

Konstantinos Mamis

Postdoctoral researcher

Department of Mathematics

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2020-2021 **Postdoctoral researcher**, Mathematical Modeling and Applications Laboratory, Hellenic Naval Academy, Piraeus, Greece.

Education

2020 **PhD**, School of Naval Architecture & Marine Engineering, National Technical University of Athens.
Thesis title: "Probabilistic responses of dynamical systems subjected to Gaussian coloured noise excitation. Foundations of a non-Markovian theory"

2015 **MSc, GPA 9.79/10 (first of class)** in Mathematical Modeling in Modern Technologies & Economics School of Applied Mathematical and Physical Sciences, National Technical University of Athens.
Thesis title: "Exact stationary probabilistic solutions to stochastic dynamical systems by solving the Fokker-Planck-Kolmogorov equation with splitting techniques"

2013 **Diploma in Engineering, GPA 8.52/10 (first of class)** School of Naval Architecture & Marine Engineering, National Technical University of Athens. Thesis title: "Modeling and Analysis of Hydro/Piezo/Electric Systems"

Scholarships

2015-2019 ELKE NTUA scholarship as PhD candidate.

2013-2015 IKY fellowship of excellence for postgraduate studies in Greece-Siemens program.

Awards and Distinctions

- Thomaïdeio award for best diploma thesis in NTUA of the year 2013
- Award in memory of prof. Christos Papakyriakopoulos for distinction in math courses of 2008-2009

Teaching Experience

2015-2019 *Fluid Mechanics*, undergrad course, School of Naval Architecture and Marine Engineering NTUA

2014-2020 *Stochastic Modeling of macroscopic phenomena & processes*, master's course, School of Applied Mathematical & Physical Sciences NTUA

2011-2020 *Mathematical Modeling of the continuum*, master's course, School of Applied Mathematical & Physical Sciences NTUA

Assistance in supervision of three diploma theses in the School of Naval Architecture and Marine Engineering NTUA.

Contribution to lecture notes for undergrad course Engineering Applications in MATLAB and C language, School of Naval Architecture and Marine Engineering NTUA, teaching professor C. Papaodysseus.

Research Experience

2020-2021 Development of sonar simulator, Hellenic Navy research project, conducted by Hellenic Naval Academy, School of Naval Tactics and Naval Combat Systems Automation Center.

1/05-31/08/12 Participation (salaried position) in the research program *Offshore Energy Mapping for Northeast Atlantic and Mediterranean, MARINA PLATFORM project*, Division of Environmental Physics-Meteorology, School of Physics, University of Athens, scientific responsible professor *G. Kallos*.

Reviewer in scientific journals

Journal of Physics A: Mathematical and Theoretical, Nonlinear Dynamics Springer Journal, Mechanical Systems and Signal Processing Elsevier Journal, International Journal of Offshore and Polar Engineering

Language Skills

Modern Greek (native), English (C2), Bokmål Norwegian (C1), Spanish (B2), French (basic skills)

Computer Skills

Experienced user of *LaTeX* and *Office* editions. *Operating systems*: Windows, Linux.

Programming languages: FORTRAN, C++, Maple, MATLAB, Python.

General purpose designing software: AutoCAD, Autodesk Inventor, Rhinoceros, Quest3D.

Designing software for shipbuilding purposes: AVEVA, PropCAD. *Finite element software*: ANSYS.

Administrative Skills

2020-2021 Help in the launch of new MSc Program "Marine Science & Technology Management" organized by the Hellenic Naval Academy and the University of Piraeus.

Participation in Summer Schools

2015 **Wave propagation in complex media**, Cargèse, Corsica, France.
Organization: Institute of Scientific Studies of Cargèse (IESC).

2015 **International Young Scientists Conference and Summer School**, Athens, Greece.
Organization: ITMO University of Saint Petersburg, University of Amsterdam, Complexity Institute of Nanyang Technological University in Singapore, and the National Technical University of Athens which hosted the event, and I was part of the organizing group.

2010 **International and Interdisciplinary IPY Polar Field School**, Longyearbyen, Svalbard, Norway.
Organization: University Center in Svalbard, which hosted the event, IPY Norway, University of the Arctic, Association of Polar early career Scientists.

Conference Attendance

2011 **International Conference on Design, Construction and Operation of Super and Mega Yachts**, The Royal Institution of Naval Architects, 5-6/05/11, Genoa, Italy.

2009 **2nd International Conference on Ship Efficiency**, The German Society for Maritime Technology, 28-29/09/09, Hamburg, Germany.

