 2007, *Modeling of extreme hydrodynamic waves*, University of New South Wales, Australia.
7. 2006, *Modeling of three-dimensional water waves*, University of Cyprus, Nicosia, Cyprus.
8. 2005, *Seafloor rupture survey and numerical tsunami modeling*, Nicosia, Cyprus.
9. 2005, *On two problems related to water waves : I. Effect of dissipation on the Benjamin-Feir instability; II. Undular jumps*, MIT, USA.
10. 2005, *Tsunamis : what do we know about their formation and their propagation ?*, Worcester Polytechnic Institute, Worcester, USA.
11. 2004, *The theory of water waves*, Worcester Polytechnic Institute, Worcester, USA.
12. 2004, *Stability of solitary waves*, Notre-Dame University, South Bend, USA.
13. 2004, *Recent progress in the theory of water waves*, McMaster University, Hamilton, Canada.
14. 2003, *On the difficulty to find the number of independent parameters in some problems*, Hull University, UK.
15. 2002, *One- and two-layer flows past obstacles*, Norwegian University of Science and Technology, Trondheim, Norway.
16. 2001, *Interfacial waves in the presence of a free surface*, Loughborough University, UK.
17. 1999, *Stability of solitary waves*, Universität Stuttgart, Germany.
18. 1999, *On three-dimensional patterns on the ocean surface*, Università di Genova, Italy.
19. 1997, *Interfacial waves in the presence of a free surface*, Universität Stuttgart, Germany.

20. 1997, *Interfacial waves*, University of Wisconsin–Madison, Madison, USA.
21. 1996, *On a 4th order ordinary differential equation*, Worcester Polytechnic Institute, Worcester, USA.
22. 1996, *On explicit solutions of the free-surface Euler equations*, Universität Stuttgart, Germany.
23. 1996, *Numerical computation of solitary waves for the free-surface Euler equations*, Massachusetts Institute of Technology, Cambridge, USA.
24. 1995, *Numerical computation of solitary waves of the free-surface Euler equations*, Universität Stuttgart, Germany.
25. 1995, *Numerical computation of solitary waves of the free-surface Euler equations*, University of Surrey, UK.
26. 1995, *Water waves and dynamical systems*, Worcester Polytechnic Institute, Worcester, USA.
27. 1994, *Water waves and dynamical systems*, Brown University, Providence, USA.
28. 1993, *New mathematical results for water waves*, University of Cape Town, South Africa.
29. 1992, *Capillary–gravity solitary waves*, Wichita State University, Wichita, USA.
30. 1991, *Recent progress in nonlinear water waves*, Tel-Aviv University, Israel.
31. 1991, *Recent progress in nonlinear water waves*, Massachusetts Institute of Technology, Cambridge, USA.
32. 1990, *Nonlinear free-surface flows in the presence of gravity*, University of Queensland, Brisbane, Australia.
33. 1990, *Analysis of water waves based on their symmetries and hamiltonian structure*, University of Adelaide, Adelaide, Australia.
34. 1990, *Water waves in the 1980s : recent progress*, University of Canterbury, Christchurch, New-Zealand.
35. 1990, *Symmetries and hamiltonian structure of ocean waves and internal waves*, David Taylor Research Center, Bethesda, USA.
36. 1990, *Analysis of 2D water waves based on their symmetries and hamiltonian structure*, Brown University, Providence, USA.
37. 1989, *Nonlinear free-surface flows in the presence of gravity*, Massachusetts Institute of Technology, Cambridge, USA.
38. 1988, *Open channel flows with submerged obstructions*, Massachusetts Institute of Technology, Cambridge, USA.

TALKS IN CONFERENCES

1. 2008, Manchester, UK.
2. 2008, *A two-fluid model for violent aerated flows*, ISOPE-2008, Vancouver, Canada.
3. 2008, *Tsunami wave energy*, 4th Canadian Conference on GeoHazards, Québec, Canada.
4. 2008, *A two-fluid model for violent aerated flows*, Free boundary problems, Stockholm, Sweden.
5. 2008, *Physically-based models for the generation, propagation and impact of water waves*, 3-week program on data-driven and physically-based models for characterization of processes in hydrology, hydraulics, oceanography and climate change, National University of Singapore, Singapore. **(Invited)**
6. 2007, *Rupture dynamics and tsunami generation*, ECCOMAS, Cachan, France.
7. 2007, *On various models for wave impact*, International Conference on Violent Flows, Fukuoka, Japan.
8. 2007, *Boussinesq modelling of nearshore waves*, Waves and Operational Oceanography 2007, Brest, France. **(Invited)**

