

George Karapetsas

ASSOCIATE PROFESSOR

School of Chemical Engineering, Aristotle University of Thessaloniki, Greece

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Education

Ph.D. in Chemical Engineering	2002 - 2007
UNIVERSITY OF PATRAS, DEPARTMENT OF CHEMICAL ENGINEERING	Greece
MSc in Process Simulation, Optimization, and Control	2002 - 2004
UNIVERSITY OF PATRAS, DEPARTMENT OF CHEMICAL ENGINEERING	Greece
Diploma in Chemical Engineering	1996 - 2002
ARISTOTLE UNIVERSITY OF THESSALONIKI, DEPARTMENT OF CHEMICAL ENGINEERING	Greece

Current and Previous Positions

2023 – present	Associate Professor Aristotle University of Thessaloniki, School of Chemical Engineering
2018 – 2023	Assistant Professor Aristotle University of Thessaloniki, School of Chemical Engineering
2009 – 2018	Post-doctoral researcher <ul style="list-style-type: none">Imperial College London, School of Chemical Engineering (05/2009 – 12/2011)University of Thessaly, School of Mechanical Engineering (01/2012 – 01/2015)National Technical University of Athens, School of Chemical Engineering (01/2015 – 09/2015)
2011 - 2013	Academic Consultant , School of Chemical Engineering (10/2015 – 01/2018) Imperial Consultants, United Kingdom
2008	Chemical Analyst Greek Army
Summer 2000	Internship Air Liquide Hellas, Greece

Scientific and Research Interests

- Momentum, heat and mass transfer applied to engineering and physics applications
- Interfacial and multiphase flows, phase change and effect of surfactants
- Thin films, complex rheology, flows induced by electric and magnetic fields
- Analytical methods for solving partial differential equations, perturbation methods
- Dynamical systems and stability analysis based on bifurcation theory
- Numerical methods for solving basic and applied problems (finite elements, finite differences, etc.), solution of large-scale problems, iterative techniques and preconditioning, eigenvalues and eigenvector calculations of large systems

My research lies at the intersection of fluid mechanics, transport phenomena, and applied mathematics, with a strong focus on both fundamental and applied problems in fluid dynamics. I have a particular interest in complex and multiphase flows, investigating interfacial phenomena, hydrodynamic stability, non-Newtonian and soft matter behavior, and transport processes in confined or microscale geometries. My work combines theoretical analysis, advanced computational modeling, and high-fidelity numerical simulations to tackle challenges that span scientific inquiry and technological innovation. Specific areas of focus include the dynamics of thin liquid films and droplets, flows involving surfactants and complex rheology, and instabilities in multiphase systems. These efforts contribute to progress in microfluidics, coating and printing technologies, and applications in environmental and energy systems.

Honors & Awards

- 2025 The following publication:
- C. Dritselis, **G. Karapetsas**, “Wetting dynamics of droplets on a layer of viscoplastic material” Phys. Fluids 37 (2025) 053107
- has been selected as **Editor’s Pick** in Phys. Fluids journal.
- 2024 The following publication:
- Z. Wang, **G. Karapetsas**, P. Valluri, C. Inoue, ”Flow Structure near Three Phase Contact Line of Low-Contact-Angle Evaporating Droplets” Appl. Phys. Lett. 124 (2024) 101603
- has been selected as **Editor’s Pick** in Appl. Phys. Lett. journal. It has also been selected in **2024 Appl. Phys. Lett. Rising Stars Collection**. This highly selective collection consists of 57 total papers, just under 2% of the journal’s annual total volume.
- 2019 The following publications:
- D. Pettas, **G. Karapetsas**, Y. Dimakopoulos and J. Tsamopoulos, ‘Viscoelastic film flows over an inclined substrate with sinusoidal topography. I. Steady state’, Phys. Rev. Fluids 4 (2019) 083303
 - D. Pettas, **G. Karapetsas**, Y. Dimakopoulos and J. Tsamopoulos, ‘Viscoelastic film flows over an inclined substrate with sinusoidal topography. II. Linear stability analysis’, Phys. Rev. Fluids 4 (2019) 083304
- were selected as **Editors’ Suggestion** in Phys. Rev. Fluids journal.
- 2011 The following publication:
- **G. Karapetsas**, R. V. Craster and O. K. Matar, ‘On the surfactant-enhanced spreading and super-spreading of liquid drops on solid surfaces’, J. Fluid Mech. 670 (2011) 5-37
- was selected for the **Focus on Fluids** feature of this journal.
- 2007 The following presentation:
- Steady bubble rise and deformation in Bingham fluids and conditions for their entrapment with J. Tsamopoulos, Y. Dimakopoulos, N. Chatzidai and M. Pavlidis
- received the **Best paper award** in the Conference on Viscoplasticity: from Theory to Application, Ticino, Switzerland, October 2007.

Grants and Funded Projects

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|------|---|----------|
| 2025 | Thermal management enabling longevities in (electric) Energy Transformative Technologies (ThermEnTrans) - Role: PI, Institutional Lead | €130,260 |
| | Marie Skłodowska-Curie Actions (MSCA), European Union, Grant ID: 101236597 | |
| 2025 | Infrastructure Upgrade for the A’ Chemical Engineering Laboratory - Role: Laboratory Director / PI | €366,600 |
| | Region of Central Macedonia 2021-2027, Greece, Grant ID: 6019660 | |
| 2022 | Controllable Droplet Transport in Heterogeneous Environments (CoDeTHreE) - Role: Collaborator | €5,000 |
| | ”Excellence Hubs” Programme - Research & Innovation Foundation, Cyprus, Grant No. EXCELLENCE/0421/0504 | |
| 2018 | Dynamics of SPREADING on liquid substrates with complex rheology (SPREAD) - Role: Principal Investigator | €180,000 |
| | Hellenic Foundation for Research and Innovation (HFRI), Greece, Grant No: 792 | |
| 2012 | Electrically Induced Flows of Viscoelastic Materials (EIFVM) - Role: Principal Investigator | €150,000 |
| | General Secretariat for Research and Technology (GSRT), Greece, Grant No: PE8/906 | |

Participation in Research Projects

- LIMMAT foundation under the grant MuSiComPS (2015-2017)
- Europeans Communitys Seventh Framework Programme (FP7/2007- 2013)/ERC grant agreement no. [240710]
- General Secretariat for Research and Technology, Ministry of Education, Greece, "THALES" (COVISCO)
- Engineering and Physical Sciences Research Council (EPSRC) (EP/E056466/1)
- KARATHEODORI, Basic Research, 2003-2005 (Code: 568)
- General Secretariat for Research and Technology, Ministry of Education, Greece, PENED 2001 (Code: 01ED136)

Teaching Experience

2021 – present	Unit Operations I , Undergraduate course (5 th semester – compulsory)
2019 – present	Unit Operations II , Undergraduate course (6 th semester – compulsory)
2018 – 2022	Transport Phenomena , Postgraduate course (1 st semester – compulsory)
2018 – 2024	Numerical Methods for Engineers , Undergraduate course (4 th semester – compulsory)
2020 – 2021	Chemical Engineering Laboratory I , Undergraduate course (7 th semester – compulsory)
2019 – present	Practical Training – Energy, Environment , Undergraduate course (\geq 8 th semester – elective)
2019 – 2020	Introduction to Computing , Undergraduate course (2 nd semester – compulsory)
2020	Chemical Product and Plant Design Project I , Undergraduate course (9 th semester – compulsory)
2021	Chemical Product and Plant Design Project II , Undergraduate course (10 th semester – compulsory)

Supervision and Mentoring

Post-doctoral researchers

2025 - present	S. Kavuri , Indian Institute of Technology Hyderabad. (Co-supervisor)
2024 - 2025	A. Kaushal , Indian Institute of Technology Hyderabad. (Co-supervisor)
2019 - 2022	Chris Dritselis , Aristotle University of Thessaloniki. (Supervisor)
2020 - 2021	Sotiris Evgenides , Aristotle University of Thessaloniki. (Supervisor)