Extracurricular Awards and Distinctions

2006 2nd national place in the 5th annual European completion "Exploring the Ancient Greek Language and Culture" held by the Greek Ministry of Education for high school students.

2006 I was among the high school students with top grades who were offered a six-day trip to a European capital, fully funded by the Greek Ministry of Education programme "Students exploring Europe". The group which I was a member of visited Vienna.

Publications in Scientific Journals

1. K. Mamis, M. Farazmand (2021) "Mitigation of rare events in multistable systems driven by correlated noise", *Physical Review E* 104, 034201.

2. K.I. Mamis, G.A. Athanassoulis, Z.G. Kapelonis (2019) "A systematic path to non-Markovian dynamics: New response probability density function evolution equations under Gaussian coloured noise excitation", *Proceedings of the Royal Society of London A*, 471 (20180837).
3. G.A. Athanassoulis, K.I. Mamis (2019) "Extensions of the Novikov-Furutsu theorem, obtained by using Volterra functional calculus", *Physica Scripta*, 94(11) 115217.
4. K.I. Mamis, G.A. Athanassoulis & K.E. Papadopoulos (2018) "Generalized FPK equations corresponding to systems of nonlinear random differential equations excited by colored noise. Revisitation and new directions", *Procedia Computer Science*, 136(C), pp. 164–173.
5. K.I. Mamis and G.A. Athanassoulis (2016) "Exact stationary solutions to Fokker-Planck-Kolmogorov equation for oscillators using a new splitting technique and a new class of stochastically equivalent systems", *Probabilistic Engineering Mechanics*, 45, pp. 22-30.
6. K.I. Mamis and G.A. Athanassoulis (2015) "Exact stationary solutions to a class of non-linear stochastic oscillators. Establishing new benchmark cases for testing numerical solution schemes", *Procedia Computer Science*, 66, pp. 33-42.
7. G.A. Athanassoulis and K.I. Mamis (2013) "Modeling and analysis of a cliff-mounted piezoelectric sea-wave energy absorption system", *Coupled Systems Mechanics*, 2(1), pp. 53-83.

Publications in Conference proceedings after full paper review

1. G.A. Athanassoulis, Z.G. Kapelonis & K.I. Mamis (2018) "Numerical solution of generalized FPK equations corresponding to random differential equations under colored noise excitation. The transient case", in *8th Conference on Computational Stochastic Mechanics*. Paros, Greece.
2. K.I. Mamis and G.A. Athanassoulis (2016) "Quantifying the influence of Wong-Zakai correction on a class of exactly solvable generalized Dimentberg oscillators", in *11th HSTAM International Congress on Mechanics: Advances in Theoretical and Applied Mechanics*. Athens, Greece.

Presentations in Conferences after abstract review

1. K.I. Mamis and M. Farazmand (2021) "Effect of correlated noise on multistable systems with time-delay feedback control" in *46th Conference of the Middle European Cooperation in Statistical Physics*. Riga, Latvia.
2. G.A. Athanassoulis and K.I. Mamis (2019) "Uncertainty quantification of responses to nonlinear dynamical systems under coloured noise excitation via pdf evolution equations" in *17th International Probabilistic Workshop*. Edinburgh, Scotland.
3. K.I. Mamis and G.A. Athanassoulis (2019) "Formulation and solution of response pdf evolution equations corresponding to systems under Gaussian coloured noise excitation" in *3rd International Conference on Uncertainty Quantification in Computational Sciences and Engineering*. Heraklion, Greece.
4. K.I. Mamis, Z.G. Kapelonis & G.A. Athanassoulis (2019) "Determining the probabilistic structure of the response to a nonlinear dynamical system under coloured noise excitation" (poster presentation) in *44th Conference of the Middle European Cooperation in Statistical Physics*. Munich, Germany.
5. K.I. Mamis and G.A. Athanassoulis (2018) "Generalized (non-Markovian) FPK equations corresponding to nonlinear random differential equations excited by colored noise. Hänggi's ansatz revisited" (poster presentation) in *43rd Conference of the Middle European Cooperation in Statistical Physics*. Kraków, Poland.
6. K.I. Mamis and G.A. Athanassoulis (2016) "Emergence of limit cycles in the stationary response probability density functions for a class of exactly solvable nonlinear stochastic oscillators", in *Frontiers of Nonlinear Physics, VI International Conference*. Nizhny Novgorod, Russia.
7. G.A. Athanassoulis and K.I. Mamis (2012) "An onshore piezo/electro/hydro-dynamic system and its application to energy harvesting from sea waves", in *2012 International Conference on Advances in Coupled Systems Mechanics*. Seoul, Korea.