9. 2007, Trends in Numerical and Physical Modeling for Industrial Multiphase Flows, Cargèse, France.
10. 2007, *Theory of weakly damped free-surface flows*, Modèles dispersifs et dynamique des fluides, Colloque en l'honneur de Jean-Claude Saut, France. **(Invited)**
11. 2007, *Oil-bearing micrometeorites for an oily-dusty Panthalassa*, 70th Annual Meeting of the Meteoritical Society, Tucson, USA.
12. 2007, *On the fluid dynamics models for sloshing*, ISOPE-2007, Lisbon, Portugal.
13. 2007, *Random shapes in water waves*, IPAM Workshop on Image Processing for Random Shapes, Los Angeles, USA. **(Invited)**
14. 2007, *On the role of dissipation on the Benjamin-Feir instability*, 5th IMACS International Conference on nonlinear evolution equations and wave phenomena : computation and theory, Athens, USA. **(Invited)**
15. 2006, *Sur la génération et l'impact de vagues extrêmes*, Colloque au CIRM sur les challenges actuels en mécanique des fluides : modélisation et analyse, Luminy, France. **(Keynote speaker)**
16. 2006, *On the modelling of extreme water waves*, SIAM Nonlinear Waves and Coherent Structures, Seattle, USA. **(Keynote speaker)**
17. 2006, *On the generation of tsunamis*, SIAM Nonlinear Waves and Coherent Structures, Seattle, USA.
18. 2006, *Interfacial solitary waves : Bifurcations and stability*, SIAM Nonlinear Waves and Coherent Structures, Seattle, USA.
19. 2006, *Tsunamis, vagues scélérates et leur modélisation*, Les Journées de l'Académie des Sciences à Nice et à Sophia Antipolis, France. **(Invited)**
20. 2006, *Dynamics of tsunami waves*, NATO advanced research workshop on extreme man-made and natural hazards in dynamics of structures, Opatija, Croatia. **(Keynote speaker)**
21. 2006, *On the generation of tsunamis by earthquakes*, Workshop on tsunamis and nonlinear waves, Saha Institute of Nuclear Physics, Kolkata, India. **(Invited)**
22. 2005, *Freak waves*, Workshop on rogue waves, ICMS, Edinburgh, UK. **(Invited)**
23. 2005, *Wave energy focusing in a three-dimensional numerical wave tank*, Cargèse, France. **(Invited)**
24. 2005, *Seafloor rupture survey and numerical tsunami modeling*, ISOPE-2005, Seoul, Korea. **(Keynote speaker)**
25. 2005, *Wave energy focusing in a three-dimensional numerical wave tank*, ISOPE-2005, Seoul, Korea.
26. 2005, *Nonlinear water waves*, 4th IMACS International Conference on nonlinear evolution equations and wave phenomena : computation and theory, Athens, USA. **(Keynote speaker)**
27. 2005, *Dissipation and the Benjamin-Feir instability*, Annual Meeting of GAMM (Gesellschaft für Angewandte Mathematik und Mechanik), Luxemburg. **(Invited)**
28. 2004, *Wave energy focusing in a three-dimensional wave tank*, Rogue Waves 2004, Brest, France.
29. 2004, *Internal fronts with periodic oscillations*, SIAM Nonlinear Waves and Coherent Structures, Orlando, USA. **(Invited)**
30. 2004, *Generalized internal solitary waves and fronts*, 21th International Congress of Theoretical and Applied Mechanics, Warsaw, Poland.
31. 2004, *Recent progress in the theory of water waves*, British Applied Mathematics Conference, Norwich, UK. **(Keynote speaker)**
32. 2003, *One-dimensional dispersive wave turbulence*, Workshop on patterns in physics, Fields Institute, Toronto, Canada. **(Invited)**
33. 2003, *Interfacial waves in the presence of a free surface*, 5th EuroMech Fluid Mechanics Conference, Toulouse, France.
34. 2003, *Two-layer flows over an obstacle*, Equadiff 2003, Hasselt, Belgium. **(Invited)**