PhD - in progress

2021 - present	A. Malachtari , Aristotle University of Thessaloniki, Flow of liquid films over compliant substrates. (Supervisor)
2022 - present	D. Debnath , University of Edinburgh, Evaporation of multiple droplets of a binary mixture of liquids. (Co-supervisor)
2021 - present	S. Kyroglou , Aristotle University of Thessaloniki, Effect of processing and storage time on the rheological properties of fruit purees and/or concentrated fruit juices. (Co-supervisor)
2024 - present	V. Ioannidou , Aristotle University of Thessaloniki, Development and Validation of Hybrid Models for Model Predictive Control in Continuous Plasmid DNA Manufacturing. (Co-supervisor)
2024 - present	M. Liaskos , Aristotle University of Thessaloniki, Personalised (precision) in vivo tissue engineering with the application of 3D printing and applications in medical practice. (Co-supervisor)

PhD - completed

2021 - 2025	S. Kavuri , Indian Institute of Technology Hyderabad, Freezing and evaporation of sessile drops. (Co-supervisor)
2019 - 2024	K. Thomson , University of Edinburgh, Dynamics of evaporating drops comprising binary mixtures. (Co-supervisor)
2016 - 2019	A. Williams , University of Edinburgh, Evaporation of Binary Liquids: Planar Layers and Sessile Drops. (Co-supervisor (informal) - primary supervisor: Prof. P. Valluri)

2016 - 2019 **R. Nazareth**, University of Edinburgh, Multiphase Dynamics in Liquid Mixtures: Thermocapillary propulsion of bubbles and instabilities in evaporating layers. (Co-supervisor (informal) - primary supervisor: Prof. P. Valluri)

2013 - 2019 **D. Pettas**, University of Patras, Steady flow and stability analysis of a thin film over variable topography. (Co-supervisor (informal) - primary supervisor: Prof. J. Tsamopoulos)

Member of advisory (co-supervisory) committees for 9 PhD students (6 at AUTH, 3 international) and examination committees for 6 PhD students.

MSc theses - completed

June 2024 **H. Koufos**, Aristotle University of Thessaloniki, Stability of viscoelastic falling films (Supervisor)

March 2021 **C. Potamopoulos**, Aristotle University of Thessaloniki, Non isothermal bubble motion at a viscoplastic material (Supervisor)

June 2015 **D. Pettas**, University of Patras, Linear stability analysis of viscoelastic fluid extrusion through a planar die. (Co-supervisor (informal) - primary supervisor: Prof. J. Tsamopoulos)

Sept 2010 **R. Zhang**, Imperial College London, Modelling of hydrothermal waves in evaporating droplets. (Co-supervisor (informal) - primary supervisor: Prof. O. K. Matar)

Participation in the examination committee of 4 MSc students.

Diploma theses - in progress

Expected in 2026 **A. Giapoutzis**, Aristotle University of Thessaloniki, Numerical modelling of liquid–solid phase Change

Expected in 2026 **E. Lazopoulos**, Aristotle University of Thessaloniki, Numerical modelling of viscoelastic flows

Expected in 2026 **S. Gouta**, Aristotle University of Thessaloniki, Numerical modelling of fixed-bed adsorption columns

Expected in 2026 **C. Evmoiridis**, Aristotle University of Thessaloniki, CFD model for drying sessile droplets

Expected in 2026 **P. Lazaridis**, Aristotle University of Thessaloniki, Evaporation of binary mixture droplets

Expected in 2026 **I. Gkllaftse**, Aristotle University of Thessaloniki, Time-dependent simulations of electrowetting

Diploma theses - completed

Dec 2025 **S. Solomou**, Aristotle University of Thessaloniki, Development of a CFD method for simulating PDMS-Based Microfluidic Devices: Validation Using the AcubeSat In-Orbit Cell Culturing Platform - ranked among the **top three theses** out of all departmental submissions (year).

April 2024 **P. N. Angelopoulos**, Aristotle University of Thessaloniki, Droplet spreading on elasto-viscoplastic material

Nov 2023 **K. Theologou**, Aristotle University of Thessaloniki, Non-isothermal bubble rise in a viscoplastic medium

June 2023 **I. Tsakelidis**, Aristotle University of Thessaloniki, Simulations of evaporating droplets and deposition particles on elastic substrates

June 2023 **K. Alvanos**, Aristotle University of Thessaloniki, Model development for the simulation of evaporation phenomena in droplets.

Oct 2022 **A. Efthymiadou**, Aristotle University of Thessaloniki, Numerical simulation of the superspreading dynamics of surfactant laden droplets on solid surfaces

Mar 2022 **C. Sarakinou**, Aristotle University of Thessaloniki, Flow simulation of liquid drops in elasto-viscoplastic medium

Nov 2021 **A. Prasinou**, Aristotle University of Thessaloniki, Droplets spreading on viscoelastic substrates

Nov 2021 **M. Markopoulos**, Aristotle University of Thessaloniki, Simulation of the spreading of a liquid droplet on the surface of a suspended liquid film

Mar 2021 **A. Chatzis - Mpakratsas**, Aristotle University of Thessaloniki, Dynamics of a drying viscoelastic polymer solution

Mar 2021	P. Spanidis , Aristotle University of Thessaloniki, Stability study of an inclined viscoelastic falling film in three dimensions
Nov 2019	A. Vadarlis , Aristotle University of Thessaloniki, Effect of viscoelasticity on the stability characteristics of a drying polymer solution
Nov 2019	E. Petlis , Aristotle University of Thessaloniki, Linear stability of the flow of a viscoelastic film over an inclined substrate

Participation in the examination committee of ~ 80 undergraduate students (diploma theses).

Reviewing

- **Reviewer for the following international scientific journals:**

Journal of Fluid Mechanics, Physical Review Fluids, Physics of Fluids, Journal of Non-Newtonian Fluid Mechanics, Nature Communications, Langmuir, Soft Matter, Scientific Reports, Applied Surface Science, Surfaces and Interfaces, International Journal of Heat and Mass Transfer, International Journal of Thermal Sciences, Chemical Engineering Science, Physical Review E, Chemical Engineering Journal, International Communications in Heat and Mass Transfer, Chemical Engineering Research and Design, Computer Methods in Applied Mechanics and Engineering, Microgravity Science and Technology, The European Physical Journal E, Experimental Thermal and Fluid Science, Computers and Mathematics with Applications, Tribology International, Fluid Dynamics Research, Journal of Engineering Mathematics

- **Reviewer for the following research funding organisations:**

German Research Foundation (DFG), Czech Science Foundation (CSF)

Administrative Activities

Director of the A' Chemical Engineering Laboratory in Dept. of Chemical Engineering, AUTH (2024-present)

Member of the following committees in Dept. of Chemical Engineering, AUTH:

- Coordination Committee of Graduate Study Programme (2019-present)
- Organization, Informatics and Computer Center Committee (2020-present, Coordinator)
- Evaluation Committee for Doctoral and Postdoctoral Candidates (2025-present, Coordinator)
- Disability Accessibility Committee (2025-present, Coordinator)
- Security and Building Maintenance Committee (2020-2025, Coordinator)
- Academic calendar Committee (2020-2025, Coordinator)

Membership in Professional Societies

- American Physical Society
- Hellenic Rheology Society
- Technical Chamber of Greece

Publications & Presentations

SUMMARY (UNTIL MARCH 2025)

Peer-reviewed articles:	52 published, 3 submitted, 3 in preparation
Conference presentations:	133 given
Invited Lectures:	5 given, 1 upcoming

Citations of Journal articles (Google scholar):	1952
Hirsch index (Google scholar):	25
i10 index (Google scholar):	42

Citations of Journal articles (Scopus):	1574
Hirsch index (Scopus):	22

Citations of Journal articles (Web of Science):	1471
Hirsch index (Web of Science):	22

ARTICLES IN INTERNATIONAL REFEREED JOURNALS

Articles in preparation:

