

Michail E. Kavousanakis

Address: Drakou 32C, Kastella, Pireaus

Tel.: 694 60 75 329

e-mail: mihkavus@gmail.com
mihkavus@chemeng.ntua.gr

Date of Birth: April 3rd, 1979 Military obligations: fulfilled

Marital Status: Married with two children TEE Register No 100550

Curriculum Vitae

Working Experience

June 2019 -	School of Chemical Engineering, NTUA	Assistant Professor
Apr. 2015 – Apr. 2019	Scienomics SARL	Software Engineer Development of the scientific platform MAPS (Materials and Process Simulation)
Oct. 2010 – March 2015	School of Chemical Engineering, NTUA	Postdoctoral Research Associate: Research Program “Hydrofakir” funded by the European Research Council Design of structured surfaces with addressable wetting properties
Feb. – Oct. 2010	Greek Military Service	Special Scientist serving in 871 ABEK (Greek Army’s Fuel Deposit & Supply Unit)
Oct. 2007 – Jan. 2010	Department of Chemical Engineering, Princeton University, USA	Postdoctoral Research Associate (in I.G. Kevrekidis’ group) Multiscale modeling of complex biological systems
Feb. 2008 – June 2008	Department of Chemical Engineering, Princeton University, USA	Lecturer: Advanced Fluid Mechanics (graduate level)
Nov. 2007 – June 2008	United Technologies Research Center, USA	Consultant for the DynaPower project: Oscillatory behavior of the A/C circuits in 787 Boeing aircrafts
Oct. – Nov. 2001	Budapest University of Technology and Economics, Hungary	Internship: IAESTE Program Distillation processes simulation with Chemcad
Aug. – Sep. 2001	Plastika Kritis S.A., Heraklion, Crete	Internship in Quality Control

Teaching

2021 -	School of Chemical Engineering, NTUA	“Dispersion of Pollutants”, Undergraduate Course, 10 th semester
2020 -	NTUA	Inter-departmental Graduate Course Computational Mechanics: Computational Biomechanics
2020 -	School of Chemical	“Computational Methods for Engineers”, Undergraduate

2019 -	Engineering, NTUA School of Chemical Engineering, NTUA	Course, 4 th semester “Transport Phenomena II – Heat and Mass Transfer”, Undergraduate Course, 5 th semester
2019 -	School of Chemical Engineering, NTUA	“Advanced Fluid Mechanics”, Undergraduate Course, 9 th semester
2011 – 2015, 2019 -	NTUA	Inter-departmental Graduate Course Computational Mechanics: Advanced Computational Methods and Laboratory
2012 – 2014, 2020 - 2008	School of Chemical Engineering, NTUA Department of Chemical Engineering, Princeton University, NJ, USA	“Computational Transport Phenomena”, Undergraduate Course, 6 th semester Advanced Fluid Mechanics
2019 -		Supervisor: 1 PhD (completed) + 4 PhD (current) 15 post-graduate theses (completed) 17 under-graduate theses (completed)

Education

Jan. 2003- Sept. 2007	PhD, School of Chemical Engineering, NTUA Thesis Title: “Coarse simulation of complicated physicochemical and biological systems with methods of multiscale analysis, bifurcation analysis and self-similarity” Advisor: Andreas G. Boudouvis Co-advisor: Ioannis G. Kevrekidis, Princeton University, USA
2002-2004	Inter-Departmental Postgraduate Program “Computational Mechanics”, NTUA GPA: 9.57/10.00 (1 st out of 40) Diploma Thesis: “Computation of self-similar solutions of partial differential equations” Advisor: Andreas G. Boudouvis
1997-2002	Diploma, School of Chemical Engineering, NTUA GPA: 9.38/10.00 (3 rd out of 200) Diploma Thesis: “Computational analysis of nonlinear phenomena on composite catalytic surfaces” Advisor: Andreas G. Boudouvis

Computational Skills

Programming Languages	FORTRAN 77/90 (advanced), C++ (advanced), Qt (advanced), Python (advanced), Visual Basic (basic)
Operational Systems	Windows, UNIX, Linux, MacOSX
Mathematics Software	MATLAB, COMSOL Multiphysics, Mathcad, AUTO, Matcont
Chemical Engineering Software	ASPEN, ChemCad
Ab-initio	Quantum Espresso
Molecular Dynamics	LAMMPS, GROMACS
Bioclimatic Design Software	Envi-met System, Ecotect Analysis

