CV

Frédéric DIAS

February 2021

Frédéric DIAS
born on 10/22/1962
married, 1 child

Work Address :
School of Mathematics and Statistics
University College Dublin
(on leave from Ecole Normale Supérieure Paris-Saclay)
Science Education and Research Centre
Belfield, Dublin 4, Ireland
Tel : 00 353 1 716 2559
E-mail : frederic.dias@ucd.ie
Web : http ://mathsci.ucd.ie/∼dias/

EMPLOYMENT

since 2009 : Visiting Professor, School of Mathematics and Statistics, University College Dublin, Ireland

since 1999 : Professor, Department of Mathematics, Ecole Normale Supérieure de Cachan, France (*Classe Exceptionnelle* since 1 September 2008)

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

1992-2004 : Assistant Professor (Part time), Department of Mechanical Engineering, Ecole Polytechnique, France

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.

HONORS

2019 : Elected Member of the Norwegian Academy of Science and Letters

2017 : Elected Member of Academia Europaea

2017 : Invited to write a review in *Annual Review of Fluid Mechanics* on slamming

2016 : Elected Member of the Royal Irish Academy - MRIA

2015-2016 : Member of the State Administration of Foreign Experts Affairs - China

2014 : Emilia Valori Prize of the French Academy of Sciences

2013 : Prix ANR du Numérique - Multidisciplinary research - for the MANUREVA project

2012 : Palmes Académiques

2015-2017 : Advisory professor - Shanghai Jiao Tong University

2011-2014 : Guest professor - Shanghai Jiao Tong University

2011-2014 : Honorary professor - Shanghai University

2007 : 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 system

2003 : Invited to write a review in *Physics Reports* on one-dimensional wave turbulence

1999 : Invited 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 2019 : Member of the EASAC (European Academies Science Advisory Council) working group on "Ocean Circulation"

since 2011 : Member of the Technical Committee of Eurogia+

2009-2017 : Member of the Scientific Committee of Fondation des Treilles

2008-2016 : **Secretary General of IUTAM** (International Union of Theoretical and Applied Mechanics)

2001-2008 : **Head of Mathematics Department**, Ecole Normale Supérieure de Cachan

since 1999 : **Co-Chief Editor of the European Journal of Mechanics B/Fluids** (Elsevier)

2003-2008 : Chairman 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

2005-2013 : Secretary General of CNFM (French National Committee on Mechanics)

2004-2008 : French Delegate to IUTAM (International Union of Theoretical and Applied Mechanics)

2003 : Member of the Steering Committee of the Activity Group "Nonlinear waves and coherent structures", SIAM

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

2017 : Finding monsters on the ocean surface *Marine Technology Reporter*, november/december 2017.

2016 : Monster waves are more than just mariners' tales *Irish Times*, 5 may 2016 (cites our work)

2015 : Another Life : Stormy seas reveal our lost shores and drowned forests, *Irish Times*, 28 november 2015 (cites our work)

2015 : Why is the best surfing on the west coast ? *Irish Independent*, Science of Summer, 18 june 2015.

2015 : Extreme waves in Ireland, 8 january 2015.

2014 : Wave energy : a largely untapped resource of clean energy for Ireland, *Irish Met Society*, 23 january 2014.

2011 : Mathematical modelling of tsunamis (in french), *Images des Mathématiques*, march 2011.

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, *La Recherche* **345**, september 2001, 50–51.
1997 : Contribution on weirs to *International Encyclopedia of Heat and Mass Transfer*.

BENCHMARK

2010-2015 : Coordinator of a comparative numerical study on liquid impacts for ISOPE conferences. The study focuses on the ability for numerical simulations to take adequately, at least qualitatively, into account the physics that is of importance during liquid impacts such as the escape of the gas and its compression. Participants from academia as well as industry are taking part in this benchmark.

ORGANIZATION OF CONFERENCES

2018 : Co-organizer with R. Cox of the Workshop Understanding extreme nearshore wave events through studies of coastal boulder transport, 22–27 October, Fondation des Treilles, Tourtour, France.
2015 : Co-organizer with B. O'Connell of a Tsunami Workshop, 19 November, Dublin, Ireland.
2014 : Co-organizer of the sixth Symposium on Sloshing Dynamics, June, Busan, Korea.
2013 : Co-organizer of the fifth Symposium on Sloshing Dynamics, June, Anchorage, AK, USA.
2012 : Co-organizer of the fourth Symposium on Sloshing Dynamics, June, Rhodes, Greece.
2011 : Co-organizer of the third Symposium on Sloshing Dynamics, June, Maui, HI, USA.
2010 : Organizer of the General Assembly of IUTAM, 16–19 July, Paris, France.
2010 : Co-organizer of the second Symposium on Sloshing Dynamics, June, Beijing, China.
2010 : Co-organizer with J. Austin of the Workshop Exploring structural controls on great earthquake rupture and architecture of the Sunda/Sumatran convergent margin : international collaboration, links to tsunami modeling, and planning of future research activities, 6–11 April, Fondation des Treilles, Tourtour, France.
2009 : Co-organizer of the first Symposium on Sloshing Dynamics, June, Osaka, Japan.
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

2019 : Extreme waves and slamming, IUTAM-BICTAM Summer School on Violent Flows with a Free Surface, Shanghai Jiao Tong University, Shanghai, China

2013 : Numerical methods for fluid dynamics, The Fields Institute for Research in Mathematical Sciences, Carleton University, Ottawa, Canada

2009 : Rogue waves, Spring School, Fluid Mechanics and Geophysics of Environmental Hazards, Institute for Mathematical Sciences, National University of Singapore, Singapore

2004 : Weakly nonlinear wave packets and the nonlinear Schrödinger equation, Summer School, Nonlinear Waves in Fluids : Recent Advances and Modern Applications, International Centre for Mechanical Sciences, Udine, Italy

2001-2009 : 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

GRANTS

2019-2024 : ERC Advanced Grant – Breaking of highly energetic waves (HIGHWAVE)

2019-2023 : EU COST Action AGITHAR

2018-2020 : OCEANERA-NET COFUND – RESOURCECODE – Project on Resource Characterisation to Reduce the Cost of Energy through Coordinated Data Enterprise

2017-2020 : Marine Institute – Cullen Fellowship – Project on Coupled wave-ocean models

