**CURRICULUM VITAE**

MARIA HADJINICOLAOU

## Personal Information


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| Name: | Hadjinicolaou Maria |
| Nationality: | Greek |
| Place of Birth: | Athens, Greece |
| Status: | Married, two children (1999, 2003) |
| Work Address: | Applied Mathematics Laboratory, School of Science and Technology, |
| | Hellenic Open University. |
| | 13-15, Tsamadou Str., 262 22, Patras, Greece. |
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| | url: http://www.eap.gr/view_en.php?artid=2258, |
| | http://mathlab.eap.gr |
| | https://scholar.google.jp/citations?user=HepC8SQAAAAJ&hl=en |


## Education

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| 1998 – 1999 | Graduate certificate in “Open and Distance Learning”, Hellenic Open University. |
| 1988 – 1993 | PhD, Chemical Engineering Dept., Division of Applied Mathematics, University of Patras<br>Title: “Stokes flow in Spheroidal Geometry” |
| 1981 - 1985 | Bachelor Degree in Mathematics<br>Dept. of Mathematics, University of Patras, Greece |
| 1978 – 1981 | Ralleio model Lyceum, Piraeus, Greece |

## Positions

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| *Since February 2015* | Professor, Hellenic Open University, School of Science and Technology.<br>Field: Mathematics. |

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| *Since May 2017* | Director of the Applied Mathematics Laboratory, School of Science and Technology, H.O.U. |
| *November 2000 – February 2015* | Associate Professor, Hellenic Open University, School of Science and Technology. |
| *1998 – 2000* | Assistant Professor, position under contract, University of Ioannina, Department of Management of the Environmental and Natural resources. (University of The Western Greece, since 2009). |
| *1998 – 2000* | Teaching Associate, at the Hellenic Open University (H.O.U.) in Mathematics. (Distance learning) |
| *1998 – 2000* | Collaborator/reviewer of the educational material in Mathematics, Developed by H.O.U |
| *1996 - 2000* | Teaching Associate at the Technological Educational Institute of Patra's (Now ATEI), School of Technology, successively at Depts. of the Mechanical Engineering, Electrical and Civil Engineering. |
| *1993 – 1998* | Research Fellow at ICEHT/FORTH and Mechanical and Aeronautics Dept., University of Patras. |
| *1988 - 1993* | Graduate student under scholarship, at ICEHT/FORTH and Chemical Engineering Department, University of Patras. |

## Research interests

**Multiscale, mathematical modelling of physical, biomedical and engineering problems, such as:** blood plasma flow around erythrocytes (RBCs) or LDL, blood flow in curved vessels (atheromatous or not), drug delivery and absorption, tumor growth, Stokes flow through porous media, behaviour and properties of solid materials at nanoscale (graphene) and macroscale under different mechanical load, and also: wave propagation and scattering problems (direct and inverse) by a simple and by many scatterers of different physical characteristics and geometrical shapes, moving boundary problems, development and use of non invasive techniques for medical diagnosis, testing, identification and reconstruction of objects and images.

**Mathematical methods:** development of analytical methods for solving partial differential equations, (semiseparation and R-semiseparation of variables), spectral decomposition of tensors of mathematical physics and eigenfuncntion expansions in different curvilinear systems of coordiantes, (spheroidal, bispherical, ellipsoidal, etc.), Representation theory in low Reynolds number hydrodynamics, asymptotic analysis and special functions, transform methods in convex and non convex geometries, the Fokas method, boundary layer theory, stochastic processes, fractional calculus.

Mathematical models for the learning process, virtual "environments" and ICT tools for distance teaching and learning mathematics.

## Scientific Responsibilities

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| *May 2004- Sept.2011and Sept. 2012- 2015:* | Founder and Director of Studies for the Master Programme "Graduate Studies in Mathematics", School of Science and Technology, HOU |
| *Sept. 2015- now* | Director of Studies for the Graduate Programme "Studies in Natural Sciences" |
| *July 2018-2020* | Head of the Scientific Board for the designing and development of the HOU master programme: "Bioinformatics and Neuroinformatics". |

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| *June 2001 - now* | Coordinator of the Module "Mathematics" (calculus) of the undergraduate programme: «Studies in natural sciences". |
| *October 2005 – 2009* | Coordinator of the postgraduate Module: "Mathematical models in Natural Sciences" of the Master programme "Graduate Studies in Mathematics", School of Science and Technology, HOU |
| *October 2009 - now* | Coordinator of the postgraduate Module: "Special topics in mathematics", of the Master programme "Graduate Studies in Mathematics", School of Science and Technology, HOU. |
| *October 2006 – 2007* | Coordinator of the postgraduate Module "history, philosophy and didactics of mathematics", of the Master programme "Graduate Studies in Mathematics", School of Science and Technology, HOU. |
| *February 2004- 2009* | Secretary of the Scientific Committee of the Network for Distance Learning, in charge of the designing, the development and the implementation of ICT in distance learning. |