Honors and Awards

Undergraduate Level:	- Greek State Scholarships Foundation (IKY): 1998, 1999, 2001, 2002 - Technical Chamber of Greece: 1998, 1999, 2001, 2002. - G. Zografakis Foundation: 1999, 2001, 2002. - Ch. Papakiriakopoulos Award (in Mathematics): 1999
Postgraduate Level:	- Best PhD thesis in Computational Mechanics from the Greek Association of Computational Mechanics (GRACM). Candidate for the best dissertation in the European ECCOMAS (European Community on Computational Methods in Applied Sciences) competition: 2007 - Greek State Scholarships Foundation IKY: 2003 - 2007 - Eugenides Foundation: 2003 - Inter-Departmental Postgraduate Program “Computational Mechanics”: 2004

Research Interests

Computational Fluid Dynamics
Simulation and Modeling
Non-Linear Phenomena, Bifurcation Analysis
Numerical Analysis and Computational Methods for Partial Differential Equations
Multiscale Analysis
Fluid Mechanics
Wetting Phenomena
Population Balance Modeling
Molecular Dynamics

Publications

Publications in refereed journal articles

- J35. M.E. Kavousanakis, O. Bhatavdekar, R. Bastiaannet, Y. Kevrekidis and S. Sofou “Transport cocktails for cancer therapeutics”, *Physical Review Research*, **6**, 033137-12, 2024.
- J34. S.J. Chapman, M. Kavousanakis, E. Charalampidis, I. Kevrekidis, and P.G. Kevrekidis “Self-similar blow-up solutions in the generalized Korteweg-de Vries equation: Spectral analysis, normal form and asymptotics”, *Nonlinearity*, **37**, 095034-36, 2024.
- J33. I. Tzortzi, I. Joundi, M. Kavousanakis, T. Spyriouni, A. Bampouli, G. Michaud, T. Van Gerven, and G. Stefanidis “Tailoring Waterborne Coating Rheology with Hydrophobically Modified Ethoxylated Urethanes (HEURs): Molecular Architecture Insights Supported by CG-MD Simulations”, *Industrial & Engineering Chemistry Research*, **63**, 10009-10026, 2024.
- J32. I. Lampropoulos, and M.E. Kavousanakis “Application of combination chemotherapy in two-dimensional tumor growth model with heterogeneous vasculature”, *Chemical Engineering Science*, **280**, 118965, 2023.
- J31. Y. Psarellis, M.E. Kavousanakis, P.J. Dauenhauer, and I.G. Kevrekidis “Writing the Programs of Programmable Catalysis”, *ACS Catalysis*, **13**, 7457-7471, 2023.

