

# Dimitrios Mitsoudis

✉ Department of Naval Architecture  
University of West Attica  
28 Agiou Spyridona Str.  
GR-12243 Egaleo, Greece

✉ [dmits@uniwa.gr](mailto:dmits@uniwa.gr)  
☎ +30 210 538 7354  
FAX +30 210 591 1142  
📞 +30 697 977 5828

Born: January 19, 1966–Athens, Greece

Nationality: Greek

## Education

- 1990 BSc in Mathematics, Department of Mathematics, University of Athens, Greece.
- 1993 MSc in the Mathematics of Nonlinear Models, Heriot-Watt University, Edinburgh, Scotland, U.K.
- 2003 PhD in the Numerical Solution of Partial Differential Equations, Department of Mathematics, University of Athens, Greece.  
*Advisor:* Prof. V. A. Dougalis.  
*Thesis:* Finite element methods for axisymmetric indefinite boundary value problems and applications in underwater acoustics

## Research Interests

Modeling and numerical analysis for wave propagation phenomena; Numerical methods for the Helmholtz equation; Numerical methods for problems in unbounded domains; Finite element methods for problems in underwater acoustics; Quasicontinuum methods.

## Professional Appointments

- 2003-2011 Visiting Assistant Professor, Department of Applied Mathematics, University of Crete.
- 2011-2013 Postdoctoral Associate, Archimedes Center for Modeling, Analysis and Computation (ACMAC), Department of Applied Mathematics, University of Crete.
- 2013-2014 Research Associate, Institute of Applied and Computational Mathematics (IACM), FORTH.
- 2014-2018 Assistant Professor, Department of Energy Technology Engineering, Technological Educational Institute of Athens.
- 2018-2020 Assistant Professor, Department of Naval Architecture, University of West Attica.
- 2020-present Associate Professor, Department of Naval Architecture, University of West Attica.

## Other affiliations

- 2003-present Collaborating researcher with Institute of Applied and Computational Mathematics (IACM), FORTH.

## Short Academic Visits

- 2017 Semester Program: Mathematical and Computational Challenges in Radar and Seismic Reconstruction, Institute for Computational and Experimental Research in Mathematics (ICERM) / Brown University, Providence RI, USA, Sep. 23 - Oct. 15, 2017.

## Publications

- S. Papadimitropoulos, D.A. Mitsoudis, C. Tsogka, Imaging in three-dimensional waveguides with partial-aperture data, *Journal of Theoretical and Computational Acoustics*, 29 (2021), 2050018.
- S. Papadimitropoulos, C. Tsogka, D.A. Mitsoudis, Imaging in three-dimensional terminating waveguides with partial-aperture data. Proceedings of the 14th International Conference on Mathematical and Numerical Aspects of Wave Propagation (WAVES 2019), Vienna, Austria, August 25-30, 2019.
- C. Tsogka, D.A. Mitsoudis, S. Papadimitropoulos, Imaging extended reflectors in a terminating waveguide, *SIAM Journal on Imaging Sciences*, 11 (2018), 1680-1716.
- M. Samarakou, P. Prentakis, D.A. Mitsoudis, D. Karolidis, S. Athinaios, Application of Fuzzy Logic for the Assessment of Engineering Students, IEEE Global Engineering Education Conference (EDUCON 2017), Athens, 2017, pp. 641-645.
- C. Tsogka, D.A. Mitsoudis, S. Papadimitropoulos, Partial-aperture array imaging in acoustic waveguides, *Inverse Problems*, 32 (2016), 125011.
- Ch. Makridakis, D. Mitsoudis, P. Rosakis, On atomistic-to-continuum couplings without ghost forces in three dimensions, *Applied Mathematics Research eXpress*, Vol. 2014, No. 1 (2014), 87-113.
- C. Tsogka, D.A. Mitsoudis, S. Papadimitropoulos, Selective imaging of extended reflectors in two-dimensional waveguides, *SIAM Journal on Imaging Sciences*, 6 (2013), 2714-2739.
- C. Tsogka, D.A. Mitsoudis, S. Papadimitropoulos, Imaging extended reflectors in a two-dimensional waveguide, Proceedings of the 11th International Conference on Mathematical and Numerical Aspects of Wave Propagation (WAVES 2013), Tunis, Tunisia, June 3-7, 2013.
- D.A. Mitsoudis, Ch. Makridakis, M. Plexousakis, Helmholtz equation with artificial boundary conditions in a two-dimensional waveguide, *SIAM J. Math. Anal.*, 44 (2012), 4320-4344.
- E.T. Flouri, D.A. Mitsoudis, N. Chrysoulakis, C.E. Synolakis, Tsunami risk and vulnerability analysis for the city of Rhodes, Proceedings of the International Offshore and Polar Engineering Conference, Rhodes, 2012, pp. 257-264.
- D.A. Mitsoudis, E. T. Flouri, N. Chrysoulakis, Y. Kamarianakis, E. Okal, C. E. Synolakis, Tsunami Hazard in the South-East Aegean Sea, *Coastal Engineering*, 60 (2012), 136-148.
- D.A. Mitsoudis, M. Plexousakis, A finite element method with nonlocal boundary conditions for the Helmholtz equation with complex wavenumber in stratified waveguides, *Acta Acustica united with Acustica*, 95 (2009), 753-756.
- G.A. Athanassoulis, K.A. Belibassakis, D.A. Mitsoudis, N.A. Kampanis, V.A. Dougalis, Coupled mode and finite element solutions of underwater sound propagation problems in stratified environments, *J. Comp. Acoustics*, 16 (2008), 83-116.
- D.A. Mitsoudis, N.A. Kampanis, V.A. Dougalis, Finite element discretization of the Helmholtz equation in an underwater acoustic waveguide, in *Effective Computational Methods in Wave Propagation*, N.A. Kampanis, V.A. Dougalis and J.A. Ekaterinaris (eds.), Chapman & Hall/CRC, 2008, 113-134.
- D.A. Mitsoudis, Near- and far-field boundary conditions for a finite element method for the Helmholtz equation in axisymmetric problems of underwater acoustics, *Acta Acustica united with Acustica*, 93 (2007), 888-898.
- N.A. Kampanis, D.A. Mitsoudis, M. Dracopoulos, Benchmarking two simulation models for underwater and atmospheric sound propagation. *Environmental Modelling and Software*, 22 (2007), 308-314.