35. 2003, *Unforced and forced two-layer flows*, ICIAM 2003, Sydney, Australia.
36. 2003, *Numerical model using the Fast Multipole Algorithm for 3D surface waves*, ISOPE-2003, Honolulu, USA.
37. 2003, *One- and two-layer flows past an obstacle*, HYDRALAB Conference and User Meeting, Budapest, Hungary. **(Invited)**
38. 2003, *Two-layer flows over an obstacle*, Workshop on Structure and Stability of Interfacial Waves, Loughborough, UK. **(Invited)**
39. 2002, *On internal fronts*, 55th Annual Meeting of the Division of Fluid Mechanics, Dallas, USA.
40. 2002, *Kolmogorov spectra of weak turbulence in media with two types of interacting waves*, Solitons, Collapses and Turbulence, Chernogolovka, Russia. **(Invited)**
41. 2002, *Kolmogorov spectra of weak turbulence in media with two types of interacting waves*, 9th European Turbulence Conference, Southampton, UK.
42. 2002, *Response of a floating ice plate to a moving load*, ISOPE-2002, Kyushu, Japan.
43. 2001, *A three-dimensional numerical wave tank*, 54th Annual Meeting of the Division of Fluid Mechanics, San Diego, USA.
44. 2001, *On the interaction between surface and internal waves*, Isaac Newton Institute, Cambridge, UK. **(Invited)**
45. 2001, *A new three-dimensional numerical wave tank*, BRIMS Day, Isaac Newton Institute, Cambridge, UK. **(Invited)**
46. 2001, *Nonlinear flexural and gravity waves*, Workshop on Mathematical Fluid Dynamics, Hull, UK. **(Invited)**
47. 2001, *On solitary waves in stratified flows*, Recent Developments in the Mathematical Theory of Water Waves, Oberwolfach, Germany. **(Invited)**
48. 2000, *Wave turbulence in one-dimensional models*, 20th International Congress of Theoretical and Applied Mechanics, Chicago, USA.
49. 2000, *Overturning waves*, ICCE, Sydney, Australia.
50. 2000, *Turbulence of one-dimensional weakly nonlinear dispersive waves*, AMS Summer Research Conference on Dispersive Wave Turbulence, South Hadley, USA. **(Invited)**
51. 1999, *Interfacial waves in the presence of a free surface*, Equadiff 99, Berlin, Germany. **(Invited)**
52. 1999, *Critical states and minima for an energy with second-order gradients*, SIAM Dynamical Systems Conference, Snowbird, USA.
53. 1998, *Interfacial waves underneath a sea ice sheet*, EMAC '98, 3rd Biennial Engineering Mathematics and Applications Conference, Adelaide, Australia.
54. 1998, *A selection principle stemming from energy considerations*, STAMM Conference, Nice, France.
55. 1998, *On the transition from two-dimensional to three-dimensional waves*, EuroMech Conference, Istanbul, Turkey.
56. 1997, *Solitary waves with algebraic decay*, 3rd EuroMech Fluid Mechanics Conference, Göttingen, Germany.
57. 1997, *Solitary waves with algebraic decay*, 12th Int. Workshop on Water Waves and Floating Bodies, Marseille, France.
58. 1996, *Bifurcation and stability of short-crested waves*, 49th Annual Meeting of the Division of Fluid Mechanics, Syracuse, USA.
59. 1996, *Bifurcation and stability of short-crested waves*, 19th International Congress of Theoretical and Applied Mechanics, Kyoto, Japan.
60. 1996, *On asymmetric capillary-gravity waves*, Dynamical Systems in Fluid Mechanics, Oberwolfach, Germany. **(Invited)**
61. 1996, *Free-surface flows with several stagnation points*, 11th Int. Workshop on Water Waves and Floating Bodies, Hamburg, Germany.