- J30. Y. Psarellis, M. Kavousanakis, M. Henson, and I. Kevrekidis “Limits of Entrainment of Circadian Neuronal Networks”, *Chaos*, **33**, 013137, 2023.
- J29. C. Xiouras, F. Cameli, G.L. Quillo, M. Kavousanakis, D. Vlachos, and G. Stefanidis “Applications of Artificial Intelligence and Machine Learning Algorithms to Crystallization”, *Chemical Reviews*, **122**, 13006-13042, 2022.
- J28. S.J. Chapman, M. Kavousanakis, E. Charalampidis, I. Kevrekidis, and P. Kevrekidis, “A spectral analysis of the nonlinear Schrödinger equation in the co-exploding frame”, *Physica D: Nonlinear Phenomena*, **439**, 13396-133422, 2022.
- J27. I. Lampropoulos, M. Charoupa, and M. Kavousanakis, “Intra-tumor heterogeneity and its impact on cytotoxic therapy in a two-dimensional vascular tumor growth model”, *Chemical Engineering Science*, **259**, 117792, 2022.
- J26. M. Kavousanakis, N. Cheimarios, G. Kokkoris, and A. G. Boudouvis, “On the effect of self-sustained periodic flows on film thickness non-uniformity during CVD”, *Computers & Chemical Engineering*, **161**, 107775, 2022.
- J25. S.J. Chapman, M. Kavousanakis, I.G. Kevrekidis, and P.G. Kevrekidis “Normal form for the onset of collapse: The prototypical example of the nonlinear Schrödinger equation”. *Physical Review E*, **104**, 044202, 2021.
- J24. A. Fytopoulos, M.E. Kavousanakis, T. Van Gerven, A.G. Boudouvis, G.D. Stefanidis, and C. Xiouras “Crystal Growth, Dissolution, and Agglomeration Kinetics of Sodium Chlorate”. *Industrial & Engineering Chemistry Research*, **60**, 7367-7384, 2021.
- J23. N. Cheimarios, M.E. Kavousanakis, G. Kokkoris, and A.G. Boudouvis “Beware of symmetry breaking and periodic flow regimes in axisymmetric CVD reactor setups”. *Computers and Chemical Engineering*, **124**, 124, 2019.
- J22. M.E. Kavousanakis, N.T. Chamakos, K. Ellinas, A. Tserepi, E. Gogolides, and A.G. Papathanasiou “How to achieve reversible electrowetting on superhydrophobic surfaces”. *Langmuir*, **34**, 4173, 2018.
- J21. P. Chrysinas, M.E. Kavousanakis, and A.G. Boudouvis. “Effect of cell heterogeneity on isogenic populations with the synthetic genetic toggle switch network: bifurcation analysis of two-dimensional Cell Population Balance Models”. *Computers and Chemical Engineering*, **112**, 27, 2018.
- J20. N.T. Chamakos, M.E. Kavousanakis, A.G. Boudouvis, and A.G. Papathanasiou "Droplet spreading on rough surfaces: Tackling the contact line boundary condition." *Physics of Fluids*, **28**, 022105, 2016.
- J19. I.G. Aviziotis, M.E. Kavousanakis, and A.G. Boudouvis "Effect of intrinsic noise on the phenotype of cell populations featuring solution multiplicity: An artificial lac operon network paradigm." *PLoS ONE*, **10**, e0132946, 2015.
- J18. M.E. Kavousanakis, N.T. Chamakos, and A.G. Papathanasiou "Connection of intrinsic wettability and surface topography with the apparent wetting behaviour and adhesion properties." *Journal of Physical Chemistry C*, **119** (27), 2015.
- J17. I.G. Aviziotis, M.E. Kavousanakis, and A.G. Boudouvis "Coarse-grained analysis of stochastically simulated cell populations with a positive feedback genetic network architecture." *Journal of Mathematical Biology*, **70**(7), 1457-1484, 2015.

