

Dimitrios Mitsotakis

Curriculum Vitae

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Personal data

Date of Birth March 6, 1978
Place of Birth Athens, Greece
Nationality Greek
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Professional experience: Teaching, work and research

2014–Today **Victoria University of Wellington, Wellington New Zealand**, Senior Lecturer.
2012–2014 **University of California, Merced, U.S.A.**, Visiting Assistant Professor.
2010–2012 **University of Minnesota, Minneapolis, U.S.A.**, IMA Postdoctoral Associate.
2008–2010 **UMR de Mathématiques, Université de Paris-Sud, Orsay, France**, Postdoctoral Research Fellow.
2007–2008 **Hellenic Army, Greece**, Programmer in the C-ESEP development team.
2000–2007 **Institute of Applied and Computational Mathematics (I.A.C.M.-FO.R.T.H.)**, Greece, Research Assistant in various research projects on the Numerical Solution of PDEs and Computational Fluid Dynamics.
2000–2007 **University of Athens, Greece**, Teaching assistant in the undergraduate courses Numerical Analysis I and II, Ordinary Differential Equations, Methods in Applied Mathematics and the graduate courses Computational Mathematics I and II, Numerical Methods for PDE, Applied Functional Analysis; Research assistant in various research projects.
2001–2004 **Interface S.A. (ALTEC group)**, Greece, Instructor of Informatics.
1997–2000 **Department of Mathematics, University of Crete, Greece**, Teaching assistant in Numerical Analysis, Numerical Linear Algebra, Calculus I. Analysis I.
June-September 1999 **Foundation of Research and Technology Hellas (FORTH). Institute of Applied and Computational Mathematics (IACM)**, Heraklion, Greece, Research Assistant.
July-September 2000 **Edinburgh Parallel Computing Centre(EPCC), University of Edinburgh, Great Britain**, Summer Scholarship Programme.

Research Fields

Primary **Applied and Numerical Mathematics.**
Secondary **Scientific Computing, Partial Differential Equations, Coastal Hydrodynamics.**

Education

- 2003–2007 **Ph.D. in Mathematics**, *University of Athens*, Greece.
- 2000–2002 **M.Sc. in Applied and Numerical Analysis**, *University of Athens*, Greece.
- 1996–2000 **B.Sc. in Mathematics**, *University of Crete*, Greece, Grade 8.34 out of 10.
Graduated 1st in his class
- 1996 **Graduated from the 5th High School of Zographou**, *Athens*, Greece.

Academic awards and prizes

- 2008–2010 **Marie Curie Research Training Grant**, No. *PIEF-GA-2008-219399* of the *Commission of the European Communities*.
- 2005 **Travel award to attend the “Mathematics Summer School on Mathematical Theory of Nonlinear Waves”**, *Center for Advanced Mathematical Sciences, American University of Beirut, Lebanon*.
- 2005 **Travel award to attend the “Fourth IMACS International Conference on Nonlinear Equations and Wave Phenomena: Computation and Theory”**, *The University of Georgia, Athens GA, USA*.
- 2001–2002 **Scholarship by the University of Athens**, *EPEAK II*.
- 2000–2001 **Scholarship by IKY (State Foundation of Scholarships)**, *First in the M.Sc. graduate class (degree: 8.87 out of 10)*.
- 1998–1999 **Scholarship and Prize by IKY (State Foundation of Scholarships)**, *First in the undergraduate class (degree: 8.34 out of 10)*.

Participation in funded projects

- 2015–2018 **Principal Investigator, Marsden Fund, Fast Start**, *Numerical solution of time-dependent multi-dimensional nonlinear dispersive wave equations with applications to coastal hydrodynamics (NZD400,000)*.
- 2015–2016 **Principal Investigator, Research Establishment Grant**, *Numerical solution of Nonlinear Schrödinger Equations (NZD5,000)*.
- 2008–2010 **Principal Investigator, Marie Curie Research Training Grant No. PIEF-GA-2008-219399 of the Commission of the European Communities**, *Theory and Numerical Analysis for Boussinesq systems with applications in coastal hydrodynamics (EUR170,000)*.
- 2007–2008 **“Analysis and Numerical Methods for Linear and Nonlinear Wave problems”**, *Greek-French joint research and technology program, GSRT*.
- 2006–2007 **“TRANSFER: Tsunami Risk and Strategies for the European Region”**, *FP6 STREP Contract No. 037058, IACM-FORTH*.
- 2005 **“Computational methods for the numerical solution of P.D.E.’s of scientific and technological interest”**, *Greek-Spanish joint research and technology program, GSRT*.
- 2004–2006 **PYTHAGORAS I research program “Numerical Solution of P.D.E.’s, and mathematical models in Science and Technology”**, (*EPEAEK II*).