- V.A. Dougalis, N.A. Kampanis, D.A. Mitsoudis, A finite element method for simulating underwater sound propagation in general stratified environments, in Acoustics Conference "Acoustiki 2002", Patra, 2003, 75-80.
- D.A. Mitsoudis, N.A. Kampanis, V.A. Dougalis, A finite element method for the Helmholtz equation in axially symmetric problems of underwater acoustics: error estimates and numerical experiments, in HERCMA 2001, Proceedings of the 5th Hellenic-European Conference on Computer Mathematics and its Applications, ed. by E. Lipitakis, Athens 2002, vol. 2, pp. 530-533.
- G.A. Athanassoulis, K.A. Belibassakis, V.A. Dougalis, N.A. Kampanis, D.A. Mitsoudis, Simulation of underwater sound propagation in a general stratified environment by a coupled mode and a finite element method, in the Proceedings of the Forum Acusticum Sevilla 2002 Conference, ed. by A. Calvo-Manzano et al., special issue of Revista de Acustica, vol. 33 (2002).
- (with V.A. Dougalis and I. Stratis) Translation in Greek of "Applied Mathematics", by J.D. Logan (2nd ed. John Wiley, 1996), University of Crete Press, Heraklion, 2002.

## Work on Research & Development grants

- 2004 Collaborating researcher in the project "3D Parabolic Equation models for sound propagation in underwater acoustics", Greek-French joint research and technology program. (1/1/2004 - 30/9/2004) Institute of Applied and Computational Mathematics (IACM)-FORTH.
- 2004-2006 Collaborating researcher in the PYTHAGORAS I research program "Numerical Solution of P.D.E's and mathematical models in Science and Technology", (EPEAEK II). Department of Mathematics, University of Athens.
- 2006-2009 Collaborating researcher in the project "TRANSFER": Tsunami Risk ANd Strategies For the European Region, (FP6 STREP Contract No. 037058). (1/11/2006 - 31/3/2009) IACM - FORTH.
- 2009-2010 Collaborating researcher in the project "SUME: Sustainable urban metabolism for Europe", (FP7). (1/4/2009 - 31/5/2010) IACM-FORTH.
- 2010 Collaborating researcher in the project "ADAPTIVES/ Algorithmic Development and Analysis of Pioneer Techniques for Imaging with waVES", ERC Starting Grant 239959. (1/6/2010 - 31/12/2010) IACM-FORTH.
- 2011-2013 Postdoctoral Associate, Archimedes Center for Modeling, Analysis and Computation (ACMAC), FP7-REGPOT-2009-1, #245749. (1/9/2011 - 30/9/2013) Department of Applied Mathematics, University of Crete.
- 2013-2014 Collaborating researcher in the project "ADAPTIVES/ Algorithmic Development and Analysis of Pioneer Techniques for Imaging with waVES", ERC Starting Grant 239959. (1/10/2013 - 17/6/2014) IACM-FORTH.
- 2014-2015 Collaborating researcher in the project "ADAPTIVES/ Algorithmic Development and Analysis of Pioneer Techniques for Imaging with waVES", ERC Starting Grant 239959. (1/11/2014 - 30/11/2015) IACM-FORTH.
- 2019 Collaborating researcher in the project "Integration of surface shell elements in the elastic analysis of buildings - Direct parallel solvers", Operational programme: Competitiveness, Entrepreneurship and Innovation (EPAnEK) 2014-2020. (1/1/2019 - 31/12/2019) IACM-FORTH.

## Committees and Professional Service

- 2018 Member of the Organizing Committee, Conference in Numerical Analysis of Partial Differential Equations honouring Vassilios Dougalis, University of Athens, Athens, May 10-11, 2018.