- J16. N.T. Chamakos, M.E. Kavousanakis, A.G. Boudouvis, and A.G. Papathanasiou "Neither Lippmann nor young: Enabling electrowetting modeling on structured dielectric surfaces." *Langmuir*, **30**(16), 4662-4670, 2014.
- J15. M.E. Kavousanakis, N.G. Kalogeropoulos, and D.T. Hatzivramidis "Computational modeling of drug delivery to the posterior eye" *Chemical Engineering Science*, **108**, 203-212, 2014.
- J14. N.T. Chamakos, M.E. Kavousanakis, A.G. Boudouvis, and A.G. Papathanasiou "Enabling efficient energy barrier computations of wetting transitions on geometrically patterned surfaces" *Soft Matter*, **9**(40), 9624-9632, 2013.
- J13. M.E. Kavousanakis, C.E. Colosqui, and A.G. Papathanasiou, "Engineering the geometry of stripe-patterned surfaces toward efficient wettability switching" *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, **436**, 309-317, 2013.
- J12. M.E. Kavousanakis, L. Russo, F.S. Marra, and C. Siettos "Homoclinic bifurcations in radiating diffusion flames" *Combustion Theory and Modelling*, **17**, 40-52, 2013.
- J11. C.E. Colosqui, M.E. Kavousanakis, A.G. Papathanasiou, and I.G. Kevrekidis "Mesoscopic model for microscale hydrodynamics and interfacial phenomena: Slip, films, and contact-angle hysteresis" *Physical Review E - Statistical, Nonlinear, and Soft Matter Physics*, **87**, 013302, 2013.
- J10. M.E. Kavousanakis, C.E. Colosqui, I.G. Kevrekidis, and A.G. Papathanasiou "Mechanisms of wetting transitions on patterned surfaces: Continuum and mesoscopic analysis" *Soft Matter*, **8**, 7928-7936, 2012.
- J9. M.E. Kavousanakis, P. Liu, A.G. Boudouvis, J. Lowengrub, and I.G. Kevrekidis "Efficient coarse simulation of a growing avascular tumor" *Physical Review E - Statistical, Nonlinear, and Soft Matter Physics*, **85**, 031912, 2012.
- J8. M.E. Kavousanakis, J.S. Kanodia, Y. Kim, I.G. Kevrekidis, and S.Y. Shvartsman "A compartmental model for the bicoid gradient" *Developmental Biology*, **345**, 12-17, 2010.
- J7. Y. Zou, M.E. Kavousanakis, I.G. Kevrekidis, and R.O. Fox "Coarse-grained computation for particle coagulation and sintering processes by linking Quadrature Method of Moments with Monte-Carlo" *Journal of Computational Physics*, **229**, 5299-5314, 2010.
- J6. N. Wu, M.E. Kavousanakis, and W.B. Russel "Coarsening in the electrohydrodynamic patterning of thin polymer films" *Physical Review E - Statistical, Nonlinear, and Soft Matter Physics*, **81**, 026306, 2010.
- J5. G. Theocharis, M. Kavousanakis, P.G. Kevrekidis, C. Daraio, M.A. Porter, and I.G. Kevrekidis "Localized breathing modes in granular crystals with defects." *Physical Review E - Statistical, Nonlinear, and Soft Matter Physics*, **80**, 066601, 2009.
- J4. M.E. Kavousanakis, N.V. Mantzaris, and A.G. Boudouvis "A novel free boundary algorithm for the solution of cell population balance models." *Chemical Engineering Science*, **64**, 4247-4261, 2009.
- J3. M.E. Kavousanakis, L. Russo, C.I. Siettos, A.G. Boudouvis, and G.C. Georgiou "A timestepper approach for the systematic bifurcation and stability analysis of polymer extrusion dynamics." *Journal of Non-Newtonian Fluid Mechanics*, **151**, 59-68, 2008.

- J2. G. Pashos, M.E. Kavousanakis, A.N. Spyropoulos, J.A. Palyvos, and A.G. Boudouvis "Simultaneous solution of large-scale linear systems and eigenvalue problems with a parallel GMRES method." *Journal of Computational and Applied Mathematics*, **227**, 196-205, 2009.
- J1. M.E. Kavousanakis, R. Erban, A.G. Boudouvis, C.W. Gear, and I.G. Kevrekidis "Projective and coarse projective integration for problems with continuous symmetries." *Journal of Computational Physics*, **225**, 382-407, 2007.