Computer skills

| | | | |
|-----------------------|---|------------|--|
| Programming languages | Competitive programming skills in many programming languages including: C, C++, Fortran, Pascal, Visual Basic, Python, Java | Data bases | SQL, mySQL, embedded SQL, PhP, Apache server, Oracle |
|-----------------------|---|------------|--|

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|--------------------|---------------------------------------|----------------------|--------------------------|----------------------|
| Parallel computing | MPI, OpenMP | Scientific computing | Matlab, FFTW, FreeFEM++ | Mathematica, Octave, |
| Operating systems | Unix, Linux, MacOS, Microsoft Windows | Other | Microsoft Office, OpenGL | LaTeX, HTML, |

Languages

| | | |
|---------|---------------------|---|
| Greek | Native | |
| English | High Fluency | <i>First Certificate in English, Cambridge University</i> |
| French | Good | <i>Delf A1</i> |

Collaborators

- 1 Dimitrios Antonopoulos (University of Athens, Greece)
- 2 Francois Blanchette (University of California, Merced, USA)
- 3 Jerry Bona (University of Illinois at Chicago, USA)
- 4 Jean-Guy Caputo (Labratoire de Mathématiques de l'INSA de Rouen, France)
- 5 Leonid Chubarov (Institute of Computational Technologies, Novosibirsk, Russia)
- 6 Didier Clamond (Université de Nice Sophia Antipolis, France)
- 7 Frederic Dias (University College, Dublin, Ireland)
- 8 Vassilios Dougalis (University of Athens, Greece)
- 9 Angel Duran (Universidad de Valladolid, Spain)
- 10 Denys Dutykh (Université de Savoie, France)
- 11 Mark Hoefer (North Carolina State University, USA)
- 12 Boaz Ilan (University of California Merced, USA)
- 13 Jean-Baptiste Apoung-Kamga (Université Paris Sud 11, France)
- 14 Henrik Kalisch (University of Bergen, Norway)
- 15 Theodoros Katsaounis (University of Crete, Greece)
- 16 Paul Millewski (University of Bath, UK)
- 17 Céline Labart (Université de Savoie, France)
- 18 Angel Lopez-Marcos (Universidad de Valladolid, Spain)
- 19 Peter Olver (University of Minnesota, USA)
- 20 Jean-Claude Saut (Université Paris Sud 11, France)
- 21 Yuri Shokin (Institute of Computational Technologies, Novosibirsk, Russia)
- 22 Nina Shokina (University of Freiburg, Germany)

Thesis and postdocs advisors

- 1 Vassilios Dougalis, PhD Advisor, (University of Athens, Greece)
- 2 Jean-Claude Saut, Postdoc Advisor, (Université Paris Sud 11, France)
- 3 Fadil Santosa, Postdoc Advisor, (University of Minnesota, USA)

Publications

In Refereed Journals

- J1 (with V. Dougalis, A. Duran, M. A. Lopez-Marcos) A numerical study of the stability of solitary waves of the Bona-Smith family of Boussinesq systems, *J. Nonlinear Sci.* 17(2007), 569–607