**PhD Supervision**

She has supervised 9 (nine) PhD students (the first four awarded)

***Awarded***

- *September 2009* Dr. Baganis George, *"Boundary value problems in non-convex boundaries"*
- *November 2013* Dr. Protopapas Eleftherios, *"Stokes flow problems applied to hemodynamics"*
- *September2015* Dr. Ampatzoglou Pantelis, *"Mathematical modelling of tumour growth"*
- *December 2018* Dr. Messaris Gerasimos, "Study of flow within blood vessels before and after the insertion of a catheter using analytical methods."

***In progress***

- Tzelepis Alkiviades *"The use of the free boundary concept in the mathematical modelling of medical problems"*
- Ananias Aggelos, "*Mathematical analysis of the cloaking problem*"
- Strati Aggeliki, "Acoustic scattering by an almost spherical obstacle**"**
- Kyriazis Christos "Spectral decomposition of the Stokes operators $E^2$ and $E^4$"
- Kinakis John "Analytical study of creeping flow in the toroidal system of coordinates and applications".

**Master thesis Supervision**

She has supervised thirteen master thesis

- Soufleris Constantine, *"Teaching math concepts in high school using computer packages, 2007."*
- Kalapodis Andreas, "*The bispherical coordinate system in static boundary value problems, 2008."*
- Noulas Dimitrios, "*Study of Stokes flow in spheroidal geometry using computer packages, 2008."*
- Protopapas Eleftherios, *"Study of Stokes flow in axisymmetric coordinate systems, 2008."*
- Krokos Spyridon, *"The role and nature of mathematics, 2009."*

- Tsanaktsidou Alexandra, "*The role and nature of mathematics, 2009*."
- Vaghia Argyroula, "*Mathematical models of tumor growth, 2010."*
- Giannoulis Konstantinos, "*The Green's function for potential problems and propagation, 2010."*
- Delakas Leonidas, "*A mathematical model for learning, 2011."*
- Kyriakopoulos George, *"Study of R-separation for solving PDEs, 2012."*
- Markou Heleni, "*A mathematical model for the vascular phase of tumor growth", 2013."*
- Mikelopoulos Dimitrios, "*Acoustic scattering of a sphere using the Homotopy perturbation method HPM, 2014".*
- Tsimberidis Mathaios, *" Study of creeping flow in the presence of more than one particles" 2015.*
- Antimachitou Aikaterini, *"Multiple Scattering problems from two cylindrical scatterers. Numerical investigation with* Mathematica*", 2018*
- Karachaliou Marina, "*The Green function for Hyperbolic and Parabolic equations", 2018*
- Kinakis John, *" A study of the steady axisymmetric blood flow in the case of a curved vessel", 2018*

## Teaching experience

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| *October 2000 – July 2006 & October 2011 – up to now* | Calculus of one and many variables, according to the "Distance learning methodology" for the module «Mathematics» of the undergraduate programme "Studies in natural sciences" |
| *October 2006 – 2009* | PDEs, Integral equations, topics in Linear Algebra and Functional Analysis, for the postgraduate module «Mathematical models in Natural Sciences», of the master Programme: "Graduate studies in mathematics" , HOU. |
| *October 2000 – February 2001* | Teaching "Transport Phenomena" University of Ioannina, Department of Management of the Environmental and Natural Resources, Agrinio School, |
| *October 1998 – February 2001* | Teaching "Mathematics I and Mathematics II" University of Ioannina, Department of Management of the Environmental and Natural Resources, Agrinio School, |
| *October 1996 –2000* | Teaching Calculus and Applied Mathematics at Technological Educational Institute of Patras, at electrical, mechanical, and civil engineering departments. |
| *October 1996 – June 1997* | Teaching "Computer programming" at Technological Educational Institute of Patras. |
| *September 1985 – now* | Contributed and participated at over thirty seminars, talks, courses on Applied Mathematics, Continuum Mechanics, Fluid Mechanics, and Scattering. |
| *October – December 1993* | Teaching course for engineers on: "Atmospheric pollution - Sources and control of pollutants. |
| *September 1989 - June 1992* | Teaching courses on Mathematical Analysis, Linear Algebra, ODE's, and PDE's at Chemical Engineering Dept., University of Patras as teaching assistant. |