Publications in conference proceedings

- P18. P. Beikos, and M. Kavousanakis "An interactive web-based GIS application for the analysis of pollutant dispersion models" Στα Πρακτικά του 14ου Πανελλήνιου Επιστημονικού Συνεδρίου Χημικής Μηχανικής, Θεσσαλονίκη, 29-31 Μαΐου 2024.
- P17. Ι. Λαμπρόπουλος, και Μ. Καβουσανάκης "Μαθηματική προσομοίωση συνδυαστικής ακτινο-χημειοθεραπείας σε μοντέλο ανάπτυξης καρκινικού όγκου σε δύο χωρικές διαστάσεις" Στα Πρακτικά του 14ου Πανελλήνιου Επιστημονικού Συνεδρίου Χημικής Μηχανικής, Θεσσαλονίκη, 29-31 Μαΐου 2024.
- P16. M.E. Kavousanakis, O. Bhatavdekar, S. Sofou and I.G. Kevrekidis, "Transport and Reaction Modeling of Nanocarriers for Cancer Therapeutics: Experimental and in silico Approaches", IFAC-PapersOnLine, 55, 104-108, Proceedings of FOSBE 2022, Boston, 2022.
- P15. Ι. Λαμπρόπουλος, Μ. Χαρούπα και Μ. Καβουσανάκης "Υπολογιστική μελέτη στοιχείων καρκινικής ετερογένειας και της επίδρασής τους σε εφαρμοζόμενη χημειοθεραπεία: διδιάστατο μοντέλο κακοήθους όγκου με αγγειακό σύστημα." Στα Πρακτικά του 13ου Πανελλήνιου Επιστημονικού Συνεδρίου Χημικής Μηχανικής, Πάτρα, 2-4 Ιουνίου 2022.
- P14. N.G. Dimitrioglou, M.E. Kavousanakis, and D.T. Hatziaivramidis "Computational modeling of drug delivery for treatment of age-related macular degeneration." In the Proceedings of IFMBE, 68(1), pp. 539-545, 2019.
- P13. Ι. Αβιζιώτης, Μ. Καβουσανάκης και Α. Μπουντουβής "Επίδραση της εγγενούς ετερογένειας στο φαινότυπο κυτταρικών πληθυσμών με το γενετικό δίκτυο lac operon." Στα Πρακτικά του 10ου Πανελλήνιου Επιστημονικού Συνεδρίου Χημικής Μηχανικής, Πάτρα, 4-6 Ιουνίου 2015.
- P12. Ν. Χαμάκος, Γ. Καραπέτσας, Μ. Καβουσανάκης και Α. Παπαθανασίου "Droplet passive movement on asymmetric patterned surfaces." Στα Πρακτικά του 10ου Πανελλήνιου Επιστημονικού Συνεδρίου Χημικής Μηχανικής, Πάτρα, 4-6 Ιουνίου 2015.
- P11. Ι. Αβιζιώτης, Μ. Καβουσανάκης και Α. Μπουντουβής "Αδρομερείς υπολογισμοί ισοζυγίων κυτταρικών πληθυσμών." Στα Πρακτικά του 9ου Πανελλήνιου Επιστημονικού Συνεδρίου Χημικής Μηχανικής, Αθήνα, 23-25 Μαΐου 2013.
- P10. N.T. Chamakos, M.E. Kavousanakis and A.G. Papathanasiou "Equilibrium of droplets on micro/nano-structured surfaces: Reformulating the Young-Laplace equation." Στα Πρακτικά του 9ου Πανελλήνιου Επιστημονικού Συνεδρίου Χημικής Μηχανικής, Αθήνα, 23-25 Μαΐου 2013.

- P9. M.E. Kavousanakis, L. Russo, F. Marra and C. Siettos “Systematic bifurcation analysis of a planar diffusion flame model with radiative heat losses.” In the Proceedings of *AIP*, 1279(1), pp.1430-1433, 2012.
- P8. M. Kavousanakis, C. Colosqui, I. Kevrekidis, and A. G. Papathanasiou “Mechanisms of wetting transitions on superhydrophobic surfaces.” In the Proceedings of the *7th International Conference on Material Technologies and Modeling (MMT-2012)*, Ariel University Center of Samaria Ariel, Israel, August 20-23, 2012.
- P7. M.E. Kavousanakis, C. Colosqui, I.G. Kevrekidis and A.G. Papathanasiou, “Wetting phenomena on micro-structured surfaces.”, 7th GRACM, International Congress on Computational Mechanics, Athens, Greece, 2011.
- P6. M.E. Καβουσανάκης, Α.Γ. Μπουντουβής και Α.Γ. Παπαθανασίου “Υπολογιστική ανάλυση φαινομένων διαβροχής σε μικρο-δομημένες επιφάνειες.” Στα Πρακτικά του 8ου Πανελλήνιου Επιστημονικού Συνεδρίου Χημικής Μηχανικής, Θεσσαλονίκη, 2011.
- P5. G. Pashos, M.E. Kavousanakis, A.N. Spyropoulos, J.A. Palyvos and A.G. Boudouvis “Simultaneous solution of large scale linear systems and eigenvalue problems.” In the Proceedings of the *Conference in Numerical Analysis (Numan 2007)*, Kalamata, Greece, 2007.
- P4. M.E. Καβουσανάκης, Κ.Ι. Σιέττος, Α.Γ. Μπουντουβής και Ι.Γ. Κεβρεκίδης “Αποτελεσματική προσομοίωση ανάπτυξης νεοπλασματικού όγκου με στοχαστικά μοντέλα.” Στα Πρακτικά του 6ου Πανελλήνιου Επιστημονικού Συνεδρίου Χημικής Μηχανικής, Αθήνα, 2007.
- P3. Σ.Μ. Αλιμπέρτη, M.E. Καβουσανάκης, και Α.Γ. Μπουντουβής “Υπολογιστική Ανάλυση Χημειοτακτικών Μοντέλων Πληθυσμών E.Coli και S.Typhimurium σε Υδατικό και Ημιστερεό Μέσο.” Στα Πρακτικά του 6ου Πανελλήνιου Επιστημονικού Συνεδρίου Χημικής Μηχανικής, Αθήνα, 2007.
- P2. M.E. Kavousanakis, C.I. Siettos, A.G. Boudouvis, P.G. Kevrekidis and I.G. Kevrekidis “On the computation of self-similar and coarse self-similar solutions.”, In the Proceedings of the *5th GRACM, International Congress on Computational Mechanics*, Limassol, Cyprus, 2005.
- P1. M.E. Καβουσανάκης, Κ.Ι. Σιέττος, Α.Γ. Μπουντουβής και Ι.Γ. Κεβρεκίδης “Υπολογισμός ομοιότυπων και αδρομερών ομοιότυπων λύσεων.” Στα Πρακτικά του 5ου Πανελλήνιου Επιστημονικού Συνεδρίου Χημικής Μηχανικής, Θεσσαλονίκη, 2005.