62. 1994, *Bifurcation and stability of interfacial waves*, American Mathematical Society, Stillwater, USA. **(Invited)**
63. 1994, *Degenerate capillary-gravity interfacial solitary waves*, IUTAM/ISIMM Symposium on Structure and Dynamics of Nonlinear Waves in Fluids, Hannover, Germany.
64. 1994, *Capillary-gravity interfacial waves*, 4th International Symposium on Stratified Flows, Grenoble, France.
65. 1994, *Bifurcations and stability of capillary-gravity waves*, Symposium in honor of J.P. Guiraud, Paris, France. **(Invited)**
66. 1993, *Resonant capillary-gravity interfacial waves*, 46th Annual Meeting of the Division of Fluid Mechanics, Albuquerque, USA.
67. 1993, *The 1:2 mode interaction in capillary-gravity waves*, Dynamical Systems, Bifurcations and Symmetry, Cargèse, France.
68. 1993, *Spatio-Temporal Evolution of Patterns in Nonlinear Mechanics*, Annual Meeting of EC project, Utrecht, Netherlands.
69. 1992, *Spatio-Temporal Evolution of Patterns in Nonlinear Mechanics*, Annual Meeting of EC project, Nice, France.
70. 1992, *Capillary-gravity solitary waves with damped oscillations*, 18th International Congress of Theoretical and Applied Mechanics, Haifa, Israel.
71. 1992, *Space- and time-periodic interfacial waves*, Wave Phenomena II : Modern Theory and Applications, Edmonton, Canada.
72. 1992, *Nonlinear bow flows with splashes*, 7th Int. Workshop on Water Waves and Floating Bodies, Val de Reuil, France.
73. 1992, *Solitary waves with surface tension*, Instabilities in multiphase flows, Rouen, France.
74. 1991, *Ideal jet flow with a stagnation streamline*, ICIAM, Washington, USA.
75. 1989, *Group-theoretic considerations lead to new solutions of the water wave problem*, 4th Int. Workshop on Water Waves and Floating Bodies, Øystese, Norway.
76. 1988, *A numerical model for weir flows*, First National Fluid Dynamics Congress, Cincinnati, USA.
77. 1988, *The role of symmetry in the study of capillary-gravity waves*, SIAM Annual Meeting, Minneapolis, USA.
78. 1987, *Velocity observations in the wave boundary layer on the seafloor*, AGU Fall Meeting, San Francisco, USA.
79. 1987, *Conformal maps for well hydraulics*, AGU Spring Meeting, Baltimore, USA.
80. 1986, *The effects of wave-induced seepage on a foundation plate resting on the seabed*, Ocean Structural Dynamics Symposium'86, Corvallis, USA.
81. 1986, *On the use of the Schwarz-Christoffel transformation for the numerical solution of potential flow problems*, SIAM Annual Meeting, Boston, USA.

REFEREEING RESPONSIBILITIES

Mathematics : CRAS, SIAM Journal of Applied Mathematics, SIAM Journal of Mathematical Analysis, Nonlinearity, IMA Journal of Applied Mathematics, Differential and Integral Equations, Proceedings and Philosophical Transactions of the Royal Society of London, European Journal of Applied Mathematics

Mechanics : CRAS, European Journal of Mechanics, Journal of Fluid Mechanics, Physics of Fluids, Fluid Dynamics Research, International Journal for Numerical Methods in Fluids

Physics : Physica D, Journal de Physique, Journal of Physics A : Mathematical and General, Physics Letters A, Transport Theory and Statistical Physics, Physical Review Letters, Journal of Geophysical Research - Ocean

PROFESSIONAL SOCIETIES

SMAI : Société de Mathématiques Appliquées et Industrielles

SIAM : Society for Industrial and Applied Mathematics

AFM : Association Française de Mécanique

ISIMM : International Society for Interactions between Mathematics and Mechanics

EuroMech : European Mechanics Society

SUPERVISED THESES

- Name :* **Frédéric Chardard**
Date : started in september 2005
Topic : Stability of solitary waves and fronts
- Name :* **Hai Yen Nguyen**
Date of defence : february 2008
Topic : Numerical modelling of interfacial waves
- Name :* **Hafid Fikri**
Date of defence : december 2007
Topic : Aerodynamic models for elasticity in transsonic domain
- Name :* **Denys Dutykh**
Date of defence : december 2007
Topic : Mathematical modelling of tsunamis
Present position : Research assistant at CNRS
- Name :* **Christophe Fochesato**
Date of defence : september 2004
Topic : Numerical models for water waves and internal waves
Present position : Engineer at CEA
- Name :* **Emilian Părău**
Date of defence : september 2000
Topic : Flexural-gravity and capillary-gravity waves
Present position : Lecturer at University of East Anglia
- Name :* **Philippe Guyenne**
Date of defence : june 2000
Topic : Numerical models for weak turbulence and wave breaking
Present position : Assistant professor at University of Delaware
- Name :* **Olivier Laget**
Date of defence : march 1998
Topic : Solving the Euler equations in the presence of an interface
Present position : Engineer at IFP
- Name :* **David Menasce**
Date of defence : december 1995
Topic : Nonlinear analysis of 2D and 3D water waves
- Name :* **Paul Christodoulides**
Date of defence : june 1994
Topic : Nonlinear study of interfacial waves
Present position : Lecturer at Higher Institute of Technology