- P3 A. Chatzis-Mpakratsas, T. Vadarlis, S. Yiantsios, **G. Karapetsas**, "Dynamics of a drying viscoelastic polymer solution" (Research Paper)
- P2 A. Prasinou, M. Pavlidis, **G. Karapetsas**, "Spreading droplets on Newtonian and viscoelastic falling films" (Research Paper)
- P1 K. Thomson, **G. Karapetsas**, Y. Kita, O. K. Matar, K. Sefiane, D. Orejon, and P. Valluri, "Stability of volatile evaporating sessile droplets comprising of binary mixtures" (Research Paper)

Articles submitted for publication:

- S3 P. N. Angelopoulos, C. Dritselis and **G. Karapetsas**, "Spreading of a droplet over an elasto-viscoplastic substrate" (submitted for publication in J. Non-Newtonian Fluid Mech.)
- S2 S. Kavuri, **G. Karapetsas**, C. S. Sharma and K. C. Sahu, "Asymmetric freezing of a sliding droplet on an inclined surface" (submitted for publication in J. Fluid Mech.)
- S1 D. Debnath, A. Malachtari, **G. Karapetsas**, D. Orejon, K. Sefiane, A. Amirfazli, O.K. Matar, and P. Valluri, "Evaporation dynamics of binary-mixture droplet population" (submitted for publication in J. Fluid Mech.)

Published articles:

- J52 W. Wang, **G. Karapetsas**, Y. Kita, and Z. Wang, "Solar radiation reshapes the deposition patterns of plasmonic nanosuspension droplets" Langmuir, <https://doi.org/10.1021/acs.langmuir.6c00247>
- J51 P.-Y. Vrionis, A. D. Demou, **G. Karapetsas**, D. T. Papageorgiou, N. Savva "An efficient and highly scalable solver for modelling thin film flows in heterogeneous environments" Theor. Comp. Fluid Dynam. 39 (2025) 37
- J50 A. Malachtari, I. Tsakelidis, **G. Karapetsas**, "Evaporation of a thin particle-laden sessile droplet on a soft viscoelastic substrate" Phys. Rev. Fluids 10 (2025) 063601
- J49 S. Kavuri, C. S. Sharma, **G. Karapetsas**, K. C. Sahu, "Evaporation of sessile drops on a heated superhydrophobic substrate" Langmuir 41 (2025) 23003–23014
- J48 C. Dritselis, **G. Karapetsas**, "Wetting dynamics of droplets on a layer of viscoplastic material" Phys. Fluids 37 (2025) 053107
- J47 S. Kavuri, **G. Karapetsas**, C. S. Sharma, K. C. Sahu, "Evaporation-driven coalescence of two droplets undergoing freezing" J. Fluid Mech. 1006 (2025) A21
- J46 D. Pettas, **G. Karapetsas**, A. Syrakos, Y. Dimakopoulos and J. Tsamopoulos, "Flow of Viscoelastic Films over Grooved Surfaces with Partial Wetting" J. Fluid Mech. 1000 (2024) A10
- J45 Z. Wang, **G. Karapetsas**, P. Valluri, C. Inoue, "Role of volatility and thermal properties in droplet spreading: a generalisation to Tanner's law" J. Fluid Mech. 987 (2024) A15
- J44 Z. Wang, **G. Karapetsas**, P. Valluri, C. Inoue, "Flow Structure near Three Phase Contact Line of Low-Contact-Angle Evaporating Droplets" Appl. Phys. Lett. 124 (2024) 101603

- J43 A. Malachtari, **G. Karapetsas**, "Dynamics of the interaction of multiple evaporating droplets on compliant substrates" *J. Fluid Mech.* 978 (2024) A8
- J42 C. M. Linares, Y. Psarellis, **G. Karapetsas**, E.D. Koronaki, I.G. Kevrekidis, "Physics-agnostic and Physics-infused machine learning for thin films flows: modeling, and predictions from small data" *J. Fluid Mech.* 975 (2023) A41
- J41 S. Kavuri, **G. Karapetsas**, C. S. Sharma, K. C. Sahu, "Freezing of sessile droplet and frost halo formation" *Phys. Rev. Fluids* 8 (2023) 124003
- J40 C. Dritselis, **G. Karapetsas**, "Open-source finite volume solvers for multiphase (n-phase) flows involving either Newtonian or non-Newtonian complex fluid", *Computer & Fluids*, 245 (2022) 105590
- J39 D. Pettas, **G. Karapetsas**, Y. Dimakopoulos and Tsamopoulos, "Stability analysis of a Newtonian film flow over hydrophobic micro-textured substrates", *Phys. Rev. Fluids* 7 (2022) 034004
- J38 A. Marousis, D. Pettas, **G. Karapetsas**, Y. Dimakopoulos and Tsamopoulos, "Stability analysis of viscoelastic film flows over an inclined substrate with rectangular trenches", *J. Fluid Mechanics* 915 (2021) A98
- J37 Z. Wang, **G. Karapetsas**, P. Valluri, K. Sefiane, A. Williams, Y. Takata, "Dynamics of hygroscopic aqueous solution droplets undergoing evaporation or vapor absorption", *J. Fluid Mechanics* 912 (2021) A2
- J36 A. G. L. Williams, **G. Karapetsas**, D. Mamalis, K. Sefiane, O. K. Matar and P. Valluri, "Spreading and retraction dynamics of sessile evaporating droplets comprising volatile binary mixtures", *J. Fluid Mechanics* 907 (2020) A22
- J35 R. Nazareth, **G. Karapetsas**, K. Sefiane, O. K. Matar and P. Valluri, "Stability of slowly evaporating thin liquid films of binary mixtures", *Phys. Rev. Fluids* 5 (2020) 104007
- J34 D. Pettas, **G. Karapetsas**, Y. Dimakopoulos and J. Tsamopoulos, "Viscoelastic film flows over an inclined substrate with sinusoidal topography. I. Steady state", *Phys. Rev. Fluids* 4 (2019) 083303
- J33 D. Pettas, **G. Karapetsas**, Y. Dimakopoulos and J. Tsamopoulos, "Viscoelastic film flows over an inclined substrate with sinusoidal topography. II. Linear stability analysis", *Phys. Rev. Fluids* 4 (2019) 083304
- J32 **G. Karapetsas**, D. Photeinos, Y. Dimakopoulos, J. Tsamopoulos, "Dynamics and motion of a gas bubble in a viscoplastic medium under acoustic excitation" *J. Fluid Mechanics* 865 (2019) 381-413
- J31 M. Balla, M. K. Tripathi, K. C. Sahu, **G. Karapetsas**, O. K. Matar, "Non-isothermal bubble rise dynamics in a self-retweeting fluid: three-dimensional effects" *J. Fluid Mechanics* 858 (2019) 689-713
- J30 N. T. Chamakos, **G. Karapetsas**, A. G. Papathanasiou, "Effect of substrate topography, material wettability and dielectric thickness on reversible electrowetting" *Colloids & Surf. A* 555 (2018) 595-604
- J29 **G. Karapetsas**, N. T. Chamakos, A. G. Papathanasiou, "Thermocapillary Droplet Actuation: Effect of Solid Structure and Wettability" *Langmuir* 33 (2017) 10838-10850
- J28 D. Pettas, **G. Karapetsas**, Y. Dimakopoulos, J. Tsamopoulos, "On the degree of wetting of a slit by a liquid film flowing along an inclined plane" *J. Fluid Mech.* 820 (2017) 5-41
- J27 **G. Karapetsas**, N. K. Lampropoulos, Y. Dimakopoulos, J. Tsamopoulos, "Transient flow of gravity-driven viscous films over 3d patterned substrates: conditions leading to wenzel, cassie and intermediate states" *Microfluidics & Nanofluidics*, (2017) 21:17
- J26 N. T. Chamakos, **G. Karapetsas** and A. G. Papathanasiou "How asymmetric surfaces induce directional droplet motion" *Colloids and Surfaces A: Physicochem. Eng. Aspects*, 511 (2016) 180-189
- J25 **G. Karapetsas**, K. C. Sahu, O. K. Matar, "Evaporation of sessile droplets laden with particles and insoluble surfactants", *Langmuir*, 32 (2016) 6871-6881
- J24 M. Pavlidis, **G. Karapetsas**, Y. Dimakopoulos and J. Tsamopoulos, "Steady viscoelastic film flow over 2d topography: II. The effect of capillarity, inertia and substrate geometry", *J. Non-Newt. Fluid Mech.*, 234 (2016) 201-214
- J23 **G. Karapetsas**, N. T. Chamakos, A. G. Papathanasiou, "Efficient modelling of droplet dynamics on complex surfaces" *J. Phys.: Condens. Matter* 28 (2016) 085101
- J22 D. Pettas, **G. Karapetsas**, Y. Dimakopoulos, J. Tsamopoulos, "On the origin of extrusion instabilities: linear stability analysis of the viscoelastic die swell" *J. Non-Newt. Fluid Mech.* 224 (2015) 61-77
- J21 M. K. Tripathi, K. C. Sahu, **G. Karapetsas** and O. K. Matar, "Bubble rise dynamics in a viscoplastic material" *J. Non-Newtonian Fluid Mech.* 222 (2015) 217-226
- J20 **G. Karapetsas** and V. Bontozoglou, "Non-linear dynamics of a viscoelastic film subjected to a spatially periodic electric field" *J. Non-Newtonian Fluid Mech.* 217 (2015) 1-13
- J19 M. K. Tripathi, K. C. Sahu, **G. Karapetsas**, K. Sefiane and O. K. Matar, "Non-isothermal bubble rise: non-monotonic dependence of surface tension on temperature" *J. Fluid Mech.* 763 (2015) 82-108
- J18 P. A.P. Swain, **G. Karapetsas**, O. K. Matar and K. C. Sahu, "Pressure-driven displacement of a viscoplastic material by a Newtonian fluid" *European J. of Mech. B/Fluids* 49 (2015) 197-207
- J17 **G. Karapetsas**, K. C. Sahu, K. Sefiane and O. K. Matar, "Thermocapillary-driven motion of a sessile drop: effect of non-monotonic dependence of surface tension on temperature" *Langmuir* 30 (2014) 4310-4321
- J16 **G. Karapetsas** and V. Bontozoglou, "The role of surfactants on the mechanism of the long-wave instability in liquid film flows", *J. Fluid Mech.* 741 (2014) 139-155
- J15 P. Saenz, P. Valluri, K. Sefiane, **G. Karapetsas** and O. K. Matar "On phase change in Marangoni-driven flows and its effects on the hydrothermal-wave instabilities" *Phys. Fluids* 26 (2014) 024114
- J14 **G. Karapetsas** and J. Tsamopoulos, "On the stick-slip flow from slit and cylindrical dies of a Phan-Thien and Tanner fluid model. II. Linear stability analysis", *Phys. Fluids* 25 (2013), 093105
- J13 P. Saenz, P. Valluri, K. Sefiane, **G. Karapetsas** and O. K. Matar "Linear stability and numerical simulations of