2017-2021 : Irish Research Council – PhD Fellowship – Project on Tsunamis

2017-2021 : CSC – PhD Fellowship – Project on Free-surface flows

2015-2018 : SFI – US Ireland scheme – Project on Understanding Extreme Nearshore Wave Events through Studies of Coastal Boulder Transport

2014-2015 : ERC Proof of Concept – WAVEMEASUREMENT – Calibration of extreme wave measurement on the ocean surface

2013-2016 : FP7 – Assessment, strategy and risk reduction for tsunamis in Europe (ASTARTE)

2013-2019 : SFI – Marine Renewable Energy Ireland (MaREI)

2013-2014 : OpenHydro – Wave current interactions in the Raz Blanchard tidal race : the March 2008 storm

2013 : SEAI – Nearshore wave and wind climate on west coast of Ireland : Spatial and seasonal variability with applications to the renewable energy sector

2012-2016 : ERC Advanced Grant – Multidisciplinary Studies of Extreme and Rogue Wave Phenomena (MULTIWAVE)

2011-2016 : SFI – Grant with Ecole Normale Supérieure de Cachan, Ecole Centrale de Nantes and Aquamarine Power Ltd. on high-end computational modelling for wave energy sytems

2010-2011 : ULYSSES – Contract between University College Dublin, Université de Savoie et Ecole Normale Supérieure de Cachan

2009-2011 : ANR MANUREVA on mathematical modelling and experiments studying nonlinear instabilities, rogue waves and extreme phenomena

2009-2011 : Contrat with Cyprus University of Technology on extreme waves

2009-2015 : ARC – Contract with University of New South Wales on wave breaking

2008-2010 : PICS with Russia on coherent structures and their role in turbulence

2007-2011 : ANR HEXECO on extreme hydrodynamics, from offshore to onshore

2007-2009 : Farman Institute – Contract on multi-scale analysis of structure behavior in extreme

environment
2006-2009 : EC – Tsunami Risk and Strategies for the European Region (TRANSFER)
2004-2009 : CEA – Contract with the French Atomic Energy Commission on incompressible fluid mechanics
since 2006 : GTT – Contract with Gaz Transport & Technigaz on wave impact
2006-2009 : 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.
2002-2010 : 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. 2005 : 3-week expedition on Indonesian waters to survey the seafloor following the 26 December 2004 tsunami
2. 2005 : 7-week stay at Worcester Polytechnic Institute, Worcester, USA
3. 2004 : 4-week visit at Fields Institute for Research in Mathematical Sciences, Toronto, Canada
4. 2002 : 3-week visit at Norwegian University of Science and Technology, Trondheim, Norway
5. 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 35 seminars in France and the following talks abroad :

1. 2020, *ADCP*, Teledyne.
2. 2019, *The fascination of ocean waves*, Wroclaw University of Science and Technology, Poland.
3. 2018, *Extreme sea states in coastal regions : how large can the waves be ?*, University of Notre Dame, USA.
4. 2018, *What makes ocean waves go rogue in the real world ?*, Stellenbosch University, South Africa.
5. 2018, *Extreme sea states in coastal regions : how large can the waves be ?*, University of Cape Town, South Africa.
6. 2018, *Extreme sea states in coastal regions : how large can the loads be ?*, Harbin Engineering University, China.
7. 2018, *Extreme sea states in coastal regions : how large can the waves be ?*, University of Edinburgh, UK.
8. 2018, *Extreme waves : Their measurement, generation, modelling and impact*, Hainan Institute of Marine Sciences, China.
9. 2018, *Understanding extreme wave events*, University of Oxford, UK.

10. 2018, *What makes ocean waves go rogue in the real world ?*, Harbin Engineering University, China.
11. 2018, *Recent progress in the evaluation of impact pressures* , Tongji University, China.
12. 2018, *What makes ocean waves go rogue in the real world ?*, Cardiff University, UK.
13. 2017, *Extreme waves : Their observation, generation and simulation*, Scripps Institution of Oceanography, USA.
14. 2017, *Extreme ocean waves*, University of Oslo, Norway.
15. 2016, *Extreme waves - their observation and their generation*, Zhejiang University, China.
16. 2016, *Extreme waves - their observation and their generation*, Shanghai University, China.
17. 2016, *Extreme waves - their observation and their generation*, Xi'an Jiao Tong University, China.
18. 2016, *Wave energy*, Dalian, China.
19. 2016, *Extreme waves - their observation and their generation*, National Marine Environmental Forecasting Center, Beijing, China.
20. 2016, *Oscillating Wave Surge Converters*, Zhejiang University, China.
21. 2015, *Extreme waves in Ireland - their observation and their generation*, Williams College, USA.
22. 2014, *Extreme waves : their observation and their generation*, NJIT, USA.
23. 2014, *Local analysis of wave fields produced from hindcasted rogue wave sea states*, Courant Institute, USA.
24. 2014, *A review of Oscillating Wave Surge Converters : Analytical, numerical and experimental results*, Tampere University of Technology, Finland.
25. 2014, *Extreme waves : Their observation and their generation*, Tampere University of Technology, Finland,
26. 2014, *Extreme waves : Their observation and their generation*, Princeton University, USA.
27. 2014, *A 34-year nearshore wave hindcast for Ireland (Atlantic and Irish Sea coasts) : Wave climate and energy resource assessment*, NOAA, USA.
28. 2014, *Oscillating Wave Surge Converters*, University of Delaware, USA.
29. 2014, *On extreme waves*, Ningbo, China.
30. 2014, *Wave energy : a largely untapped resource of clean energy for Ireland*, Irish Meteorological Society, Dublin, Ireland.
31. 2013, *On liquid impacts*, University of Western Australia, Australia.
32. 2013, *A review of oscillating wave surge converters : analytical, numerical and experimental results*, Nanyang Technological University, Singapore.
33. 2013, *A review of oscillating wave surge converters : analytical, numerical and experimental results*, Shanghai University, China.
34. 2013, *Numerical modeling of extreme waves*, University of Ottawa, Canada.
35. 2011, *The numerical computation of violent waves - Application to wave energy converters*, Tallinn, Estonia.
36. 2011, *The numerical computation of violent liquid motion*, Dublin City University, Ireland.
37. 2011, *The numerical computation of violent liquid motion*, University of Oxford, UK.
38. 2011, *The numerical computation of violent waves*, Shanghai University, China.
39. 2011, *Recent developments in the study of freak waves and tsunamis*, Northwestern University, USA.
40. 2011, *On liquid impacts*, University of Illinois at Chicago, USA.
41. 2010, *Freak waves*, University of Galway, Ireland.