Presentations

Invited

- 6. M.E. Kavousanakis, “Optimizing cancer treatment schedules: a computational study of combined therapies on vascular tumors”, *Data-driven Applications for Exascale Supercomputers Worskhop*, Athens, September 2024.
- 5. M.E. Kavousanakis, “Numerical investigation of self-similar blow-up solutions in the generalized Korteweg de Vries equation”, *Dynamics Days Europe 2024*, Bremen, August 2024.
- 4. M.E. Kavousanakis, “Programmable Catalysts: Algorithmic optimization of periodic steady states for enhanced productivity and selectivity”, *EFCE Spotlight Talks* -

Application of AI to Chemical Reaction Engineering and Processes Intensification, March 2024.

3. X. Krokidis, and M.E. Kavousanakis “Model, Simulate, Analyze complex materials on a multiscale level.” Presented at the *Greek-German Workshop “Structural investigation and molecular dynamics”*, Athens, Greece, 28 September 2015.
2. M.E. Kavousanakis “From single cell to cell population: enabling individual-based models to perform a systems level analysis”, *Technische Universitat Munchen*, November 2013.
1. M.E. Kavousanakis “Using time-steppers to perform computational tasks.” *Applied Mathematics and Computation Seminar*, Department of Mathematics and Statistics, University of Massachusetts, Amherst, MA, USA, February 2009.

In Conferences

- O28. I. Lampropoulos, and M.E. Kavousanakis, “A Computational Study of Combined Chemotherapy for a Growing Tumor with Heterogeneous Vasculature”. Presented at the *AIChE Annual Meeting*, Orlando, FL, USA, 5 – 10 November 2023.
- O27. A. Manoj, A. Georgiou, G. Psarellis, M. Kavousanakis, P.J. Dauenhauer and I.G. Kevrekidis, “Programmable Catalytic Ammonia Synthesis and Its Optimization”, Presented at the *AIChE Annual Meeting*, Orlando, FL, USA, 5 – 10 November 2023.
- O26. A. Kardamaki, A. Nikolakopoulos, M. Kavousanakis, P. Doganis, and H. Sarimveis, H., “A model predictive control framework for the production of functional, safe and sustainable nanomaterials”, *ESCAPE 33*, Athens, Greece, 18 – 21 June 2023.
- O25. M. Kavousanakis, O. Bhatavdekar, S. Sofou, and I.G. Kevrekidis, “Reaction-Diffusion Modeling of Nanocarrier Cocktails for Cancer Therapeutics”. Presented at the *AIChE Annual Meeting*, Phoenix, AZ, USA, 13 – 18 November 2022.
- O24. G. Psarellis, M. Kavousanakis, M. Henson and I.G. Kevrekidis, “Limits of Entrainment of Circadian Neuronal Networks”. Poster presented at the *AIChE Annual Meeting*, Phoenix, AZ, USA, 13 – 18 November 2022.
- O23. G. Psarellis, P. Dauenhauer, M. Kavousanakis and I.G. Kevrekidis, “Computations and Optimization for Catalysts Under Dynamic Operation”. Presented at the *AIChE Advanced Manufacturing and Processing Conference*, Bethesda, MD, USA, 2022
- O22. O. Bhatavdekar, M. Kavousanakis, D. Bulara, S. Sofou, and I.G. Kevrekidis, “Transport and Reaction Modeling of Nanocarriers for Cancer Therapeutics Via Experimental and in-Silico approaches”. Presented at the *AIChE Annual Meeting*, Boston, USA, 2021
- O21. G. Psarellis, P. Dauenhauer, M. Kavousanakis and I.G. Kevrekidis, “Computations and Optimization for Catalysts Under Dynamic Operation”. Presented at the *AIChE Annual Meeting*, Boston, USA, 2021
- O20. N.T. Chamakos, G. Karapetsas, M.E. Kavousanakis and A.G. Papathanasiou “Efficient modeling of droplet spreading on rough surfaces.” Presented at the *8th GRACM International Congress on Computational Mechanics*, Volos, Greece, 12 – 15 July 2015.
- O19. A.G. Papathanasiou, M.E. Kavousanakis and N.T. Chamakos “Reversible electrowetting on rough surfaces.” Presented at the *6th International Workshop on Bubble and Drop Interfaces (B&D2015)*, Potsdam-Golm, Germany, 6 – 10 July 2015.