- hydrothermal waves in planar liquid layers driven by thermocapillarity”, Phys. Fluids 25 (2013) 094101
- J12 **G. Karapetsas** and V. Bontozoglou , ”The primary instability of falling films in the presence of soluble surfactants”, J. Fluid Mech. 729 (2013) 123-150
- J11 **G. Karapetsas**, K. C. Sahu and O. K. Matar ”Effect of contact line dynamics on the thermocapillary motion of a droplet on an inclined plate.”, Langmuir 29 (2013) 8892-8906
- J10 **G. Karapetsas** and E. Mitsoulis, ”Some experiences with the slip boundary condition in viscous and viscoelastic Flows”, J. Non-Newtonian Fluid Mech. 198 (2013) 96-108
- J9 Y. Dimakopoulos, **G. Karapetsas**, N. A. Malamataris and E. Mitsoulis, ”The Free (Open) Boundary Condition at Inflow Boundaries”, J. Non-Newtonian Fluid Mech. 188 (2012) 16-31
- J8 **G. Karapetsas**, P. Valluri, K. Sefiane and O. Matar ”Convective rolls and hydrothermal waves in the evaporation of sessile droplets”, Langmuir 28 (2012) 11433-11439
- J7 **G. Karapetsas**, R. V. Craster and O. K. Matar, ’Surfactant-driven dynamics on liquid lenses’, Phys. Fluids 23 (2011) 122106
- J6 **G. Karapetsas**, R. V. Craster and O. K. Matar, ’On the surfactant-enhanced spreading and superspreading of liquid drops on solid surfaces’, J. Fluid Mech. 670 (2011) 5-37
- J5 **G. Karapetsas** and J. Tsamopoulos, ”On the stick-slip flow from slit and cylindrical dies of a Phan-Thien and Tanner fluid model . I. Steady state”, Phys. Fluids 21 (2009) 123101-18
- J4 J. Papaioannou, **G. Karapetsas**, Y. Dimakopoulos, J. Tsamopoulos, ”Injection of a viscoplastic material inside a tube or between two parallel disks: Conditions for wall detachment of the advancing front”, J. Rheol 53 (2009) 1155-1191
- J3 **G. Karapetsas** and J. Tsamopoulos, ”Steady extrusion of viscoelastic materials from an annular die”, J. Non-Newton. Fluid Mech., 154 (2008) 136-152
- J2 J. Tsamopoulos, Y. Dimakopoulos, N. Chatzidai, **G. Karapetsas**, M. Pavlidis, ”Steady bubble rise and deformation in Newtonian and viscoplastic fluids and conditions for their entrapment”, J. Fluid Mech. 601 (2008) 123-164
- J1 **G. Karapetsas** and J. Tsamopoulos, ”Transient squeeze flow of viscoplastic materials”, J. Non-Newtonian Fluid Mech. 133 (2006) 35-56

	Journal Title	Rank (Quartile, 2024)	Categories	Impact Factor (2024)	5-Year Impact Factor	Number published + submitted
1	Journal of Fluid Mechanics	33/171 (Q1) 5/41 (Q1)	Mechanics Physics, Fluids & Plasma	3.9	4.2	16 + 2
2	Journal of Non-Newt. Fluid Mechanics	66/171 (Q2)	Mechanics	2.8	2.9	8 + 1
3	Physics of Fluids	28/171 (Q1) 3/41 (Q1)	Mechanics Physics, Fluids & Plasma	4.3	4.2	6
4	Physical Review Fluids	11/41 (Q2)	Physics, Fluids & Plasma	2.8	2.9	6
5	Langmuir	88/239 (Q2) 84/185 (Q2)	Chemistry, Multidisciplinary Chemistry, Physical	3.9	3.7	6 + 1
6	Colloids and Surfaces A: Physicochemical and Engineering Aspects	61/185 (Q2)	Chemistry, Physical	5.4	5.2	2
7	Journal of Rheology	54/171 (Q2)	Mechanics	3.2	3.6	1
8	Applied Physics Letters	67/187 (Q2)	Physics, Applied	3.6	3.6	1
9	Computers & Fluids	85/175 (Q2)	Computer Science, Interdisciplinary Applications	3.0	2.9	1
10	Journal of Physics: Condensed Matter	42/79 (Q3)	Physics, Condensed Matter	2.6	2.5	1
11	European Journal of Mechanics B / Fluids	71/171 (Q2) 13/41 (Q2)	Mechanics Physics, Fluids & Plasma	2.5	2.4	1
12	Microfluidics & Nanofluidics	29/76 (Q2) 108/138 (Q3)	Instruments & Instrumentation Nanoscience & Nanotechnology	2.5	2.6	1
13	Theoretical and Computational Fluid Dynamics	66/171 (Q2) 11/41 (Q2)	Mechanics Physics, Fluids & Plasma	2.8	2.8	1