2016-2020 Management Committee member of the COST (European Cooperation in Science and Technology) Action "DENORMS: Design for Noise Reducing Materials and Structures", CA15125.

## Doctoral Students

May 2018 S. Papadimitropoulos, (Dept. of Mathematics and Applied Mathematics, University of Crete), *Imaging Extended Reflectors in Waveguides*. (Co-advisor with Ch. Tsogka.)

## Master's Students

Apr. 2015 S. Papadimitropoulos, (Dept. of Mathematics and Applied Mathematics, University of Crete), *Partial Array Imaging of Extended Reflectors in Two-Dimensional Waveguides*. (Co-advisor with Ch. Tsogka.)

## Teaching Experience

During my appointment as a Visiting Assistant Professor in the Department of Applied Mathematics of the University of Crete, from September 2003 until August 2011, I prepared notes and taught the following undergraduate courses: Calculus I, Introduction to Numerical Algorithms, Numerical Analysis, Approximation Theory, Introduction to Applied Mathematics II, Numerical Solution of Ordinary Differential Equations, Numerical Solution of Partial Differential Equations, and Linear Algebra II. I also prepared and taught the lab sessions of these courses.

During my appointment as an Assistant Professor in the Department of Energy Technology Engineering of TEI of Athens, from June 2014 until August 2018, I taught the first-year courses Mathematics I and Mathematics II, the second-year course Mathematics III, and the lab sessions of the first year course Computer Programming and the fourth-year course Energy System Optimization. In the Fall Semesters 2014 & 2015 I taught the first-year course Mathematics for Optometry of the Department of Optics & Optometry, TEI of Athens. The Spring Semesters 2017 and 2018 I taught the first-year course in Probability & Statistics of the Department of Informatics, TEI of Athens. In the Semesters 2015-2019 I taught, jointly with M. Samarakou and A. Papadakis, the graduate-level course in Critical Analysis and Research Preparation, of the MSc Programme in Energy Technology, which has been running jointly by the Department of Energy Technology Engineering of TEI of Athens and Heriot-Watt University.

After my appointment as an Assistant Professor in the Department of Naval Architecture of the University of West Attica, I am teaching, since September 2018, the first-year course Mathematics I, Mathematics II, the second-year course Numerical Analysis, the fourth-year course on Numerical Solution of Differential Equations, and the graduate-level course in Computational Methods for Engineers, jointly with C. Politis, of the MSc Programme in Advanced Technologies in Naval Architecture and Marine Engineering.

## Technical Skills

Linux and Windows operating systems. Programming in Fortran and Matlab. Maple, Mathematica.  $\LaTeX$  and Office.

## Invited Talks

- Ninth Workshop on Numerical Methods for Evolution Equations, Heraklion, Crete, September 21, 2018.
- First Congress of Greek Mathematicians (FCGM-2018), Mini Symposium: "Numerical Analysis and Scientific Computing", Athens, June 25-30, 2018, Athens, Greece.

- Department of Mathematics Seminar, School of Applied Mathematical and Physical Sciences, N.T.U.A., January 23, 2015.
- SIAM 2014 Annual Meeting, Mini Symposium: "Wave propagation and imaging in random media", Chicago, U.S.A., July 7-11, 2014.
- International Conference on Applied Mathematics, Mini Symposium: "Atomistic and Continuum Modelling in Materials", September 20, 2013, Heraklion, Crete.
- International Conference on Applied Mathematics, Mini Symposium: "Waves and Imaging", September 16, 2013, Heraklion, Crete.
- Sixth Workshop on Numerical Methods for Evolution Equations, Heraklion, Crete, September 22, 2012.
- Workshop on "Wave propagation in complex media and applications", Heraklion, Crete, May 7-11, 2012.

### Workshop & Conference Presentations

- 6th European Conference on Computational Mechanics - 7th European Conference on Computational Fluid Dynamics (ECCM - ECFD 2018), Mini Symposium: "Computational methods for inverse problems: theory and applications", Glasgow, June 11-15, 2018.
- 11th World Congress on Computational Mechanics (WCCM XI), Mini Symposium: "Advances in Computational Methods for Inverse Problems", Barcelona, July 20-25, 2014.
- 11th International Conference on Mathematical and Numerical Aspects of Waves (Waves 2013), Tunisia, 3-7/6/2013.
- International Conference on Modern Mathematical Methods in Science and Technology (M<sup>3</sup>ST'12), Kalamata, 26-28/8/2012.
- International Conference on Modern Mathematical Methods in Science and Technology (M<sup>3</sup>ST'09), Poros, 3-5/9/2009.
- First Greek-French Workshop on Computational Aspects of Acoustic Wave Propagation, Heraklion, Crete, 20-21/9/2006.
- International Conference on Modern Mathematical Methods in Science and Technology (M<sup>3</sup>ST'06), Paros, 7-9/9/2006.
- Akoustiki 2002, Patra, 30/9-1/10/2002.
- 5th Hellenic-European Research on Computer Mathematics and its Applications, HERCMA 2001, Athens, 20-22/9/2001.