42. 2010, *On liquid impacts*, University of Limerick, Ireland.
43. 2010, *Sloshing - A fascinating problem in mechanics with very important applications*, Institute of Mechanics, CAS, China.
44. 2009, *On violent liquid motion*, University of East Anglia, UK.
45. 2009, *A comparison of strongly nonlinear Boussinesq models*, TMSI, Singapore.
46. 2009, *Dimensionless numbers, scaling laws, speed of sound and physics of impact in sloshing problems*, University of Adelaide, Australia.
47. 2009, *Large amplitude internal waves*, University of Tasmania, Australia.
48. 2009, *Dimensionless numbers, scaling laws, speed of sound and physics of impact in sloshing problems*, University College Dublin, Ireland.
49. 2008, *Modeling of extreme water waves and tsunamis*, DTU, Denmark.
50. 2008, *Modeling of extreme water waves and tsunamis*, National Technical University of Athens, Greece.
51. 2007, *Modeling of extreme water waves and tsunamis*, University College Dublin, Ireland.
52. 2007, *On three water-wave problems*, USC, USA.
53. 2007, *On the generation of tsunamis and on new numerical models for tsunami propagation and runup*, JRC, Ispra, Italy.
54. 2007, *On the generation of tsunamis by earthquakes and on the effect of dissipation on water waves*, University of Adelaide, Australia.
55. 2007, *Modeling of extreme hydrodynamic waves*, University of New South Wales, Australia.
56. 2006, *Modeling of three-dimensional water waves*, University of Cyprus, Nicosia, Cyprus.
57. 2005, *Seafloor rupture survey and numerical tsunami modeling*, Nicosia, Cyprus.
58. 2005, *On two problems related to water waves : I. Effect of dissipation on the Benjamin-Feir instability ; II. Undular jumps*, MIT, USA.
59. 2005, *Tsunamis : what do we know about their formation and their propagation ?*, Worcester Polytechnic Institute, Worcester, USA.
60. 2004, *The theory of water waves*, Worcester Polytechnic Institute, Worcester, USA.
61. 2004, *Stability of solitary waves*, Notre-Dame University, South Bend, USA.
62. 2004, *Recent progress in the theory of water waves*, McMaster University, Hamilton, Canada.
63. 2003, *On the difficulty to find the number of independent parameters in some problems*, Hull University, UK.
64. 2002, *One- and two-layer flows past obstacles*, Norwegian University of Science and Technology, Trondheim, Norway.
65. 2001, *Interfacial waves in the presence of a free surface*, Loughborough University, UK.
66. 1999, *Stability of solitary waves*, Universität Stuttgart, Germany.
67. 1999, *On three-dimensional patterns on the ocean surface*, Universita di Genova, Italy.
68. 1997, *Interfacial waves in the presence of a free surface*, Universität Stuttgart, Germany.
69. 1997, *Interfacial waves*, University of Wisconsin–Madison, Madison, USA.
70. 1996, *On a 4th order ordinary differential equation*, Worcester Polytechnic Institute, Worcester, USA.
71. 1996, *On explicit solutions of the free-surface Euler equations*, Universität Stuttgart, Germany.
72. 1996, *Numerical computation of solitary waves for the free-surface Euler equations*, Massachusetts Institute of Technology, Cambridge, USA.
73. 1995, *Numerical computation of solitary waves of the free-surface Euler equations*, Universität Stuttgart, Germany.

74. 1995, *Numerical computation of solitary waves of the free-surface Euler equations*, University of Surrey, UK.
75. 1995, *Water waves and dynamical systems*, Worcester Polytechnic Institute, Worcester, USA.
76. 1994, *Water waves and dynamical systems*, Brown University, Providence, USA.
77. 1993, *New mathematical results for water waves*, University of Cape Town, South Africa.
78. 1992, *Capillary–gravity solitary waves*, Wichita State University, Wichita, USA.
79. 1991, *Recent progress in nonlinear water waves*, Tel-Aviv University, Israel.
80. 1991, *Recent progress in nonlinear water waves*, Massachusetts Institute of Technology, Cambridge, USA.
81. 1990, *Nonlinear free-surface flows in the presence of gravity*, University of Queensland, Brisbane, Australia.
82. 1990, *Analysis of water waves based on their symmetries and hamiltonian structure*, University of Adelaide, Adelaide, Australia.
83. 1990, *Water waves in the 1980s : recent progress*, University of Canterbury, Christchurch, New-Zealand.
84. 1990, *Symmetries and hamiltonian structure of ocean waves and internal waves*, David Taylor Research Center, Bethesda, USA.
85. 1990, *Analysis of 2D water waves based on their symmetries and hamiltonian structure*, Brown University, Providence, USA.
86. 1989, *Nonlinear free-surface flows in the presence of gravity*, Massachusetts Institute of Technology, Cambridge, USA.
87. 1988, *Open channel flows with submerged obstructions*, Massachusetts Institute of Technology, Cambridge, USA.