CONFERENCE PRESENTATIONS

- C133 D. Debnath, J. J. Kilbride, **G. Karapetsas**, D. Scott, D. Fairhurst, D. Orejon, K. Sefiane, P. Valluri, "Diffuse Interface Simulation of Sessile Evaporating Multicomponent Droplet Populations", 78th Annual Meeting of the Division of Fluid Dynamics, November 2024, Houston, Texas, USA
- C132 P. Angelopoulos, C. Dritselis, **G. Karapetsas**, "Spreading lens on a compliant elasto-viscoplastic substrate", 11th International Meeting of the Hellenic Society of Rheology (HSR 2025), June 2025, Syros, Greece
- C131 A. Malachtari, **G. Karapetsas**, "An Efficient Semi-analytical Diffusion-limited Evaporation Model", 6th International Conference on Droplets, July 2025, Liège, Belgium
- C130 D. Debnath, J. J. Kilbride, **G. Karapetsas**, D. Scott, D. Fairhurst, D. Orejon, K. Sefiane, P. Valluri, "Direct Numerical Simulation of Evaporating Droplet Populations", 6th International Conference on Droplets, July 2025, Liège, Belgium
- C129 S. Kavuri, **G. Karapetsas**, C. S. Sharma, K. C. Sahu, "Evaporation-driven coalescence of two droplets undergoing freezing", 77th Annual Meeting of the Division of Fluid Dynamics, November 2024, Salt Lake City, Utah, USA
- C128 D. Debnath, A. Malachtari, **G. Karapetsas**, D. Orejon, K. Sefiane, A. Amirfazli, P. Valluri, "Evaporation-induced translation of Multiple Binary Droplets", 77th Annual Meeting of the Division of Fluid Dynamics, November 2024, Salt Lake City, Utah, USA
- C127 A. Malachtari, I. Tsakelidis, **G. Karapetsas**, "Dynamics of drying particle-laden droplets on soft viscoelastic substrates", 1st European Fluid Dynamics Conference, September 2024, Aachen, Germany
- C126 P. Angelopoulos, C. Dritselis, **G. Karapetsas**, "Spreading of a droplet on a elastoviscoplastic substrate", 14th Panhellenic Chemical Engineering Conference, May 2024, Thessaloniki, Greece
- C125 A. Malachtari, I. Tsakelidis, **G. Karapetsas**, "Evaporation of a sessile droplet laden with PARTICLES on a soft viscoelastic substrate", 14th Panhellenic Chemical Engineering Conference, May 2024, Thessaloniki, Greece
- C124 A. Malachtari, I. Tsakelidis, **G. Karapetsas**, "Dynamics of clean and particle-laden drying droplets on soft viscoelastic substrates", 76th Annual Meeting of the Division of Fluid Dynamics, November 2023, Washington DC, USA
- C123 A. Malachtari, I. Tsakelidis, **G. Karapetsas**, "Dynamics of clean and particle-laden drying droplets on soft viscoelastic substrates", 76th Annual Meeting of the Division of Fluid Dynamics, November 2023, Washington DC, USA
- C122 S. Kavuri, **G. Karapetsas**, C. S. Sharma, K. C. Sahu, "On the dynamics of freezing sessile droplets: Frost halo formation", 76th Annual Meeting of the Division of Fluid Dynamics, November 2023, Washington DC, USA
- C121 K. Thomson, **G. Karapetsas**, Y. Kita, K. Sefiane, D. Orejon, P. Valluri, "Transient growth stability analysis of evaporating sessile drops comprising binary mixtures", 76th Annual Meeting of the Division of Fluid Dynamics, November 2023, Washington DC, USA
- C120 D. Debnath, A. Malachtari, **G. Karapetsas**, K. Sefiane, D. Orejon, A. Amirfazli, P. Valluri, "Evaporating populations of sessile droplets comprising binary mixtures", 76th Annual Meeting of the Division of Fluid Dynamics, November 2023, Washington DC, USA
- C119 Z. Wang, **G. Karapetsas**, P. Valluri, I. Chihiro, "Intricate Role of Thermal Properties and Volatility in Droplet Spreading: A Generalization to Tanner's Law", 76th Annual Meeting of the Division of Fluid Dynamics, November 2023, Washington DC, USA
- C118 A. Malachtari, **G. Karapetsas**, "Evaporation of Multiple Droplets on a Soft Viscoelastic Substrate", 11th International Conference on Boiling and Condensation Heat Transfer, May 2023, Edinburgh, Scotland, UK
- C117 K. Thomson, **G. Karapetsas**, O. K. Matar, Y. Kita, K. Sefiane, D. Orejon, P. Valluri, "Transient growth analysis of evaporating sessile drops comprising binary mixtures", 17th International Heat Transfer Conference, August 2023, Cape Town, South Africa
- C116 C. M. Linares, E.D. Koronaki, Y. Psarellis, **G. Karapetsas**, I.G. Kevrekidis, "A machine learning approach to bridge the gap between the Kuramoto-Sivashinsky and the Navier-Stokes equations for thin film flow", 2022 AIChE Annual Meeting, November 2022, Phoenix, Arizona, USA
- C115 Z. Wang, **G. Karapetsas**, P. Valluri, I. Chihiro, "Quantifying the interacting mechanisms in shape evolution of sessile volatile droplets", 75th Annual Meeting of the Division of Fluid Dynamics, November 2022, Indianapolis, Indiana, USA
- C114 K. Thomson, A. G. Williams, **G. Karapetsas**, O. K. Matar, Y. Kita, K. Sefiane, D. Orejon, P. Valluri, "Transient growth stability analysis of evaporating sessile drops comprising binary mixtures", 75th Annual Meeting of the Division of Fluid Dynamics, November 2022, Indianapolis, Indiana, USA
- C113 C. M. Linares, E.D. Koronaki, Y. Psarellis, **G. Karapetsas**, I.G. Kevrekidis, "From Navier-Stokes simulations for thin films to amplitude equations and back via physics-assisted machine-learning", 75th Annual Meeting of the Division of Fluid Dynamics, November 2022, Indianapolis, Indiana, USA
- C112 A. Prasinou, M. Pavlidis, **G. Karapetsas**, "Dynamics of droplet spreading on weakly viscoelastic liquid films", 14th European Fluid Mechanics Conference, September 2022, Athens, Greece
- C111 A. Malachtari, **G. Karapetsas**, "Spreading dynamics of evaporating droplets on compliant substrates", 14th European Fluid Mechanics Conference, September 2022, Athens, Greece
- C110 C. M. Linares, E.D. Koronaki, Y. Psarellis, **G. Karapetsas**, I.G. Kevrekidis, "A machine learning approach to bridge