## Short stays, visits, participation in workshops

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| *December 1993* | University of Cambridge, Great Britain, skills on numerical code for combustion RUN_1DL. |
| *February 1994* | La Sapienza, Polytechnic School, Rome, numerical simulation of compressible gas reaction flows. |
| *February 1994* | Research Center CRS4, Cagliari, Italy, presentation of CSP method for deriving reduced chemical kinetics mechanisms. |
| *March 1994* | Trieste, Italy, Workshop on Fluid Mechanics |
| *May, 1994* | University of Valladolid, Spain, workshop "Turbulence in Compressible Flows" |
| *May, 1994* | Research Center FASA-Renault, Valladolid, Spain workshop "Fundamental Studies on Turbulence Combustion" |
| *March 1995* | University of Southampton, Gr. Britain, chemical kinetics mechanisms for turbulence combustion numerical code. |
| *April, July 1996* | Technological Institute of Sofia, Bulgaria, development of mathematical methods for non-destructive testing. |

## Participation in Research and Educational projects

*Funded by*

*European Union*

- Advanced educational project, "EPET I", 1991.
- "Innovative Non-Cryogenic Air Separators for Oxygen On-Site Generation", BRITE project, March 1993 - October 1993.
- "Investigation of chemical mechanisms that emit pollutants in combustion systems" Bilateral collaboration between Greece and G. Britain. April 1993 - April 1995. *Supported by*: British Council. *Partner*: University of Cambridge, UK.
- "Simulation of pulsate combusts". Bilateral collaboration between Greece - Italy. October 1993 - October 1995. Supported by: Foreign ministry of Italy. Partner: University of Rome "La Sapienza" (IT).
- "Mechanisms of formation of Atmospheric pollutants", General Secretariat of Research and Technology, PENED January 1994 - January 1996.
- "Development of a Turbulent Combustion code for Industrial Application", ESPRIT project, February 1994 - February 1997.
- "New medical Instruments for early diagnosis and biotechnological applications", EPET II, February 1995 - October 1998.
- "Development of computational code for the simulation of adsorption phenomena. Water Purification", PENED. May 1996 - April 1998.
- "Scattering in anisotropic materials", 2004-2007 ,"Archimedes II" ,

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| | ♦ "Mathematical modelling of tumour growth", 2011-2014, "Heraclitus II", Coordinator<br>♦ "Mathematical and computational study of the flow field of biological fluids for therapeutic design in clinically important conditions Archimedes III , 2012.-2014, ESPA<br>♦ " Functional brain", "Excellence" research programme, 2012-2015, ESPA<br>♦ "Fussy systems and applications in Engineering problems-Study of topological spaces". Democritus University of Thrace 2044-2019.<br>♦ '' Graphene-based disruptive technologies" Flagship, 2017-2018 |
| *Funded by other sources* | Inverse Scattering Techniques for Non-Destructive Testing and Remote Sensing", NATO Collaborative Research Grant, with Technical University of Sofia, Bulgaria, 1995-1997. |
| **Administration** | |
| *March 2016-Sept 17* | Member of the Administrative Board of the Hellenic Open University. |
| *September 2013-16,& Sept 2007–Aug.2010* | Dean of the School of Science and Technology, HOU |
| *September 2006 – August 2007* | Vice Dean of the School of Science and Technology, HOU |
| *2014 – 2015:* | Member of the Ethics Committee of the H.O.U. |
| *2013 – 2015* | Member of the committee for the structural development of the H.O.U |
| *2004- now:* | Head of the Library Committee of the H.O.U. |
| *September 2012 – 2015* | Person in charge and project administrator of the project for the «Digital integration and interconnection of the HOU Library», ESPA 2011-13 |
| *June 2001 – May 2009* | Person in charge and project administrator for the development and operation of the H.O.U. library |
| *2008 – 2012* | Member of the board, the Educational Methodology, Content and Technology Laboratory |
| *January – July 2004* | Scientific responsible for the project "Organizing «IMO2004»", the International Mathematics Olympiad, held in Delphi, Greece. |
| *2001 – now* | Within the context of the development and the operation of the HOU, she has participated, either as president or as member, in more than 80 committees for evaluating scientific staff and resources. |
| **Institutional-development Projects** | |
| 1999 | ΕΠΕΑΕΚ Ι, 3.1.ζ: Development of the department of management of the environmental and natural resources, Agrinio School, University of Ioannina. |

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| 2000 – 2009 | "Development and Operation of the Library of the Hellenic Open University" EPEAEKII |
| 2011 – 2015 | "Digital integration and interconnection of the HOU Library", ESPA 2011-2015. |

## Publications

**"Stokes flow in Spheroidal Geometry**", PhD. Thesis, Chemical Engineering Dept., University of Patras, June 1993

### *Journal papers*

1. DASSIOS G., **HADJINICOLAOU M.** & PAYATAKES, A. C. 1994. Generalized eigenfunctions and complete semiseparable solutions for stokes-flow in spheroidal coordinates. *Quarterly of Applied Mathematics,* 52**,** 157-191.