- O18. G. Karapetsas, N.T. Chamakos, M.E. Kavousanakis and A.G. Papathanasiou "Modeling of dynamic contact lines", Presented at the *Smart and Green Interfaces Conference, Joint with COST MP1106 Annual MC meeting*, Belgrade, Serbia, 30 March - 1 April, 2015.
- O17. N.T. Chamakos, A.J. Petsi, M.E. Kavousanakis and A.G. Papathanasiou "Effect of solid surface topography on the dynamics of droplet spreading assisted by electrowetting." Poster presented at the *9th International Meeting on Electrowetting and Related Micro/Electrofluidic Science and Technology*, Cincinnati, Ohio, USA, 23 - 25 June, 2014.
- O16. D. Bullara, M. Kavousanakis, M. Sempkowski, C. Zhu, Y. Kevrekidis and S. Sofou "Materials engineering of liposomal chemotherapy and the associated transport considerations." Presented at the *5th International Conference on Tissue Engineering*, Kos, Greece, 20 - 21 June, 2014.
- O15. N.T. Chamakos, M.E. Kavousanakis and A.G. Papathanasiou "Modeling contact angle hysteresis on flat and geometrically patterned solid surfaces" Poster presented at the *555th WE-Heraeus-Seminar*, Bad Honnef, Germany, 16 - 19 March, 2014.
- O14. M.E. Kavousanakis, N.T. Chamakos and A.G. Papathanasiou "Surface topography design through efficient computation of wetting transitions energy barriers." Poster presented at the *555th WE-Heraeus-Seminar*, Bad Honnef, Germany, 16 - 19 March, 2014.
- O13. M. Kavousanakis "From single cell to cell population: enabling individual-based models to perform a systems level analysis." Presented at *Technische Universitat Munchen*, November 2013.
- O12. M. Kavousanakis and A.G. Papathanasiou "Wetting transitions on patterned surfaces with tunable wettability: a mesoscopic computational analysis." Presented at the *8th International Meeting on Electrowetting*, Athens, Greece, 21-23 June 2012.
- O11. M.E. Kavousanakis, C.E. Colosqui, I.G. Kevrekidis and A.G. Papathanasiou "Mechanisms of interfacial transitions on micro-structured surfaces: A system-level analysis using LB simulators." Presented at the *9th European Fluid Mechanics Conference*, Rome, Italy, 9-13 September 2012.
- O10. M. Kavousanakis, N. Cheimarios and A.G. Boudouvis "Accelerated simulation of a growing tumor at its avascular stage." Presented at the *6th Conference of the Hellenic Society for Computational Biology & Bioinformatics – HSCBB11*, Patras, 7-9 October 2011.
- O09. C. Colosqui, M. Kavousanakis, A. Papathanasiou and I. Kevrekidis, "Multiscale computation of wetting transitions on micro/nanoscale solid structures." Presented at the *64th Annual Meeting of the APS Division of Fluid Dynamics*, Baltimore, Maryland, 2011.
- O08. "Using time-steppers to perform computational tasks." Applied Mathematics and Computation Seminar, Department of Mathematics and Statistics, University of Massachusetts, Amherst, MA, USA, February 2009.
- O07. M.E. Kavousanakis and I.G. Kevrekidis, "Efficient Coarse Simulation of a Tumor Growth Model." Presented at the *AIChE Annual Meeting*, Nashville, TN, USA, 2009