- the gap between the Kuramoto-Sivashinsky and the Navier-Stokes equations for thin film flow”, 14th European Fluid Mechanics Conference, September 2022, Athens, Greece
- C109 C. Dritselis, **G. Karapetsas**, ”Dynamics of liquid lens spreading over a viscoplastic liquid substrate”, 10th Hellenic Society of Rheology, June 2022, Skiathos, Greece
- C108 A. Chatzis-Mpakratsas, T. Vadarlis, S. Yiantsios, **G. Karapetsas**, ”Linear stability analysis and dynamics of a drying viscoelastic polymer solution”, 13th Panhellenic Conference in Chemical Engineering, May 2022, Patras, Greece
- C107 A. Malachtari, **G. Karapetsas**, ”Spreading dynamics of evaporating droplets on compliant substrates”, 13th Panhellenic Conference in Chemical Engineering, May 2022, Patras, Greece
- C106 K. Thomson, A. Williams, **G. Karapetsas**, O. Matar, Y. Kita, K. Sefiane, P. Valluri, ”Stability of evaporating sessile drops comprising binary mixtures”, 17th UK Heat Transfer Conference, April 2022, Manchester, United Kingdom
- C105 C. Dritselis, **G. Karapetsas**, ”Open-source finite volume solvers for the simulation of multiphase (n-phase) Newtonian/non-Newtonian fluid flows”, 74th Annual Meeting of the APS Division of Fluid Dynamics, November 2021, Phoenix, Arizona, USA
- C104 **G. Karapetsas**, G.-A. Ioannidis, ”On the spreading of liquid lenses over rheologically complex liquid films”, 74th Annual Meeting of the APS Division of Fluid Dynamics, November 2021, Phoenix, Arizona, USA
- C103 K. Thomson, **G. Karapetsas**, O. Matar, P. Valluri, A. Williams, K. Sefiane, ”Transient growth stability analysis of evaporating sessile drops comprising binary mixtures”, 74th Annual Meeting of the APS Division of Fluid Dynamics, November 2021, Phoenix, Arizona, USA
- C102 C. Dritselis and **G. Karapetsas**, ”A numerical study of a droplet spreading between Newtonian and viscoplastic stratified fluids”, 5th International Conference on Droplets, August 2021, Darmstadt (Virtual), Germany
- C101 K. Thomson, A. Williams, **G. Karapetsas**, O. Matar, Y. Kita, K. Sefiane, P. Valluri, ”Stability of evaporating drops comprising binary mixtures”, 5th International Conference on Droplets, August 2021, Darmstadt (Virtual), Germany
- C100 G.-A. Ioannidis, O. K. Matar, **G. Karapetsas**, ”Droplet spreading over a non-Newtonian liquid film” 73rd Annual Meeting of the APS Division of Fluid Dynamics, November 2020, Chicago (Virtual), USA
- C99 C. Dritselis, **G. Karapetsas**, ”Numerical study of non-linear dynamics of liquid lenses spreading over a viscoplastic liquid layer” 73rd Annual Meeting of the APS Division of Fluid Dynamics, November 2020, Chicago (Virtual), USA
- C98 A. Hatzis-Mpakratsas, **G. Karapetsas**, ”Dynamics of a drying viscoelastic polymer solution” 73rd Annual Meeting of the APS Division of Fluid Dynamics, November 2020, Chicago (Virtual), USA
- C97 K. Thomson, A. Williams, **G. Karapetsas**, O. K. Matar, K. Sefiane, P. Valluri, ”Stability of evaporating sessile drops comprising binary mixtures” 73rd Annual Meeting of the APS Division of Fluid Dynamics, November 2020, Chicago (Virtual), USA
- C96 Z. Wang, **G. Karapetsas**, P. Valluri, K. Sefiane, Y. Takata, ”Spreading of hygroscopic ionic solution droplets during vapor absorption” 73rd Annual Meeting of the APS Division of Fluid Dynamics, November 2020, Chicago (Virtual), USA
- C95 **G. Karapetsas**, A. Vadarlis, ”Effect of viscoelasticity on the stability characteristics of a drying polymer solution” 72nd Annual Meeting of the APS Division of Fluid Dynamics, November 2019, Seattle, USA
- C94 D. Pettas, **G. Karapetsas**, Y. Dimakopoulos, J. Tsamopoulos, ”Flow stability of a liquid film partially wetting a substrate with rectangular trenches” 72nd Annual Meeting of the APS Division of Fluid Dynamics, November 2019, Seattle, USA
- C93 R. Nazareth, **G. Karapetsas**, P. Saenz, O. Matar, K. Sefiane, P. Valluri, ”The stability of evaporating binary liquid film heated from below” 72nd Annual Meeting of the APS Division of Fluid Dynamics, November 2019, Seattle, USA
- C92 Z. Wang, **G. Karapetsas**, P. Valluri, A. Williams, K. Sefiane, Y. Takata, ”Lubrication model for vapor absorption into hygroscopic liquid desiccant droplets” 72nd Annual Meeting of the APS Division of Fluid Dynamics, November 2019, Seattle, USA
- C91 A. Williams, **G. Karapetsas**, P. Saenz, O. Matar, K. Sefiane, P. Valluri, ”Stability of evaporating sessile drops comprising binary mixtures” 72nd Annual Meeting of the APS Division of Fluid Dynamics, November 2019, Seattle, USA
- C90 Z. Wang, **G. Karapetsas**, P. Valluri, A. Williams, K. Sefiane, Y. Takata, ”Lubrication model for vapor absorption into hygroscopic liquid desiccant droplets” 16th UK Heat Transfer Conference, September 2019, Nottingham, United Kingdom
- C89 D. Pettas, **G. Karapetsas**, J. Tsamopoulos, ”Stability of a viscoelastic film flowing over a substrate with sinusoidal corrugations” 12th Panhellenic scientific conference in Chemical Engineering, Athens, May 2019
- C88 **G. Karapetsas**, J. Tsamopoulos, D. Pettas, ”Stability of film flow over a substrate with rectangular trenches forming air inclusions” 12th Panhellenic scientific conference in Chemical Engineering, Athens, May 2019
- C87 **G. Karapetsas**, A. Williams, P. Saenz, O. Matar, K. Sefiane, P. Valluri, ”Evaporation of binary sessile drops” 12th Panhellenic scientific conference in Chemical Engineering, Athens, May 2019
- C86 Z. Wang, **G. Karapetsas**, P. Valluri, A. Williams, K. Sefiane and Y. Takata, ”Lubrication model for vapor absorption into hygroscopic liquid desiccant droplets” 16th UK Heat Transfer Conference, September 2019, Nottingham, UK
- C85 A. Williams, P. Saenz, **G. Karapetsas**, K. Sefiane, O. K. Matar, P. Valluri, ”Evaporation of binary mixtures: pools

