Curriculum Vitae

Konstantinos Mamis
Acting Instructor
Department of Applied Mathematics
University of Washington
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Previous positions

2021-2022   **Postdoctoral researcher,** Department of Mathematics, North Carolina State University, USA.
                        Mentor: M. Farazmand

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

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". Supervisor: G.A. Athanassoulis

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

2022   *Introduction to Finite Mathematics* (undergrad course), North Carolina State University.

2021-2022   *Co-supervision of one Master thesis* in MSc Program "Marine Science & Technology Management",
                        organized by the Hellenic Naval Academy and the University of Piraeus.

2020-2021   *Stochastic Modeling and Prediction of Marine Systems* (lecturer, new course; syllabus & material
                    preparation), elective course in MSc Program "Marine Science & Technology Management".

2017-2020   *Assistance in supervision of three diploma theses* in the School of Naval Architecture and Marine
                                Engineering NTUA.

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

2015-2019   *Fluid Mechanics* (teaching assistant), undergrad course, School of Naval Architecture and Marine
                                Engineering NTUA.

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

2008-2010   *Engineering Applications in MATLAB and C language* (contribution to lecture notes), undergrad
                        course, School of Naval Architecture and Marine Engineering NTUA.

Research Experience

2020-2021	Development of sonar simulator, Hellenic Navy research project, conducted by the Hellenic Naval Academy, the School of Naval Tactics and the Naval Combat Systems Automation Center.
05-08/2012	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. Principal investigator: G. Kallos.

Reviewer in scientific journals

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

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.

Invited Talks

2020	*Stochastic Modeling in piezoelectric energy harvesters*, Rio de Janeiro State University, Nucleus of Modeling and Experimentation with Computers, Lab head: Americo Cunha Jr, on 09/16/2020.
2020	*Formulating nonlinear Fokker-Planck equations for dynamical systems under coloured noise excitation*, Weierstrass Institute, seminar: Mathematical Models in Photonics, coordinator: U. Bandelow, on 11/19/2020.
2021	*In search of a Fokker-Planck description for dynamical systems driven by correlated noises*, Stanford University, Prof. Tartakovsky's group meeting, on 11/08/2021.

Publications in Scientific Journals

1. K. Mamis, M. Farazmand (2022) "Stochastic compartmental models of COVID-19 pandemic must have temporally correlated uncertainties" *(submitted)*

2. K. Mamis (2022) "On a formula for moments of the multivariate normal distribution generalizing Stein's lemma and Isserlis theorem" *(submitted)*

3. K. Mamis (2022) "Extension of Stein's lemma derived by using an integration by differentiation technique", *Examples and Counterexamples,* 2, 100077.

4. K. Mamis, G. Galanis (2021) "A new Kalman filter employing colored noise for the optimization of numerical wave prediction models" *(accepted)*

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

6. 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.

7. G.A. Athanassoulis, K.I. Mamis (2019) "Extensions of the Novikov-Furutsu theorem, obtained by using Volterra functional calculus", *Physica Scripta*, 94(11) 115217.

8. 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.

9. 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.

10. 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.

11. 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.