TALKS IN CONFERENCES

1. 2020, *HIGHWAVE*, GSA (online)
2. 2020, *Wave measurements : Future developments*, International Summit, China. **(Keynote speaker - online)**
3. 2019, *On turbulence and wave energy converters*, ETC17, Torino, Italy.
4. 2019, *Rogue waves, instabilities and analogies in optics and oceanography*, 9th International Conference "Solitons, collapses and turbulence : Achievements, Developments and Perspectives" (SCT-19) in honor of Vladimir Zakharov's 80th birthday, Yaroslav, Russia.
5. 2018, *Teleconnections and extreme ocean states in the Northeast Atlantic Ocean*, 3rd Latin American Symposium on Water Waves, Medellin, Colombia.
6. 2018, *Performance Analysis of VOLNA-OP2*, 10th South China Sea Tsunami Workshop (SCSTW-10), Singapore. **(Invited)**
7. 2018, *Some recent developments in tsunami science*, 8th International Conference on Fluid Mechanics (ICFM8), Sendai, Japan. **(Keynote speaker)**
8. 2018, *Extreme waves : Their measurement, generation, modelling and impact*, 6th International Conference on Estuaries and Coasts, Caen, France. **(Keynote speaker)**
9. 2018, *Effect of wave-current interaction on strong tidal current*, OMAE-2018, Madrid, Spain.
10. 2018, *What makes ocean waves go rogue in the real world ?*, KOZWaves 2018, Auckland, New Zealand. **(Keynote speaker)**
11. 2018, *Recent advances in slamming*, IUTAM Symposium on Recent Advances in Moving Boundary Problems in Mechanics, Christchurch, New Zealand. **(Keynote speaker)**
12. 2018, *Slamming : Recent progress in the evaluation of impact pressures*, SIAM UKIE Annual Meeting, Southampton, UK. **(Keynote speaker)**
13. 2017, *Use of statistical techniques to account for parameter uncertainty in landslide tsunami generation*, 9th South China Sea Tsunami Workshop (SCSTW-9), Qingdao, China. **(Invited)**
14. 2017, *Trying to measure a rogue wave*, Teledyne Marine Technology Workshop, San Diego, USA. **(Invited)**
15. 2017, *Extreme wave events in Ireland : 2012 – 2016*, EMS Annual Meeting, Dublin, Ireland.
16. 2017, *Slamming : Recent progress in the evaluation of impact pressures*, CCTAM, Beijing, China. **(Keynote speaker)**
17. 2017, *On real world ocean rogue waves*, Recent advances in nonlinear waves, Seattle, USA. **(Invited)**
18. 2017, *Rheological considerations for modelling of submarine mass failure processes at the Rockall Bank*, 8th International Meeting of the Hellenic Society of Rheology (HSR2017), Limassol, Cyprus. **(Invited)**
19. 2017, *Slamming : Recent progress in the evaluation of impact pressures*, ISOPE-2017, San Francisco, USA. **(Keynote speaker)**
20. 2017, *Real world ocean rogue waves explained without the modulational instability*, 8th International Conference "Solitons, collapses and turbulence : Achievements, Developments and Perspectives" (SCT-17) in honor of Evgenii Kuznetsov's 70th birthday, Chernogolovka, Russia.
21. 2017, *Future Northeast Atlantic wave energy potential under climate change*, 3rd GEO Blue Planet Symposium, Washington, USA.
22. 2017, *Real world ocean rogue waves explained without the modulational instability* , 5th Norway-Scotland Waves Symposium, Oslo, Norway. **(Invited)**
23. 2016, *Recent progress in the evaluation of impact pressures*, The 2nd Conference of Global Chinese Scholars on Hydrodynamics (CCSH2016), Wuxi, China. **(Keynote speaker)**
24. 2016, *Wave breaking*, National Congress of Fluid Mechanics, Nanjing, China. **(Keynote speaker)**

25. 2016, *Storm surges in Ireland*, IUTAM Symposium on Storm Surges, Shanghai, China.
26. 2016, *ADCP measurements of extreme water waves off the west coast of Ireland*, ISOPE-2016, Rhodes, Greece.
27. 2016, *Onset of breaking*, International Centre for Mathematical Sciences, Edinburgh, UK.
28. 2016, *Are rogue waves really rogue ?*, EGU, Vienna, Austria.
29. 2015, *Oscillating Wave Surge Converters*, 2nd SFFWS, Caen, France. **(Keynote speaker)**
30. 2015, *Three month continuous measurement of waves off the west coast of Ireland during the winter of 2015*, Teledyne Marine Technology Workshop, San Diego, USA. **(Invited)**
31. 2015, *The vertical distribution and evolution of slam pressure on an Oscillating Wave Surge Converter*, The 16th International Workshop on Trends In Numerical and Physical Modeling for Industrial Multiphase Flows, Cargèse, France.
32. 2015, *Oscillating Wave Surge Converters*, CCTAM, Shanghai, China. **(Keynote speaker)**
33. 2015, *Wave energy : Where do we stand today ?*, Seventh International Conference on Fluid Mechanics (ICFM7), Qingdao, China. **(Keynote speaker)**
34. 2015, *Performance enhancement of the Oscillating Wave Surge Converter by a breakwater*, ISOPE-2015, Kona, HI, USA.
35. 2015, *Local analysis of wave fields produced from hindcasted rogue wave sea states*, OMAE-2015, St Johns, Canada.
36. 2014, Joint symposium Irish Mechanics Society – Irish Society for Scientific and Engineering Computation, *Local analysis of wave fields from hindcasted sea states for rogue wave risk evaluations*, Galway, Ireland. **(Keynote speaker)**
37. 2014, *Technology for the early detection of storm surges, combining advanced mathematical techniques with acoustic sciences*, 6th EE and CR Seminar, New York, NY, USA. **(Invited)**
38. 2014, *Extreme water waves*, Advances in Applied Nonlinear Mathematics, Bristol, UK. **(Invited)**
39. 2014, *Local analysis of wave fields from hindcasted sea states for rogue wave risk evaluations*, 7th International Conference "Solitons, collapses and turbulence : Achievements, Developments and Perspectives" (SCT-14) in honor of Vladimir Zakharov's 75th birthday, Chernogolovka, Russia.
40. 2014, *A two dimensional experimental investigation of slamming of an Oscillating Wave Surge Converter*, ISOPE-2014, Busan, Korea.
41. 2013, *Observation of rogue waves*, ANZCOP, Fremantle, Australia. **(Invited)**
42. 2013, *Extreme waves : their observation and their generation*, Physique des phénomènes extrêmes, Nice, France. **(Keynote speaker)**
43. 2013, *New methods for sensitivity analysis and uncertainty quantification of tsunamis*, 14th Asian Congress of Fluid Mechanics, Hanoi, Vietnam. **(Keynote speaker)**
44. 2013, *The future wave climate of Ireland : from averages to extremes*, IUTAM Symposium on the Dynamics of Extreme Events Influenced by Climate Change, Lanzhou, China.
45. 2013, *The characteristics of wave impacts on an oscillating wave surge converter*, ISOPE-2013, Anchorage, AS, USA.
46. 2013, *A detailed investigation of the nearshore wave climate and nearshore energy resource on the west coast of Ireland*, OMAE-2012, Nantes, France.
47. 2013, *Two-dimensional and three-dimensional simulation of wave interaction with an oscillating wave surge converter*, 30th Int. Workshop on Water Waves and Floating Bodies, L'Isle-sur-la-Sorgue, France.
48. 2012, *Special topics of tsunami research*, Mathematical modeling and analysis of extreme sea waves, Fondation des Treilles, Tourtour, France.
49. 2011, *Rogue waves in Ireland*, Rogue waves, Dresden, Germany.