LIST OF PUBLICATIONS

1. DIAS F., ELCRAT A. R. & TREFETHEN L. 1987 Ideal jet flow in two dimensions. *J. Fluid Mech.* **185**, 275–288.
2. DIAS F., KELLER J. & VANDEN-BROECK J.-M. 1988 Flows over rectangular weirs. *Phys. Fluids* **31**, 2071–2076.
3. DIAS F. & VANDEN-BROECK J.-M. 1989 Open channel flows with submerged obstructions. *J. Fluid Mech.* **206**, 155–170.
4. DIAS F. & VANDEN-BROECK J.-M. 1990 Flows emerging from a nozzle and falling under gravity. *J. Fluid Mech.* **213**, 465–477.
5. BRIDGES T. & DIAS F. 1990 An analysis of two-dimensional water waves based on $\mathbf{O}(2)$ symmetry. *Nonlinear Analysis ; Theory, Methods, Appl.* **14**, 733–764.
6. DIAS F. & BRIDGES T. 1990 The third-harmonic resonance for capillary-gravity waves with $\mathbf{O}(2)$ spatial symmetry. *Stud. Appl. Math.* **82**, 13–35.
7. DIAS F. & MONKMEYER P. L. 1990 The effects of wave-induced seepage on an impervious break-water with an extended foundation base. *Coast. Eng.* **14**, 417–437.
8. VANDEN-BROECK J.-M. & DIAS F. 1991 Nonlinear free-surface flows past a submerged inclined flat plate. *Phys. Fluids A* **3**, 2995–3000.
9. DIAS F. & CHRISTODOULIDES P. 1991 Ideal jets falling under gravity. *Phys. Fluids A* **3**, 1711–1717.
10. DIAS F. & TUCK E. O. 1991 Weir flows and waterfalls. *J. Fluid Mech.* **230**, 525–539.
11. VANDEN-BROECK J.-M. & DIAS F. 1992 Gravity–capillary solitary waves in water of infinite depth and related free-surface flows. *J. Fluid Mech.* **240**, 549–557.
12. DIAS F. & ELCRAT A. R. 1992 Ideal jet flow with a stagnation streamline. *Europ. J. Mech. B* **11**, 233–247.
13. DIAS F. & VANDEN-BROECK J.-M. 1993 Nonlinear bow flows with spray. *J. Fluid Mech.* **255**, 91–102.
14. DIAS F. & TUCK E. O. 1993 A steady breaking wave. *Phys. Fluids A* **5**, 277–279.
15. DIAS F. & IOOSS G. 1993 Capillary–gravity solitary waves with damped oscillations. *Physica D* **65**, 399–423.
16. DIAS F. 1994 Capillary–gravity periodic and solitary waves. *Phys. Fluids* **6**, 2239–2241.
17. DIAS F. & BRIDGES T. 1994 Geometric aspects of spatially periodic interfacial waves. *Stud. Appl. Math.* **93**, 93–132.
18. CHRISTODOULIDES P. & DIAS F. 1994 Resonant capillary–gravity interfacial waves. *J. Fluid Mech.* **265**, 303–343.
19. DIAS F. & IOOSS G. 1994 Ondes solitaires “noires” à l’interface entre deux fluides en présence de tension superficielle. *C. R. Acad. Sci. Paris* **319 I**, 89–93.
20. CHOSSAT P. & DIAS F. 1995 The 1 :2 resonance with $\mathbf{O}(2)$ symmetry and its applications in hydrodynamics. *J. Nonlinear Science* **5**, 105–129.
21. BRIDGES T., CHRISTODOULIDES P. & DIAS F. 1995 Spatial bifurcations of interfacial waves when the phase and group velocities are nearly equal. *J. Fluid Mech.* **295**, 121–158.
22. COLIN T., DIAS F. & GHIDAGLIA J.-M. 1995 On rotational effects in the modulations of weakly nonlinear water waves over finite depth. *Europ. J. Mech. B* **14**, 775–793.
23. CHRISTODOULIDES P. & DIAS F. 1995 Stability of capillary–gravity interfacial waves between two bounded fluids. *Phys. Fluids* **7**, 3013–3027.
24. VANDEN-BROECK J.-M. & DIAS F. 1996 Free-surface flows with two stagnation points. *J. Fluid Mech.* **324**, 393–406.

25. DIAS F. & IOOSS G. 1996 Capillary-gravity interfacial waves in deep water. *Europ. J. Mech. B* **15**, 367–390.
26. DIAS F., MENASCE D. & VANDEN-BROECK J.-M. 1996 Numerical study of capillary-gravity solitary waves. *Europ. J. Mech. B* **15**, 17–36.
27. LAGET O. & DIAS F. 1997 Numerical computation of capillary-gravity interfacial solitary waves. *J. Fluid Mech.* **349**, 221–251.
28. DABOUSSY D., DIAS F. & VANDEN-BROECK J.-M. 1997 On explicit solutions of the free-surface Euler equations in the presence of gravity. *Phys. Fluids* **9**, 2828–2834.
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