2. DASSIOS G., **HADJINICOLAOU M.**, COUTELIERIS, F. A. & PAYATAKES, A. C. 1995. Stokes-flow in spheroidal particle-in-cell models with Happel and Kuwabara boundary-conditions. *International Journal of Engineering Science,* 33**,** 1465-1490.

3. CHARALAMBOPOULOS A., DASSIOS G. & **HADJINICOLAOU M.** 1998. An analytic solution for low-frequency scattering by two soft spheres. SIAM Journal on Applied Mathematics, 58, 370-386.

4. **HADJINICOLAOU M.** & GOUSSIS D. A. 1998. Asymptotic solution of stiff PDEs with the CSP method: The reaction diffusion equation. SIAM Journal on Scientific Computing, 20, 781-810.

5. DASSIOS G., **HADJINICOLAOU, M** & CHARALAMBOPOULOS A. 1998. Bispherical Geometry in Multiple Scattering. Mathematical Methods in Scattering Theory and Biomedical Technology", Pitman Research Notes in Mathematics Series 390, 186-200.

6. ARNAOUDOV Y., DASSIOS G. & **HADJINICOLAOU M.** 1999. The resistive coated sphere in the presence of a point generated wave field. Mathematical Methods in the Applied Sciences, 22, 73-90.

7. DASSIOS G., **HADJINICOLAOU M.** & KAMVYSSAS G. 1999. Direct and inverse scattering for point source fields. The penetrable small sphere. ZAM, Zeitschrift Fur Angewandte Mathematik Und Mechanik, 79, 303-316.

8. DASSIOS G., **HADJINICOLAOU M.** & KAMVYSSAS G. 2000. The penetrable coated sphere embedded in a point source excitation field. Wave Motion, 32, 319-338.

9. HADJINICOLAOU M. 2000. Non-destructive identification of spherical inclusions. Advanced Composites Letters, 9, 25-33.

10. DASSIOS G., **HADJINICOLAOU M.** 2002. Multipole expansions in Stokes flow. International Journal of Engineering Science, 40, 223-229.

11. **HADJINICOLAOU M.** 2005. The influence of geometry on axisymmetric Stokes flow" Bulletin of the Greek Mathematical Society, 50, 135-157.

12. DASSIOS G., **HADJINICOLAOU M.,** KAMVYSSAS G. & KANDILI A.N. 2006. On the polarizability potential for two spheres. International Journal of

Engineering Science, 44, 1520-1533.

13. BAGANIS G., **HADJINICOLAOU M.** 2009. Analytic solution of an exterior Dirichlet problem in a non-convex domain. IMA Journal of Applied Mathematics, 74, 668-684.

14. BAGANIS G., **HADJINICOLAOU M.** 2010. Analytic solution of an exterior Neumann problem in a non-convex domain. Mathematical Methods in the Applied Sciences, 33, 2067-2075.

15. **HADJINICOLAOU M.,** KARIOTOU F. 2010. On the Effect of 3D anisotropic tumor growth on modelling the nutrient distribution in the interior of the tumor. Bulletin of the Greek Mathematical Society, 57, 189-197.

16. DASSIOS G., **HADJINICOLAOU M**., PROTOPAPAS E. 2012. Blood plasma flow past a red blood cell: mathematical modelling and analytical treatment. Mathematical Methods in the Applied Sciences, 35, 1547-1563.

17. **HADJINICOLAOU, M**. 2012. Mathematics in Open and Distance learning at HOU. The Open education Journal. vo.8, (1), 8-21, http://journal.openet.gr/index.php/openjournal/issue/view/17/showToc

18. BAGANIS G., DASSIOS G., **HADJINICOLAOU M**., PROTOPAPAS E. 2014. The Kelvin transformation as a tool for analyzing problems in medicine and technology. Mathematical Methods in the Applied Sciences, 37, 194-199.