- and droplets” 16th International Heat Transfer Conference, August 2018, Beijing, China
- C84 M. K. Tripathi, M. Balla, K. C. Sahu, **G. Karapetsas**, O. K. Matar, “Non-isothermal bubble rise dynamics in a self-rewetting fluid at high Marangoni numbers” 71st Annual Meeting of the APS Division of Fluid Dynamics, November 2018, Atlanta, USA
- C83 R. Nazareth, **G. Karapetsas**, S. Harish, D. Orejon, K. Sefiane, P. Valluri, “The stability of evaporating binary liquid film heated from below” 71st Annual Meeting of the APS Division of Fluid Dynamics, November 2018, Atlanta, USA
- C82 **G. Karapetsas**, D. Photeinos, Y. Dimakopoulos, J. Tsamopoulos, “Use of acoustic excitation to enhance the mobility of buoyancy driven bubbles inside a viscoplastic material” 71st Annual Meeting of the APS Division of Fluid Dynamics, November 2018, Atlanta, USA
- C81 A. Williams, **G. Karapetsas**, P. Saenz, O. K. Matar, K. Sefiane, P. Valluri, “Spreading and evaporation of sessile drops comprising binary mixture” 71st Annual Meeting of the APS Division of Fluid Dynamics, November 2018, Atlanta, USA
- C80 D. Pettas, **G. Karapetsas**, Y. Dimakopoulos, J. Tsamopoulos, “Linear stability of viscoelastic film flow over structured surfaces” 71st Annual Meeting of the APS Division of Fluid Dynamics, November 2018, Atlanta, USA
- C79 **G. Karapetsas**, D. Photeinos, Y. Dimakopoulos, J. Tsamopoulos, “Acoustic excitation of a bubble inside a viscoplastic medium” 12th European Fluid Mechanics Conference, September 2018, Vienna, Austria
- C78 D. Pettas, **G. Karapetsas**, Y. Dimakopoulos, J. Tsamopoulos, “Stability analysis of viscoelastic fluid over a structured topography” 12th European Fluid Mechanics Conference, September 2018, Vienna, Austria
- C77 N. T. Chamakos, **G. Karapetsas**, A. G. Papathanasiou, “Mechanisms of wetting transitions of electrowetting on patterned surfaces: effect of surface topography, material wettability and dielectric thickness on reversibility” Electrowetting conference – 11th International conference, June 2018, Twente, Netherlands
- C76 **G. Karapetsas**, N. T. Chamakos, A. G. Papathanasiou, “Thermocapillary droplet actuation on structured solid surfaces” 70th Annual Meeting of the APS Division of Fluid Dynamics, November 2017, Denver, USA
- C75 Y. Dimakopoulos, D. Pettas, **G. Karapetsas**, J. Tsamopoulos, “Linear Stability analysis of a Newtonian film flowing over a substrate with topographical features” 70th Annual Meeting of the APS Division of Fluid Dynamics, November 2017, Denver, USA
- C74 A. Williams, P. Saenz, **G. Karapetsas**, O. K. Matar, K. Sefiane, P. Valluri, “Lubrication model for evaporation of binary sessile drops” 70th Annual Meeting of the APS Division of Fluid Dynamics, November 2017, Denver, USA
- C73 M. Tripathi, A. R. Premlata, **G. Karapetsas**, K. C. Sahu, O. K. Matar, “Non-isothermal bubble rise dynamics in a self-rewetting fluid” 70th Annual Meeting of the APS Division of Fluid Dynamics, November 2017, Denver, USA
- C72 **G. Karapetsas**, N. Lampropoulos, Y. Dimakopoulos, J. Tsamopoulos, “Transient coating of substrates with variable topography by viscous films: 3D simulations” 11th Panhellenic scientific conference in Chemical Engineering, Thessaloniki, May 2017
- C71 A. Georgantaki, **G. Karapetsas**, M. Vlachogiannis and V. Bontozoglou, “Liquid film flow with soluble surfactants: Theory and experiment”, International Conference on Multiphase Flow, May 2016, Firenze, Italy
- C70 N. Chamakos, **G. Karapetsas** and A. G. Papathanasiou, “Modelling of droplet mobility on bio-inspired asymmetrically structured substrates”, Smart and Green Interfaces Conference, May 2016, Athens, Greece
- C69 **G. Karapetsas**, K. C. Sahu and O. K. Matar, “Dynamics of surfactant-laden evaporating droplets”, 68th Annual Meeting of the APS Division of Fluid Dynamics, November 2015, Boston, USA
- C68 D. Mamalis, K. Sefiane, K. C. Sahu, **G. Karapetsas** and O. K. Matar, “Non-isothermal spreading dynamics of self-rewetting droplets”, 68th Annual Meeting of the APS Division of Fluid Dynamics, November 2015, Boston, USA
- C67 A. Premlata, M. Tripathi, K. C. Sahu, **G. Karapetsas**, K. Sefiane, O. K. Matar, “Threedimensional simulations of a rising bubble in a self-rewetting fluid”, 68th Annual Meeting of the APS Division of Fluid Dynamics, November 2015, Boston, USA
- C66 **G. Karapetsas**, N. T. Chamakos, A. G. Papathanasiou, “Effect of substrate topography on the thermocapillary migration of droplets under microgravity”, 22nd ELGRA Symposium and General Assembly Sept 2015, Corfu, Greece
- C65 **G. Karapetsas**, V. Bontozoglou, “Non-linear dynamics of a viscoelastic film subjected to a spatially periodic electric field”, Conference on Modelling Fluid Flow (CMFF’15), Sept 2015, Budapest, Hungary
- C64 N. T. Chamakos, **G. Karapetsas**, M. Kavousanakis, A. G. Papathanasiou, “Efficient modelling of droplet spreading on rough surfaces”, 8th GRACM International Congress on Computational Mechanics, July 2015, Volos, Greece
- C63 **G. Karapetsas**, V. Bontozoglou, “The effect of soluble surfactants on the linear stability of liquid film flow”, 8th GRACM International Congress on Computational Mechanics, July 2015, Volos, Greece
- C62 **G. Karapetsas** and V. Bontozoglou, “Non-linear evolution of a viscoelastic film under the influence of DC and AC electric fields”, 10th Panhellenic Scientific Chemical Engineering Congress, June 2015, Patras, Greece
- C61 **G. Karapetsas**, N. T. Chamakos, A. G. Papathanasiou, “Modelling droplet interaction with flat or structured solid surfaces”, 10th Panhellenic Scientific Chemical Engineering Congress, June 2015, Patras, Greece
- C60 N. T. Chamakos, **G. Karapetsas**, M. Kavousanakis, A. G. Papathanasiou, “Droplet passive movement on asymmetric patterned surfaces”, 10th Panhellenic Scientific Chemical Engineering Congress, June 2015, Patras, Greece
- C59 D. Pettas, **G. Karapetsas**, Y. Dimakopoulos and J. Tsamopoulos, “Linear stability analysis of the viscoelastic extrusion flow from a planar die”, 10th Panhellenic Scientific Chemical Engineering Congress, June 2015, Patras,

- Greece
- C58 D. Pettas, **G. Karapetsas**, Y. Dimakopoulos and J. Tsamopoulos, “Linear stability analysis of viscoelastic fluid extrusion through a planar die”, 10th Annual European Rheology Conference AERC, April 2015, Nantes, France
- C57 **G. Karapetsas**, N. T. Chamakos, M. E. Kavousanakis and A. G. Papathanasiou, “Modeling of dynamic contact lines”, Smart and Green Interfaces Conference - 2015, Joint with COST MP1106 Annual MC meeting, March 2015, Belgrade, Serbia
- C56 **G. Karapetsas** and V. Bontozoglou “Non-linear evolution of the electrohydrodynamic instability of a Newtonian or viscoelastic film under a spatially periodic electric field” FLOW 2014, December 2014, Athens, Greece
- C55 D. Pettas, **G. Karapetsas**, Y. Dimakopoulos and J. Tsamopoulos “Linear stability of the viscoelastic extrusion flow from a slit die” FLOW 2014, December 2014, Athens, Greece
- C54 M. Tripathi, K. C. Sahu, **G. Karapetsas** and O. K. Matar “The dynamics of rising bubble inside a viscoplastic material” 67th Annual Meeting of the APS Division of Fluid Dynamics, November 2014, San Francisco, California, USA
- C53 O. K. Matar, M. Tripathi, K. C. Sahu, **G. Karapetsas** and K. Sefiane “Thermocapillary motion of bubble under the action of gravity in a self-wetting fluid” 67th Annual Meeting of the APS Division of Fluid Dynamics, November 2014, San Francisco, California, USA
- C52 **G. Karapetsas** & V. Bontozoglou “Non-linear dynamics of viscoelastic liquid trilayers subjected to an electric field” 67th Annual Meeting of the APS Division of Fluid Dynamics, November 2014, San Francisco, California, USA
- C51 C. Dritselis, **G. Karapetsas** & V. Bontozoglou “Non-linear dynamics of viscous bilayers subjected to an electric field: 3D phase field simulations” 67th Annual Meeting of the APS Division of Fluid Dynamics, November 2014, San Francisco, California, USA
- C50 K. C. Sahu, M. Tripathi, O. K. Matar and **G. Karapetsas** “Numerical simulation of rising bubble with chemical reaction” 67th Annual Meeting of the APS Division of Fluid Dynamics, November 2014, San Francisco, California, USA
- C49 **G. Karapetsas** and V. Bontozoglou, “Non-linear dynamics of the electro-hydrodynamic patterning of viscoelastic materials” EFMC10 – European Fluid Mechanics Conference, September 2014, Copenhagen, Denmark
- C48 **G. Karapetsas** and V. Bontozoglou, “The effect of soluble surfactants on the linear stability of liquid film flow” EFMC10 – European Fluid Mechanics Conference, September 2014, Copenhagen, Denmark
- C47 **G. Karapetsas** and V. Bontozoglou, “A numerical study of electrohydrodynamic patterning of viscoelastic materials” 7th Conference of the International Marangoni Association, June 2014, Vienna, Austria, p.68
- C46 **G. Karapetsas** and V. Bontozoglou, “The primary instability of falling films in the presence of soluble surfactants”, 10th HSTAM 2013 International Congress on Mechanics, 25-27 May 2013, Chania, Greece
- C45 **G. Karapetsas**, M. Tripathi, K. C. Sahu and O. K. Matar, Bubble rise in the presence of chemical reactions and non-newtonian effects, 2014 INNFM Meeting on Rheometry and General Rheology, April 2014, UK
- C44 P. A. P. Swain, **G. Karapetsas**, O. K. Matar and K. C. Sahu, “Pressure-driven displacement of a viscoplastic material by a Newtonian fluid” 66th Annual Meeting of the APS Division of Fluid Dynamics, November 2013, Pittsburgh, Pennsylvania, USA
- C43 V. Bontozoglou and **G. Karapetsas**, “The stabilizing mechanism of surfactants in falling films” 66th Annual Meeting of the APS Division of Fluid Dynamics, November 2013, Pittsburgh, Pennsylvania, USA
- C42 K. Sefiane, M. Tripathi, K. C. Sahu, **G. Karapetsas** and O. K. Matar, “Bubble rise in a non-isothermal channel with a non-monotonic dependence of the surface tension on temperature” 66th Annual Meeting of the APS Division of Fluid Dynamics, November 2013, Pittsburgh, Pennsylvania, USA
- C41 M. Tripathi, K. C. Sahu, **G. Karapetsas** and O. K. Matar, “Numerical simulation of a bubble rising in an unconfined viscoplastic fluid with chemical reaction” 66th Annual Meeting of the APS Division of Fluid Dynamics, November 2013, Pittsburgh, Pennsylvania, USA
- C40 P. Saenz, P. Valluri, K. Sefiane, **G. Karapetsas**, J. Kim and O. K. Matar, “Dynamics of evaporating sessile droplets” 66th Annual Meeting of the APS Division of Fluid Dynamics, November 2013, Pittsburgh, Pennsylvania, USA
- C39 J. Tsamopoulos and **G. Karapetsas**, “Linear stability analysis of the stick-slip flow of a viscoelastic fluid following the Phan-Thien Tanner model” 66th Annual Meeting of the APS Division of Fluid Dynamics, November 2013, Pittsburgh, Pennsylvania, USA
- C38 **G. Karapetsas**, K. C. Sahu, K. Sefiane and O. K. Matar, “Thermocapillary-driven motion of a droplet on an inclined substrate: contact line dynamics, and non-monotonic dependence of surface tension on temperature” 66th Annual Meeting of the APS Division of Fluid Dynamics, November 2013, Pittsburgh, Pennsylvania, USA
- C37 **G. Karapetsas** and V. Bontozoglou, “Linear stability of falling films in the presence of soluble surfactants”, 27th European Colloid and Interface Society (ECIS) Conference, September 2013, Sofia, Bulgaria
- C36 **G. Karapetsas**, K. C. Sahu and O. K. Matar, “The effect of varying substrate wettability on the thermocapillary motion of droplets”, 27th European Colloid and Interface Society (ECIS) Conference, September 2013, Sofia, Bulgaria
- C35 E. Mitsoulis and **G. Karapetsas**, “Some experiences with slip boundary condition in viscous and viscoelastic flows”, Annual European Rheology Conference, April 2013, Leuven, Belgium
- C34 **G. Karapetsas**, K. Sahu and O. K. Matar, “Thermocapillary motion of a droplet on an inclined plate” 65th Annual