- O6. M.E. Kavousanakis, A.G. Boudouvis and N.V. Mantzaris “Numerical solution of multi-variable cell population balance models with a free boundary algorithm.” Presented at the *AIChE Annual Meeting*, Salt Lake City, UT, USA, 2007
- O5. M.E. Kavousanakis, C.I. Siettos, L. Russo, A.G. Boudouvis, G. Georgiou “Bifurcation analysis of flow instabilities in polymer melts during extrusion: A timestepper-based approach for the efficient computation of periodic-oscillating solutions.” Presented at the *XVth International Workshop on Numerical Methods for non-Newtonian Flows*, Rhodes, Greece, 2007
- O4. M.E. Kavousanakis, C.I. Siettos, L. Russo, A.G. Boudouvis, G. Georgiou “A mechanism of polymer extrusion instability revisited: A timestepper approach for the systematic bifurcation and stability analysis.” Presented at the *4th Annual European Rheology Conference (AERC 2007)*, Napoli, Italy, 2007
- O3. M.E. Kavousanakis, A.G. Boudouvis and N.V. Mantzaris “A novel free boundary algorithm for the solution of cell population balances.” Presented at the *AIChE Annual Meeting*, San Francisco CA, USA, 2006
- O2. M.E. Kavousanakis, A.G. Boudouvis and I.G. Kevrekidis “Projective and coarse projective integration for multiscale problems with continuous symmetries.” Presented at the *AIChE Annual Meeting*, San Francisco CA, USA, 2006
- O1. M.E. Kavousanakis, C.I. Siettos, A.G. Boudouvis, P.G. Kevrekidis and I.G. Kevrekidis “On the computation of self-similar and coarse self-similar solutions.” Presented at the *AIChE Annual Meeting*, Austin TX, USA, 2004.

Reviewer

Physica D: Nonlinear Phenomena
 Physica A: Statistical Mechanics and its Applications
 Acta Biomaterialia
 Chemical Engineering Research and Design
 Nanomedicine
 Chemical Engineering Science
 Drug Delivery and Translational Research
 Journal of Membrane Biology
 Nanomaterials, MDPI
 Coatings, MDPI
 Computation, MDPI
 Energies, MDPI
 Processes, MDPI
 Computational and Mathematical Methods in Medicine
 Biomicrofluidics
 Physical Review E
 Applied Numerical Mathematics
 Applied Mathematical and Computational Sciences
 Foundations of Systems Biology in Engineering (FOSBE 2016)
 Greek Association of Computational Mechanics (7th GRACM 2011)

Participation in research projects

9. “TORCH: Investigation of tumor cell heterogeneity impact on drug resistance mechanisms”, Basic Research Program PEVE (NTUA) 2022-2024. (PI)
8. “Sabydoma - Safety BY Design Of nanoMaterials”, EU H2020.
7. “SIMPLIFY: Sonication and Microwave Processing of Material Feedstock”, EU H2020.
6. Molecular simulation and thermodynamics of fluids and advanced technological material, NCSR “Demokritos”, 2014-2019.
5. “Roughness design towards reversible non- / full-wetting surfaces: From Fakir Droplets to Liquid Films (HYDROFAKIR)”, Program ‘IDEAS’, European Research Council, 2009-2013.
4. “Solar cooling of buildings with a continuous operation adsorption cooler”, General Secretariat for Research and Technology, Program "IENEΔ", 2005-2009.
3. "From the cell to the tumour: Effective simulation of macroscopically patterned biological systems with multiscale methods", NTUA, Basic Research Program, 2009-2011
2. “From single-cell genetic architecture to heterogeneous cell population dynamics" General Secretariat for Research and Technology, Program "ENTEΠ", 2006-2007.
1. “From microscopic simulation to coarse, macroscopic behavior: a unified computational framework for problems with multiple space/time scales”, NTUA, Basic Research Program "ΠΠΩΤΑΓΟΡΑΣ", 2004-06.