19. **HADJINICOLAOU M.,** PROTOPAPAS E. 2014. On the R-semiseparation of the Stokes bi-stream operator in inverted prolate spheroidal geometry. Mathematical Methods in the Applied Sciences, 37, 207-211.

20. **HADJINICOLAOU M**., KAMVYSSAS G., PROTOPAPAS E. 2014. Stokes flow applied to the sedimentation of a red blood cell. Quarterly of Applied Mathematics, **73** (2015), 511-523, https://doi.org/10.1090/qam/1390

21. **HADJINICOLAOU M.** 2014. Virtual Class – An Appropriate Environment for Distance Learning Mathematics at an Open University. European Journal of Open, Distance and e-learning, http://www.eurodl.org/?p=current&sp=brief&article=620

22. **HADJINICOLAOU M.** 2015. A mathematical model for the blood plasma flow around two aggregated Low Density Lipoproteins, Springer Series Advances in Experimental Medicine and Biology, 802, 173-184.

23. **HADJINICOLAOU** M., PROTOPAPAS E., 2015. Translation of two aggregated Low Density Lipoproteins within blood plasma. A Mathematical model, Springer Series Advances in Experimental Medicine and Biology, 802, 184-193.

24. **HADJINICOLAOU M**., PROTOPAPAS E. 2015. Spectral decomposition of the Stokes flow operators in the inverted prolate spheroidal coordinates. IMA Journal of Applied Mathematics, (2015), 1-17, doi:10.1093/imamat/hxv003.

25. AMPATZOGLOU P., DASSIOS G., **HADJINICOLAOU M.,** KOUREA H., VRAHATIS M.N., 2015, A chemical energy approach of avascular tumor growth. Multiscale modeling and qualitative results. SpringerPlus 2015,

**4**:660 doi:10.1186/s40064-015-1417-5,

26. **HADJINICOLAOU M**., PROTOPAPAS E. 2016. Eigenfunction Expansions for the Stokes Flow Operators in the Inverted Oblate Coordinate System. Mathematical Problems in Engineering, Volume 2016 (2016), http://dx.doi.org/10.1155/2016/9049131

27. MESSARIS G.A.T., **HADJINICOLAOU M.**, KARACHALIOS G.T., **2016.** Fluid flow in a slightly curved pipe: A comparative study of a matched asymptotic expansions solution with a single analytical solution. PHYSICS OF FLUIDS 28, 081901 (2016)
*-Selected for special publication from AIP publishing house, as one among the best 10 out 1200 papers of the American Institute of Physics journals.*
http://dx.doi.org/10.1063/1.4960432

28. MESSARIS G.A.T., **HADJINICOLAOU M.**, KARACHALIOS G.T., **2016.** Studying Blood Flow Dynamics to Identify the Heart of Vessel Failure. https://publishing.aip.org/publishing/journal-highlights/studying-blood-flow-dynamics-identify-heart-vessel-failure

29. MESSARIS G.A.T., **HADJINICOLAOU M.**, KARACHALIOS G.T. (2017).Why do we live for much less than 100 years? A fluid mechanics view and approach**.** Physics of Fluids **29**, 081903 http://dx.doi.org/10.1063/1.4998717

30. ANDROULIDAKIS C, KOUKARAS EN, PASTORE CARBONE MG, HADJINICOLAOU M, GALIOTIS C.,(2017) Wrinkling formation in simply-supported graphenes under tension and compression loadings. Nanoscale. 2017 Nov 30; 9(46):18180-18188. doi: 10.1039/c7nr06463b.

31. ANDROULIDAKIS C, KOUKARAS EN, HADJINICOLAOU M, GALIOTIS C., (2018) Non-Eulerian behavior of graphitic materials under compression CARBON, NOV 2018, Volume: 138, Pages: 227-233, doi:10.1016/j.carbon.2018.06.011

*Proceedings of conferences (peer reviewed*)

32. **HADJINICOLAOU M**., DASSIOS G., PAYATAKES A.C. 1992. "Complete Representation of Stokes Flow in Spheroidal Geometry". Proceedings of the 3rd National Congress of Theoretical Mechanics, pp. 8-13

33. **HADJINICOLAOU M.,** PANTAZOPOULOS G.I., KATSABANIS Y., GOUSSIS D.A. 1994. "Construction of Local Simplified Mechanisms", Proceedings of ICPF' 94 Int. Conf. on Nonlinear Dynamics, The Netherlands.