50. 2011, *Dissipative effects in potential flow*, ICSH, Shanghai, China.
51. 2011, *The numerical computation of violent waves - Application to wave energy converters*, 10th International Conference on Mathematical and Numerical Aspects of Waves (Waves 2011), Vancouver, Canada. **(Keynote speaker)**
52. 2011, *Velocity profiles and energy beneath near-breaking waves*, ISOPE-2011, Maui, HI, USA.
53. 2011, *On the use of finite-fault solution for tsunami generation problems*, ISOPE-2011, Maui, HI, USA.
54. 2011, *Ocean wave energy : an asset and a threat*, Waves in Fluids III, Rio, Brazil. **(Invited)**
55. 2010, *Analytical, computational and experimental modelling for wave energy systems*, NUIM Wave Energy Workshop, Maynooth, Ireland. **(Invited)**
56. 2010, *Breathers, solitons and freak waves*, Irish Mathematical Society, Dublin, Ireland. **(Keynote speaker)**
57. 2010, *Computational modelling for wave energy systems*, Ireland-Taiwan Workshop, Dublin, Ireland. **(Invited)**
58. 2010, *Comparative numerical study*, ISOPE-2010, Beijing, China.
59. 2010, *Visco-potential flow and time-harmonic ship waves*, 25th Int. Workshop on Water Waves and Floating Bodies, Harbin, China.
60. 2009, *Nonlinear waves and the Maslov Index*, The University of Warwick, UK. **(Co-organiser)**
61. 2009, *How does sedimentary layering affect the generation of tsunamis ?*, 28th International Conference on Ocean, Offshore and Arctic Engineering, Honolulu, USA. **(Invited)**
62. 2009, *A comparison of strongly nonlinear Boussinesq models*, 6th IMACS International Conference on nonlinear evolution equations and wave phenomena : computation and theory, Athens, USA. **(Invited)**
63. 2009, *Extreme value phenomena in optics and hydrodynamics*, 6th IMACS International Conference on nonlinear evolution equations and wave phenomena : computation and theory, Athens, USA. **(Invited)**
64. 2009, *Dimensionless numbers, scaling laws, speed of sound and physics of impact in sloshing problems*, 2nd Symposium on Marine Hydrodynamics, Seoul National University, Korea. **(Invited)**
65. 2008, *Large amplitude internal waves*, Workshop on internal waves, ICMS, Edinburgh, UK. **(Keynote speaker)**
66. 2008, *On the simulation of aerated flows*, 7th EuroMech Fluid Mechanics Conference, Manchester, UK.
67. 2008, *A two-fluid model for violent aerated flows*, ISOPE-2008, Vancouver, Canada.
68. 2008, *Tsunami wave energy*, 4th Canadian Conference on GeoHazards, Québec, Canada.
69. 2008, *A two-fluid model for violent aerated flows*, Free boundary problems, Stockholm, Sweden.
70. 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)**
71. 2007, *Rupture dynamics and tsunami generation*, ECCOMAS, Cachan, France.
72. 2007, *On various models for wave impact*, International Conference on Violent Flows, Fukuoka, Japan.
73. 2007, *Boussinesq modelling of nearshore waves*, Waves and Operational Oceanography 2007, Brest, France. **(Invited)**
74. 2007, Trends in Numerical and Physical Modeling for Industrial Multiphase Flows, Cargèse, France.

75. 2007, *Theory of weakly damped free-surface flows*, Modèles dispersifs et dynamique des fluides, Colloque en l'honneur de Jean-Claude Saut, France. **(Invited)**
76. 2007, *Oil-bearing micrometeorites for an oily-dusty Panthalassa*, 70th Annual Meeting of the Meteoritical Society, Tucson, USA.
77. 2007, *On the fluid dynamics models for sloshing*, ISOPE-2007, Lisbon, Portugal.
78. 2007, *Random shapes in water waves*, IPAM Workshop on Image Processing for Random Shapes, Los Angeles, USA. **(Invited)**
79. 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)**
80. 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)**
81. 2006, *On the modelling of extreme water waves*, SIAM Nonlinear Waves and Coherent Structures, Seattle, USA. **(Keynote speaker)**
82. 2006, *On the generation of tsunamis*, SIAM Nonlinear Waves and Coherent Structures, Seattle, USA.
83. 2006, *Interfacial solitary waves : Bifurcations and stability*, SIAM Nonlinear Waves and Coherent Structures, Seattle, USA.
84. 2006, *Tsunamis, vagues scélérates et leur modélisation*, Les Journées de l'Académie des Sciences à Nice et à Sophia Antipolis, France. **(Invited)**
85. 2006, *Dynamics of tsunami waves*, NATO advanced research workshop on extreme man-made and natural hazards in dynamics of structures, Opatija, Croatia. **(Keynote speaker)**
86. 2006, *On the generation of tsunamis by earthquakes*, Workshop on tsunamis and nonlinear waves, Saha Institute of Nuclear Physics, Kolkata, India. **(Invited)**
87. 2005, *Freak waves*, Workshop on rogue waves, ICMS, Edinburgh, UK. **(Invited)**
88. 2005, *Wave energy focusing in a three-dimensional numerical wave tank*, Cargèse, France. **(Invited)**
89. 2005, *Seafloor rupture survey and numerical tsunami modeling*, ISOPE-2005, Seoul, Korea. **(Keynote speaker)**
90. 2005, *Wave energy focusing in a three-dimensional numerical wave tank*, ISOPE-2005, Seoul, Korea.
91. 2005, *Nonlinear water waves*, 4th IMACS International Conference on nonlinear evolution equations and wave phenomena : computation and theory, Athens, USA. **(Keynote speaker)**
92. 2005, *Dissipation and the Benjamin–Feir instability*, Annual Meeting of GAMM (Gesellschaft für Angewandte Mathematik und Mechanik), Luxemburg. **(Invited)**
93. 2004, *Wave energy focusing in a three-dimensional wave tank*, Rogue Waves 2004, Brest, France.
94. 2004, *Internal fronts with periodic oscillations*, SIAM Nonlinear Waves and Coherent Structures, Orlando, USA. **(Invited)**
95. 2004, *Generalized internal solitary waves and fronts*, 21th International Congress of Theoretical and Applied Mechanics, Warsaw, Poland.
96. 2004, *Recent progress in the theory of water waves*, British Applied Mathematics Conference, Norwich, UK. **(Keynote speaker)**
97. 2003, *One-dimensional dispersive wave turbulence*, Workshop on patterns in physics, Fields Institute, Toronto, Canada. **(Invited)**
98. 2003, *Interfacial waves in the presence of a free surface*, 5th EuroMech Fluid Mechanics Conference, Toulouse, France.