- J2 (with J. Bona and V. Dougalis) Numerical solution of KdV-KdV systems of Boussinesq equations: I. The numerical scheme and generalized solitary waves, *Mat. Comp. Simul.*, 74(2007), 214–228
- J3 (with J. Bona and V. Dougalis) Numerical solution of KdV-KdV systems of Boussinesq equations: II. Generation and evolution of radiating solitary waves, *Nonlinearity*, 21(2008), 2825–2848
- J4 (with V. Dougalis and J.-C. Saut) On some Boussinesq systems in two space dimensions: Theory and numerical analysis, *Math. Model. Num. Anal.*, 41(2007), 825–854
- J5 (with V. Dougalis and J.-C. Saut) On initial-boundary value problems for a Boussinesq system of BBM-BBM type in a plane domain, *Discrete. Cont. Dyn. Systems*, 23(2009), 1191–1204
- J6 (with D. Antonopoulos and V. Dougalis) Initial-boundary value problems for the Bona-Smith family of Boussinesq systems, *Adv. Differential Equations*, 14(2009), 27–53
- J7 Boussinesq systems in two space dimensions over a variable bottom for the generation and propagation of tsunami waves, *Mat. Comp. Simul.*, 80(2009), 860–873
- J8 (with D. Antonopoulos and V. Dougalis) Numerical solution of Boussinesq systems of the Bona-Smith family, *Appl. Numer. Math.*, 30(2010), 314–336
- J9 (with D. Dutykh) On the relevance of the dam break problem in the context of nonlinear shallow water equations, *Discrete Contin. Dyn. Syst.*, 13(2010), 799–818
- J10 (with V. Dougalis and J.-C. Saut) Initial-boundary-value problems for Boussinesq systems of Bona-Smith type on a plain domain: theory and numerical analysis, *J. Sci. Comput.* 44(2010), 109–135
- J11 (with D. Antonopoulos and V. Dougalis) Galerkin approximations of periodic solutions of Boussinesq systems, *Bulletin of the Greek Mathematical Society* 57(2010), 13–30
- J12 (with D. Dutykh and T. Katsaounis) Finite volume schemes for dispersive wave propagation and run-up, *J. Comp. Phys.* 230(2011), 3035–3061
- J13 (with D. Dutykh and C. Labart) Long wave runup on random beaches, *Phys. Rev. Lett.*, 170(2011), 184504
- J14 (with D. Dutykh, L. Chubarov and Yu. Shokin) Horizontal displacements contribution to tsunami wave energy balance, *Ocean Modelling*, 56(2012), 43–56
- J15 (with F. Dias, D. Dutykh and X. Gardeil) On the use of finite fault solution for tsunami generation problems, *Theor. Comp. Fluid Dyn.*, 27(2013), 177–199
- J16 (with D. Dutykh and T. Katsaounis) Finite volume methods for unidirectional dispersive wave models, *Int. J. Numer. Meth. Fluids*, 71(2013), 717–736
- J17 (with D. Dutykh, D. Clamond and P. Milewski) An implicit-explicit finite volume scheme for the fully nonlinear Serre system of equations, *Euro. Jnl of Applied Mathematics*, 24(2013), 761–787
- J18 (with D. Dutykh and B. Ilan) On the Galerkin/finite element method for the Serre equations, *J. Sci. Comp.* 61(2014), 166–195
- J19 (with A. Duran and D. Dutykh) On the Gallilean invariance of some dispersive wave equations, *Studies in Applied Mathematics, Stud. Appl. Math.*, 131(2013), 359–388
- J20 (with V. Dougalis and A. Duran) Numerical solution of the Benjamin equation, *Wave Motion* 52(2015), 194–215
- J21 (with V. Dougalis and A. Duran) Numerical approximation of solitary waves of the Benjamin equation, to appear in *Math. Comp. Simul.*
- In Conferences Proceedings**
- C1 (with V. Dougalis) Solitary waves of the Bona-Smith system, *Advances in scattering theory and biomedical engineering*, World Scientific, New Jersey, (2004), pp. 286–294. (eds. D. Fotiadis and C. Massalas)

- C2 (with D. Dutykh and T. Katsaounis) Finite volume schemes for Boussinesq type equations, Proceedings of Colloque EDP-Normandie, 28 & 29 October 2010, Caen, France, pp. 15-21
- C3 (with D. Dutykh and T. Katsaounis) Dispersive wave runup on non-uniform shores. Finite volumes for complex application VI – Problems & Perspectives. Springer Proceedings in Mathematics, 2011, Volume 4, Part 1, 389 - 397
- C4 (with D. Dutykh, S. Beisel, N. Shokina) Dispersive waves generated by an underwater landslide, Proceeding of the Numerical Methods for Hyperbolic Equations, Theory and Applications. Taylor & Francis Group, London, pp. 245 - 250, 2013. (Eds: Vazquez-Cendon et al.)
- C5 (with D. Dutykh, S. Beisel, N. Shokina) On waves generated by an underwater landslide. In Proceedings of the IV Conference “Applied Problems of the fluid mechanics, heat and mass transfer”, 1–3 November 2012, Dnepropetrovsk, Ukraine, pp. 75 - 79, 2012
- C6 (with D. Clamond and D. Dutykh) Adaptive modelling of shallow fully nonlinear gravity waves, RIMS Kokyoroku, 45 - 65, 1947(2015)

Book Chapters

- B1 (with V. Dougalis) Theory and numerical analysis of Boussinesq systems: A review, in Effective Computational Methods in Wave Propagation, N. A. Kampanis, V. A. Dougalis, J. A. Ekaterinaris (eds.), CRC Press 2008, pp. 63–110

Theses and Technical Reports

Ph.D. Thesis

- T1 Theory and numerical analysis of nonlinear dispersive waves: Boussinesq systems in one and two space dimensions, University of Athens, 2007 (Ph.D. Thesis)
The outcomes of this Thesis have been published in the papers J2–J6 and J8.

M.Sc. Thesis

- T2 Solitary Waves of the Bona-Smith systems: Existence, Uniqueness and Stability, University of Athens, 2003 (M.Sc. Thesis)
The outcomes of this Thesis have been published in the papers J1 and C1.

B.Sc. Thesis

- T3 The Diameter of the Banach-Mazur Compactum, University of Crete, 2000 (B.Sc. Thesis)

Other technical reports and notes

- T4 Numerical Solution of Evolutionary Partial Differential Equations (with. E. Fergadakis, Dr. Th. Katsaounis), University of Crete, 1998 (in Greek)
- T5 Visualisation of 2D and 3D Discrete Element Models using OpenGL and MPI. The University of Edinburgh, 2000
- T6 A simple introduction to water waves. University of California, Merced, 2012