34. **HADJINICOLAOU M.,** GOUSSIS D.A. 1995. "Simplification of Boundary Value Problems with CSP", Proceedings of 4th National Congress in Mechanics, pp. 408-415

35. DASSIOS G., **HADJINICOLAOU M.,** 1996. "Interconnection Between Scattering and Multipole Expansions in Elasticity", Euromech Colloquium 354 "Stress Waves in Solids for Materials Characterization", Technical University of Crete, Chania, Greece, Proceedings of Euromech Colloquium 354, Abstract p. 13

36. **HADJINICOLAOU M**., KOSTOPOULOS V. 1996. "Point Source Excitation for Scattering by Two Spheres", Proceedings of the Third Hellenic European Conference of Mathematics and Informatics 1996 pp. 309-316

**37.** DASSIOS G., **HADJINICOLAOU M.,** 1996. "Multiple Scattering by Two Small Spheres", Proceedings of the Third Hellenic European Conference of Mathematics and Informatics, pp. 342-349.

**38.** DASSIOS G., **HADJINICOLAOU M**. 1998. Spheroidal Multipole Expansion for Stokes Flow Fields" Proceedings of the Fifth International Conference of the Hellenic Society of Theoretical and Applied Mechanics, Ioannina, 565-570.

**39. HADJINICOLAOU M.,** KAMVYSSAS G. 1998. "Inverse Scattering for Evaluating Characteristic Quantities of Particulate Composites". Proceedings of the 8th Int. Conference ECCM, Abstract, Italy.

**40. ΧΑΤΖΗΝΙΚΟΛΑΟΥ Μ.** 2001. "Ανακατασκευή και Γνωστική ευελιξία, πρωταρχικοί εκπαιδευτικοί στόχοι μιας Ομαδικής Συμβουλευτικής Συνάντησης", Πρακτικά 1ου Εθνικού Συνεδρίου για την Ανοικτή και εξ Αποστάσεως Εκπαίδευση, Πάτρα, ΕΑΠ.

**41. HADJINICOLAOU M.,** VAFEAS P., 2001. "Interrelation between Stokes and Papkovich-Neuber Eigenmodes for Spheroidal Stokes Flow", Proceedings of the 6th National Congress on Mechanics, 1, pp.59-65, Eds, E.C. Aifantis, A.N. Kounadis , Thessaloniki.

**42.** DASSIOS G., **HADJINICOLAOU M**., KAMVYSSAS G. 2006. "General polarizability tensor for two spheres", Proceedings of the 7th International Workshop on Mathematical Methods in Scattering Theory and Biomedical Engineering, pp.128-135.

**43.** DASSIOS G., **HADJINICOLAOU M.,** KAMVYSSAS G. 2008. "Polarizability of a sphere having an eccentric spherical inclusion". Advanced topics in Scattering and biomedical engineering, Proceedings of the 8th International Workshop on Mathematical Methods in Scattering Theory and Biomedical Engineering, 27-29 July 2007, pp124-133, book , World Scientific.

**44.** BAGANIS G., **HADJINICOLAOU M**., 2009. "On the Kelvin image of an equilateral triangle" Proceedings of the 9th International Workshop on Mathematical Methods in Scattering Theory and Biomedical Engineering, Patras, pp.313-321.

**45. HADJINICOLAOU M.,** KARIOTOU F., 2009. "Nutrient distribution profile in ellipsoidal avascular tumour growth", Proceedings of the conference: Modern Mathematical methods in Science and Technology, M3ST09, pp.313-321.

**46.** PROTOPAPAS E., **HADJINICOLAOU M**., 2011. "The impact of geometrical assumptions on the mathematical modelling and the analytical solution of problems in natural and biological sciences". Proceedings of the 28$^{th}$ Panhellenic Conference of the Hellenic Mathematical Society, 11-13 November, 2011, pp. 628-641.

**47.** DELAKAS L., **HADJINICOLAOU M**., 2012. "A mathematical model for the mastery of Learning". Proceedings of the 29$^{th}$ Pan-Hellenic Conference of the Hellenic Mathematical Society, pp 228 -242

**48. HADJINICOLAOU M**., PROTOPAPAS E., 2012. "Stokes flow around a RBC",

Proceedings of the 29th Conference of the Hellenic Mathematical Society, pp. 624 – 638

49. **HADJINICOLAOU M.,** PROTOPAPAS E. 2012. "Studying the blood plasma flow past a red blood cell, with the mathematical method of Kelvin's Inversion". IEEE CONFERENCE PUBLICATIONS, BIBE, 2012. DOI: 10.1109/BIBE.2012.6399745

50. **HADJINICOLAOU M**. KAMVYSSAS G., PROTOPAPAS E. 2013. "Mathematical models for Stokes flow", Proceedings of the 30th Pan-Hellenic Conference of the Hellenic Mathematical Society pp.402 – 412.