99. 2003, *Two-layer flows over an obstacle*, Equadiff 2003, Hasselt, Belgium. **(Invited)**
100. 2003, *Unforced and forced two-layer flows*, ICIAM 2003, Sydney, Australia.
101. 2003, *Numerical model using the Fast Multipole Algorithm for 3D surface waves*, ISOPE-2003, Honolulu, USA.
102. 2003, *One- and two-layer flows past an obstacle*, HYDRALAB Conference and User Meeting, Budapest, Hungary. **(Invited)**
103. 2003, *Two-layer flows over an obstacle*, Workshop on Structure and Stability of Interfacial Waves, Loughborough, UK. **(Invited)**
104. 2002, *On internal fronts*, 55th Annual Meeting of the Division of Fluid Mechanics, Dallas, USA.
105. 2002, *Kolmogorov spectra of weak turbulence in media with two types of interacting waves*, Solitons, Collapses and Turbulence, Chernogolovka, Russia. **(Invited)**
106. 2002, *Kolmogorov spectra of weak turbulence in media with two types of interacting waves*, 9th European Turbulence Conference, Southampton, UK.
107. 2002, *Response of a floating ice plate to a moving load*, ISOPE-2002, Kyushu, Japan.
108. 2001, *A three-dimensional numerical wave tank*, 54th Annual Meeting of the Division of Fluid Mechanics, San Diego, USA.
109. 2001, *On the interaction between surface and internal waves*, Isaac Newton Institute, Cambridge, UK. **(Invited)**
110. 2001, *A new three-dimensional numerical wave tank*, BRIMS Day, Isaac Newton Institute, Cambridge, UK. **(Invited)**
111. 2001, *Nonlinear flexural and gravity waves*, Workshop on Mathematical Fluid Dynamics, Hull, UK. **(Invited)**
112. 2001, *On solitary waves in stratified flows*, Recent Developments in the Mathematical Theory of Water Waves, Oberwolfach, Germany. **(Invited)**
113. 2000, *Wave turbulence in one-dimensional models*, 20th International Congress of Theoretical and Applied Mechanics, Chicago, USA.
114. 2000, *Overturning waves*, ICCE, Sydney, Australia.
115. 2000, *Turbulence of one-dimensional weakly nonlinear dispersive waves*, AMS Summer Research Conference on Dispersive Wave Turbulence, South Hadley, USA. **(Invited)**
116. 1999, *Interfacial waves in the presence of a free surface*, Equadiff 99, Berlin, Germany. **(Invited)**
117. 1999, *Critical states and minima for an energy with second-order gradients*, SIAM Dynamical Systems Conference, Snowbird, USA.
118. 1998, *Interfacial waves underneath a sea ice sheet*, EMAC '98, 3rd Biennial Engineering Mathematics and Applications Conference, Adelaide, Australia.
119. 1998, *A selection principle stemming from energy considerations*, STAMM Conference, Nice, France.
120. 1998, *On the transition from two-dimensional to three-dimensional waves*, EuroMech Conference, Istanbul, Turkey.
121. 1997, *Solitary waves with algebraic decay*, 3rd EuroMech Fluid Mechanics Conference, Göttingen, Germany.
122. 1997, *Solitary waves with algebraic decay*, 12th Int. Workshop on Water Waves and Floating Bodies, Marseille, France.
123. 1996, *Bifurcation and stability of short-crested waves*, 49th Annual Meeting of the Division of Fluid Mechanics, Syracuse, USA.
124. 1996, *Bifurcation and stability of short-crested waves*, 19th International Congress of Theoretical and Applied Mechanics, Kyoto, Japan.

125. 1996, *On asymmetric capillary–gravity waves*, Dynamical Systems in Fluid Mechanics, Oberwolfach, Germany. **(Invited)**
126. 1996, *Free-surface flows with several stagnation points*, 11th Int. Workshop on Water Waves and Floating Bodies, Hamburg, Germany.
127. 1994, *Bifurcation and stability of interfacial waves*, American Mathematical Society, Stillwater, USA. **(Invited)**
128. 1994, *Degenerate capillary–gravity interfacial solitary waves*, IUTAM/ISIMM Symposium on Structure and Dynamics of Nonlinear Waves in Fluids, Hannover, Germany.
129. 1994, *Capillary-gravity interfacial waves*, 4th International Symposium on Stratified Flows, Grenoble, France.
130. 1994, *Bifurcations and stability of capillary–gravity waves*, Symposium in honor of J.P. Guiraud, Paris, France. **(Invited)**
131. 1993, *Resonant capillary–gravity interfacial waves*, 46th Annual Meeting of the Division of Fluid Mechanics, Albuquerque, USA.
132. 1993, *The 1 :2 mode interaction in capillary–gravity waves*, Dynamical Systems, Bifurcations and Symmetry, Cargèse, France.
133. 1993, *Spatio–Temporal Evolution of Patterns in Nonlinear Mechanics*, Annual Meeting of EC project, Utrecht, Netherlands.
134. 1992, *Spatio–Temporal Evolution of Patterns in Nonlinear Mechanics*, Annual Meeting of EC project, Nice, France.
135. 1992, *Capillary–gravity solitary waves with damped oscillations*, 18th International Congress of Theoretical and Applied Mechanics, Haifa, Israel.
136. 1992, *Space- and time-periodic interfacial waves*, Wave Phenomena II : Modern Theory and Applications, Edmonton, Canada.
137. 1992, *Nonlinear bow flows with splashes*, 7th Int. Workshop on Water Waves and Floating Bodies, Val de Reuil, France.
138. 1992, *Solitary waves with surface tension*, Instabilities in multiphase flows, Rouen, France.
139. 1991, *Ideal jet flow with a stagnation streamline*, ICIAM, Washington, USA.
140. 1989, *Group-theoretic considerations lead to new solutions of the water wave problem*, 4th Int. Workshop on Water Waves and Floating Bodies, Øystese, Norway.
141. 1988, *A numerical model for weir flows*, First National Fluid Dynamics Congress, Cincinnati, USA.
142. 1988, *The role of symmetry in the study of capillary–gravity waves*, SIAM Annual Meeting, Minneapolis, USA.
143. 1987, *Velocity observations in the wave boundary layer on the seafloor*, AGU Fall Meeting, San Francisco, USA.
144. 1987, *Conformal maps for well hydraulics*, AGU Spring Meeting, Baltimore, USA.
145. 1986, *The effects of wave-induced seepage on a foundation plate resting on the seabed*, Ocean Structural Dynamics Symposium'86, Corvallis, USA.
146. 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, Ocean Engineering