51. MARKOU H., **HADJINICOLAOU M**.,2013. "Stability analysis of a linear system and correlation with the characteristics of tumour growth. Proceedings of the 30th Pan-Hellenic Conference of the Hellenic Mathematical Society pp. 633-643.

52. AMPATZOGLOU P., **HADJINICOLAOU M.** 2013. "Studying the correlation between the extracellular environment and the diffusion processes in tumor growth". 13th International Conference on Bioinformatics and Bioengineering (BIBE), 2013, IEEE, CONFERENCE PUBLICATIONS, DOI: 10.1109/BIBE.2013.6701580.

53. **HADJINICOLAOU M, "**Fokas Method And Kelvin transformation applied to potential problems in non-convex unbounded domains", Proceedings of the 6th NUMAN 2014, Crete, 2-5 September 2014, pp134-139

54. **HADJINICOLAOU M,** KAMVYSSAS G., PROTOPAPAS E., "Deriving "Eigen flows" in Ellipsoidal Coordinate Systems of Revolution and in their Inverted ones. A Comparative Study." ICNAAM 2017, 25-30 September 2017, AIP Conference Proceedings 1978, 470097 (2018); https://doi.org/10.1063/1.5044167

*Oral presentations peer reviewed)*

55. HADJINICOLAOU M. 1993. "What is Novel in Studying Creeping Flow within a Spheroidal Boundary" Presentation in the Workshop on Direct and Inverse Scattering Methods.

56. HADJINICOLAOU M. 1994. "Computational Singular Perturbation method in Combustion Simulations" Presentation in the Workshop on Fluid Mechanics, Trieste, Italy.

57. AMPATZOGLOU P., **HADJINICOLAOU M**. 2013. "On the effect of the geometry in cancer modeling" 5th Panhellenic Conference of Biotechnology. ELEVIT, Athens

58. DASSIOS G., **HADJINICOLAOU M.,** KAMVYSSAS G., KARIOTOU F., PROTOPAPAS E., 2015, "Analytical expansions for the Stress and the Torque, exerted by a viscous fluid on a Red Blood Cell". M3ST2015, Kalamata, Greece.

59. **HADJINICOLAOU M.,**PROTOPAPAS E., 2018, "Mathematical modelling of blood plasma flow through a swarm of Red Blood Cells", M3ST2018, Kalamata, Greece.

60. **HADJINICOLAOU M.,** 2018, "Generalized semi-separable eigenfunctions for the Stokes flow operator in spheroidal geometry." 1st Congress of

Greek mathematicians 25-30 June 2018 Athens Greece. (invited)

61. **HADJINICOLAOU M** . "Mathematical aid for understanding cardiovascular diseases due to ageing." GENEDIS 2018, Workshop on Computational modeling in Neurodegeneration. The Fields Institute, 26 October 2018, University of Toronto. Canada.(invited)

*Posters*

1. **HADJINICOLAOU M.,** PROTOPAPAS E. 2012. A mathematical model for the sedimentation of red blood cells, 4th Panhellenic Conference of Biotechnology, ELEVIT, Athens.
2. **HADJINICOLAOU M.,** PROTOPAPAS E. 2013. Analytical expressions for flow quantities regarding the relative motion of an erythrocyte and blood plasma, 5th Panhellenic Conference of Biotechnology, ELEVIT, Athens.
3. **HADJINICOLAOU M.,** PROTOPAPAS E. 1st Congress of research results of SST-HOU, Rio Greece 25 July, 2016,
4. BAGANIS G., **HADJINICOLAOU M,** 1st Congress of research results of SST-HOU, Rio Greece 25 July, 2016,
5. **HADJINICOLAOU M.,** PROTOPAPAS E. Sedimentation velocity and initiation of Atherosclerosis, Patras IQ, 7-9 April 2017

## Books

**Fundamental concepts in mathematics**, 2003, ed. HOU, written in accordance to the Open University Distance Learning Methodology, HOU ed.

**Linear Algebra,** 2005, ed., HOU, written in accordance to the Open University Distance Learning Methodology , HOU ed.
(with G. Kamvyssas).

**Mathematical models in tumor growth ,** , written in accordance to the Open University Distance Learning Methodology , HOU ed.
(with F. Kariotou)

## Educational material

- She designs, organises and develops educational material (lecture notes, suplementary –e-material, (webcast –hypertext), presentations, for the mathematical molules of the HOU undregraduate programmes: "Studies in Natural Sciences", and "Informatics", and for the graduate modules of the Master programme "Graduate Studies in Mathematics".
- She has acted as a reviewer for the e-educational mathematical material developed by others for the HOU module" Special topics" of the Master programme "Graduate Studies in Mathematics" in mathematical physics, medical sciences, Continuum mechanics.
- She performed editorial work concerning the distance learning aspect of educational meterial developed for the mathematical modules: Claculus of one and Calculus of many variables, and Differential EquationsI,II.

- She has prepared teaching notes in Mathematics for the students of the Patras Technological University during the period 1997-2000

**Other scientific activities**

she

- acts as reviewer in Int. journals and evaluator of scientific proposals,
- has participated in assesment comittees of academic staff and personnel
- acts as member of the supervising committee for PHD students,
- has participated in assesment comittees for PhD deserattions and master thesis

**Invited talks**

She has been invited speaker, (IMMS workshop, Corfu 2007, HMS Patras, March 2014, 2hd Workshop of the lycioum of Evaggeliki School of Smyrna , June 2014, workshp on applications of partial diff equations, univ. of Patras, mathematics department 2015, etc. ), more recently

- 1st Congress of School of Science and Technology July 2016,Rio, Greece
- Semi-separation and R-semi separation of variables. Novel methods for obtaining the eigenfunctions of the axisymmetric Stokes flow operators School of mathematics and statistics, Hyderabad, India, December, 2016
- Applications of the R-semi separation of variables for obtaining analytical solutions of boundary value problems related to blood flow. School of mathematics and statistics, Hyderabad, India, December, 2016.
- Generalized semi-separable eigenfunctions for the Stokes flow operator in spheroidal geometry. 1st Congress of Greek mathematicians, 25-30 June 2018, Athens, Greece.
- Mathematical aid for understanding cardiovascular diseases due to aging. Workshop on Computational modeling in Neurodegeneration , The Fields Institute, 26 October 2018, Toronto, Canada
- «Mathematical modeling of blood flow». 6η conference on the «Applications of Differential Equations», 16 February 2019, Department of Mathematics, University of Patras, Greece.
- Distance education library, of Hellenic Open University. Challenges for Life Long Learning. 15 March 2019, National Library of Greece, NSF, Athens.

*She is also*

*member of the*

- Organizing committee of the 8th Int. Conference about Scattering and biomedical Engineering 2007,
- Scientific committee of the International Conference of Open and Distance Learning, ICODL 2011, “Alternative forms of education.”
- Scientific committee of the International Conference on “Modern Mathematical Methods in Science and Technology”, (M3ST2012), 26-28 August Kalamata , Greece.
- Scientific committee of the 30th Panhellenic Conference of the Hellenic

Mathematical Society, October 2013, Karditsa, Greece.

- Scientific committee of the 1st world congress on Geriatrics and neurodegenerative Diseases, GENEDIS 2014.
- Member of the UN Hult Price award board, in Greece (2018)
- Scientific Committee of the 1st Congress of Greek mathematicians 25-30 June 2018, Athens, Greece.
- Scientific committee of the 3rd World Congress on Geriatrics and Neurodegenerative Diseases, GENEDIS 2018, October 2018, Toronto, Canada
- Organizing committee for the workshop "Research directions and perspectives , of the HOU Applied Mathematics Laboratory", 9-10 February, 2019, HOU, Patras, Greece.
- Organizing committee of the workshop "Open educational resources and Lifelong Learning." 15 March 2019, National Library of Greece, NSF, Athens.

*She also*

*participated in*

- the initiatives:
  - *"Mathematics in Industry",* coordinated by the European Research Foundation and the European mathematical Society,
  - *"Innovation through Mathematical modelling and Simulation",* Euroscience
- the scientific collaboration for the development of the digital Mathematical Library, hosted by ZentralBlatmath .
- has been member of the organizing committee of the communication of science festival, "Patras Science Festival", co-organized by the Hellenic Open University 2016, 2017
- has been invited to contributed with short talks regarding art and science at the opening of the art exhibition "refuge in art", organized by the LRM program of Hellenic Open university , Athens 2017
- has given the opening speech in many scientific and cultural events and workshops held at the Hellenic Open University Library.

*is interested in*

- Open movement- open educational resources
- Communicating science,
- Interrelation of science and art.

**Scientific Societies:**

- Greek Mathematical Society
- American Mathematical Society
- European Mathematical Society
- Combustion Institute, Greek branch.
- Greek Society of Biomedical Technology
- Hellenic Society of Biotechnology

May-2019