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

DNVA : Norwegian Academy of Science and Letters
RIA : Royal Irish Academy
AE : Academia Europaea
SIAM : Society for Industrial and Applied Mathematics
ISOPE : International Society of Offshore and Polar Engineers
EuroMech : European Mechanics Society
IMS : Irish Meteorological Society
EGU : European Geophysical Union

SUPERVISED THESES

CURRENT

Name : **Cian Warby**
Date : started in september 2020
Topic : Stochastic partial differential equations

Name : **Claire Bergin**
Date : started in september 2020
Topic : Damping of waves by rain

Name : **Daniel Santiago Peláez-Zapata**
Date : started in february 2020
Topic : Field measurements of wave breaking

Name : **Ryan Smith**
Date : started in october 2019
Topic : Optical flow

Name : **Tatjana Kokina**
Date : started in september 2019
Topic : Wave breaking

Name : **Daniel Giles**
Date : started in september 2017
Topic : Development of an operational tool for predicting tsunami inundation and induced currents

Name : **Clément Calvino**
Date : started in september 2017
Topic : Coupled ocean-wave models

Name : **Geng Tian**
Date : started in september 2017
Topic : Modelling of wave-structure interaction : BEM simulation and experiments

PAST

Name :	**Jelena Janjic**
Date :	march 2020
Topic :	Wave energy resource of the northeast Atlantic ocean

Name :	**Aleksandar Jakovljevic**
Date :	september 2019
Topic :	Impact of wave-current interactions on tidal current turbine performance

Name :	**Luc Lenain**
Date of defence :	september 2017
Topic :	Experimental and numerical studies of the kinematics and dynamics of surface waves
Present position :	Principal development engineer at Scripps Institution of Oceanography

Name :	**Joseph Brennan**
Date of defence :	march 2017
Topic :	On the emergence of extreme ocean waves
Present position :	Bank of America

Name :	**Dimitra Salmanidou**
Date of defence :	march 2017
Topic :	Numerical modelling and statistical emulation of landslide induced tsunamis
Present position :	Postdoc at University College London

Name :	**Yanji Wei**
Date of defence :	october 2015
Topic :	Development of numerical tools for Oscillating Wave Surge Converters
Present position :	Marine Engineer at Aktis Hydraulics

Name :	**Shanshan Xu**
Date of defence :	october 2015
Topic :	On systems of multiply reflected waves
Present position :	Lecturer at Nanyang Normal University

Name :	**Dripta Sarkar**
Date of defence :	july 2015
Topic :	Wave energy converters
Present position :	Postdoc at University of Oxford

Name :	**Andria Sarri**
Date of defence :	november 2014
Topic :	Tsunamis generated by submarine landslides : a statistical approach
Present position :	HSBC

Name :	**Sarah Gallagher**
Date of defence :	october 2014
Topic :	Wave climate
Present position :	Engineer at Met Eireann

Name :	**Themistoklis Stefanakis**
Date of defence :	september 2013
Topic :	Tsunami amplification phenomena
Present position :	Poten & Partners

Name : **Laura Cooke (O'Brien)**
Date of defence : september 2012
Topic : Tsunamis generated by submarine landslides
Present position : Lecturer at TU Dublin

Name : **Déborah Elbaz**
Date of defence : november 2011
Topic : Propagation of a strong shock in an heterogeneous medium
Present position : Research engineer at CEA

Name : **Frédéric Chardard**
Date of defence : may 2009
Topic : Stability of solitary waves and fronts
Present position : Lecturer at University of St-Etienne

Name : **Hai Yen Nguyen**
Date of defence : february 2008
Topic : Numerical modelling of interfacial waves
Present position : Software engineer at Thales

Name : **Hafid Fikri**
Date of defence : december 2007
Topic : Aerodynamic models for elasticity in transsonic domain
Present position : R & D at RTE

Name : **Denys Dutykh**
Date of defence : december 2007
Topic : Mathematical modelling of tsunamis
Present position : Researcher at CNRS

Name : **Christophe Fochesato**
Date of defence : september 2004
Topic : Numerical models for water waves and internal waves
Present position : Research engineer at CEA

Name : **Emilian Părău**
Date of defence : september 2000
Topic : Flexural-gravity and capillary-gravity waves
Present position : Professor at University of East Anglia

Name : **Philippe Guyenne**
Date of defence : june 2000
Topic : Numerical models for weak turbulence and wave breaking
Present position : 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
Present position : Engineer at UBS

Name : **Paul Christodoulides**
Date of defence : june 1994
Topic : Nonlinear study of interfacial waves
Present position : Assistant professor at Cyprus University 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 breakwater 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.

29. Akylas T., Dias F. & Grimshaw R. 1998 The effect of the induced mean flow on solitary waves in deep water. *J. Fluid Mech.* **355**, 317–328.

30. Daboussy D., Dias F. & Vanden-Broeck J.-M. 1998 Gravity flows with a free surface of finite extent. *Europ. J. Mech. B* **17**, 19–31.

31. Brevdo L., Laure P., Dias F. & Bridges T. 1999 Linear pulse structure and signalling in a film flow on an inclined plane. *J. Fluid Mech.* **396**, 37–71.

32. Michallet H. & Dias F. 1999 Numerical study of generalized interfacial solitary waves. *Phys. Fluids* **11**, 1502–1511.

33. Dias F. & Kuznetsov E. A. 1999 On the nonlinear stability of solitary wave solutions of the fifth-order Korteweg–de Vries equation. *Phys. Lett. A* **263**, 98–104.

34. Dias F. & Ghidaglia J.-M. 2000 Critical states and minima for an energy with second order gradients. *Proc. R. Soc. Lond. A* **456**, 97–124.

35. Dias F. & Hărăguş–Courcelle M. 2000 On the transition from two-dimensional to three-dimensional water waves. *Stud. Appl. Math.* **104**, 91–127.

36. Părău E. & Dias F. 2000 Ondes solitaires forcées de capillarité-gravité. *C. R. Acad. Sci. Paris* **331 I**, 655–660.

37. Guyenne P., Zakharov V., Pushkarev A. & Dias F. 2000 Turbulence d'ondes dans des modèles unidimensionnels. *C. R. Acad. Sci. Paris* **II 328**, 757–762.

38. Părău E. & Dias F. 2001 Interfacial periodic waves of permanent form with free-surface boundary conditions. *J. Fluid Mech.* **437**, 325–336.

39. Bridges T., Dias F. & Menasce D. 2001 Steady three-dimensional water-wave patterns on a finite-depth fluid. *J. Fluid Mech.* **436**, 145–175.

40. Zakharov V., Guyenne P., Pushkarev A. & Dias F. 2001 Wave turbulence in one-dimensional models. *Physica D* **152-153**, 573–619.

41. Dias F. & Il'ichev A. 2001 Interfacial waves with free-surface boundary conditions : an approach via a model equation. *Physica D* **150**, 278–300.

42. Grilli S., Guyenne P. & Dias F. 2001 A fully nonlinear model for three-dimensional overturning waves over arbitrary bottom. *International Journal for Numerical Methods in Fluids* **35**, 829–867.

43. Dias F., Guyenne P. & Zakharov V. E. 2001 Kolmogorov spectra of weak turbulence in media with two types of interacting waves. *Phys. Lett. A* **291**, 139–145.

44. Michallet H., Mathis C., Maïssa P. & Dias F. 2001 Flow filling a curved pipe. *ASME J. Fluids Engineering* **123**, 686–691.

45. Dias F. & Vanden-Broeck J.-M. 2002 Generalised critical free-surface flows. *Journal of Engineering Mathematics* **42**, 291–301.

46. Dias F. & Vanden-Broeck J.-M. 2002 Steady two-layer flows over an obstacle. *Phil. Trans. R. Soc. Lond. A* **360**, 2137–2154.

47. Părău E. & Dias F. 2002 Nonlinear effects in the response of a floating ice plate to a moving load. *J. Fluid Mech.* **460**, 281–305.

48. Dias F. & Vanden-Broeck J.-M. 2003 On internal fronts. *J. Fluid Mech.* **479**, 145–154.

49. Fochesato C. & Dias F. 2003 Amplitude des oscillations d'ondes solitaires généralisées. *C. R. Acad. Sci. Paris* **I 337**, 137–142.
50. Dias F. & Vanden-Broeck J.-M. 2004 Trapped waves between submerged obstacles. *J. Fluid Mech.* **509**, 93–102.
51. Dias F. & Vanden-Broeck J.-M. 2004 Two-layer hydraulic falls over an obstacle. *Europ. J. Mech. B* **23**, 879–898.
52. Fochesato C., Dias F. & Grimshaw R. 2005 Generalized solitary waves and fronts in coupled Korteweg–de Vries systems. *Physica D* **210**, 96–117.
53. Binder B. J., Dias F. & Vanden-Broeck J.-M. 2005 Forced solitary waves and fronts past submerged obstacles. *Chaos* **15**, 037106-1–13.
54. Agafontsev D. S., Dias F. & Kuznetsov E. A. 2006 Bifurcations and stability of internal solitary waves. *JETP Letters* **83**, 201–205.
55. Binder B. J., Dias F. & Vanden-Broeck J.-M. 2006 Steady free-surface flow past an uneven channel bottom. *Theoretical and Computational Fluid Dynamics* **20**, 125–144.
56. Fochesato C. & Dias F. 2006 A fast method for nonlinear three-dimensional free-surface waves. *Proc. R. Soc. Lond. A* **462**, 2715–2735.
57. Dutykh D., Dias F. & Kervella Y. 2006 Linear theory of wave generation by a moving bottom. *C. R. Acad. Sci. Paris, Ser. I* **343**, 499–504.
58. Chardard F., Dias F. & Bridges T.J. 2006 Fast computation of the Maslov index for hyperbolic linear systems with periodic coefficients. *J. Phys. A : Math. Gen.* **39**, 14545–14557.
59. Agafontsev D. S., Dias F. & Kuznetsov E. A. 2007 Deep-water internal solitary waves near critical density ratio. *Physica D* **225**, 153–168.
60. Fochesato C., Grilli S. & Dias F. 2007 Numerical modeling of extreme rogue waves generated by directional energy focusing. *Wave Motion* **44**, 395–416.
61. Kervella Y., Dutykh D. & Dias F. 2007 Comparison between three-dimensional linear and nonlinear tsunami generation models. *Theoretical and Computational Fluid Dynamics* **21**, 245–269.
62. Dutykh D. & Dias F. 2007 Viscous potential free-surface flows in a fluid layer of finite depth. *C. R. Acad. Sci. Paris, Ser. I* **345**, 113–118.
63. Dutykh D. & Dias F. 2007 Dissipative Boussinesq equations. *C. R. Mecanique* **335**, 559–583.
64. Bridges T. & Dias F. 2007 Enhancement of the Benjamin–Feir instability with dissipation. *Phys. Fluids* **19**, 104104.
65. Binder B. J., Dias F. & Vanden-Broeck J.-M. 2008 Influence of rapid changes in a channel bottom on free-surface flows. *IMA Journal of Applied Mathematics* **73**, 254–273.
66. Dias F., Dyachenko A. & Zakharov V. 2008 Theory of weakly damped free-surface flows : a new formulation based on potential flow solutions. *Physics Letters A* **372**, 1297–1302.
67. Agafontsev D. S., Dias F. & Kuznetsov E. A. 2008 Collapse of solitary waves near transition from supercritical to subcritical bifurcations. *JETP Letters* **87**, 767–771.
68. Nguyen H.Y. & Dias F. 2008 A Boussinesq system for two-way propagation of interfacial waves. *Physica D* **237**, 2365–2389.
69. Kuznetsov E. A., Agafontsev D. S. & Dias F. 2008 Bifurcations of solitary waves. *J. Math. Physics, Analysis, Geometry* **4**, 529–550.
70. Christodoulides P. & Dias F. 2009 Impact of a rising stream on a horizontal plate of finite extent. *J. Fluid Mech.* **621**, 243–258.
71. Dutykh D. & Dias F. 2009 Energy of tsunami waves generated by bottom motion. *Proc. R. Soc. Lond. A* **465**, 725–744.
72. Binder B. J., Vanden-Broeck J.-M. & Dias F. 2009 On satisfying the radiation condition in free-surface flows. *J. Fluid Mech.* **624**, 179–189.

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