- Meeting of the APS Division of Fluid Dynamics, November 2012, San Diego, California, USA, p. 261
- C33 A. Georgantaki, **G. Karapetsas** and V. Bontozoglou, “Dynamics of an inclined film in the presence of soluble surfactants” 65th Annual Meeting of the APS Division of Fluid Dynamics, November 2012, San Diego, California, USA, p. 374
- C32 P. Saenz, P. Valluri, K. Sefiane, **G. Karapetsas** and O. K. Matar, “On phase change in thermocapillary flows” 65th Annual Meeting of the APS Division of Fluid Dynamics, November 2012, San Diego, California, USA, p. 317
- C31 K. Sefiane, P. Saenz, P. Valluri, **G. Karapetsas** and O. K. Matar, “Two-phase investigation of hydrothermal waves in saturated interfaces” 65th Annual Meeting of the APS Division of Fluid Dynamics, November 2012, San Diego, California, USA, p. 260
- C30 **G. Karapetsas**, A. Georgantaki and V. Bontozoglou, “Dynamics of a surfactant-laden falling film”, International Focus Workshop on Multiscale Complex Fluid Flows and Interfacial Phenomena, October 2012, Dresden, GERMANY
- C29 **G. Karapetsas**, R. V. Craster and O. K. Matar, “Spreading, retraction and sustained oscillations of surfactant-laden lenses”, 64th Annual Meeting of the APS Division of Fluid Dynamics, November 2011, Baltimore, Maryland, USA, p. 94
- C28 **G. Karapetsas**, P. Valluri, K. Sefiane and O. K. Matar, “Convective rolls and hydrothermal waves in evaporating sessile drops”, 64th Annual Meeting of the APS Division of Fluid Dynamics, November 2011, Baltimore, Maryland, USA, p.94
- C27 P. Saenz, **G. Karapetsas**, P. Valluri, K. Sefiane and O. K. Matar, “Numerical study of thermocapillary instabilities in evaporating annular pools and sessile droplets”, 64th Annual Meeting of the APS Division of Fluid Dynamics, November 2011, Baltimore, Maryland, USA, p. 201
- C26 **G. Karapetsas**, R. V. Craster and O. K. Matar, “Dynamics of surfactant-laden drops on liquid substrates”, Bifurcations and Instabilities in Fluid Dynamics, July 2011, Barcelona, SPAIN
- C25 **G. Karapetsas**, K. Sefiane, R. V. Craster and O. K. Matar, “Linear stability analysis on the evaporation of sessile drops: formation of hydrothermal waves”, Bifurcations and Instabilities in Fluid Dynamics, July 2011, Barcelona, SPAIN
- C24 **G. Karapetsas**, R. V. Craster and O. K. Matar, “Surfactant-induced superspreading of liquid drops on solid substrates”, 63rd Annual meeting of the APS division of fluid dynamics, November 2010, Long Beach, California, USA, p. 110
- C23 **G. Karapetsas**, P. Saenz, K. Sefiane, P. Valluri, O. Matar, “Numerical study of the evaporation of sessile drops: formation of hydrothermal waves”, 63rd Annual meeting of the APS division of fluid dynamics, November 2010, Long Beach, California, USA, p. 65
- C22 P. Saenz, P. Valluri, **G. Karapetsas**, K. Sefiane and O. K. Matar, “Hydrothermal waves in evaporating annular pools and sessile drops using DNS”, 63rd Annual meeting of the APS division of fluid dynamics, November 2010, Long Beach, California, USA, p. 403
- C21 **G. Karapetsas**, O. K. Matar and R. V. Craster, “Surfactant enhanced spreading of liquid drops on solid surfaces”, 8th International Conference of Computational Methods in Sciences and Engineering, ICCMSE 2010, Kos, Greece, October 2010
- C20 **G. Karapetsas**, R. V. Craster and O. K. Matar, “Spreading of surfactant-laden drops on solid surfaces”, 24th European Colloid and Interface Society (ECIS) Conference 2010, Prague, CZECH REPUBLIC
- C19 **G. Karapetsas** & J. Tsamopoulos, “Linear stability analysis for the stick-slip flow in cylindrical or planar die of a viscoelastic fluid”, 7th Panhellenic scientific conference in Chemical Engineering, Patras, June 2009
- C18 I. Papaioannou, **G. Karapetsas**, Y. Dimakopoulos and J. Tsamopoulos, “Injection molding of a viscoplastic material in a cylindrical pipe or between two parallel disks”, 7th Panhellenic scientific conference in Chemical Engineering, Patras, June 2009
- C17 J. Papaioannou, **G. Karapetsas**, Y. Dimakopoulos and J. Tsamopoulos, “Injection of a viscoplastic material inside a pipe or in the space between two parallel disks: Conditions for wall detachment”, AERC 2009, 6th Annual European Rheology Conference, Cardiff, UK, April 2009
- C16 **G. Karapetsas** and J. Tsamopoulos “Linear stability analysis of the cylindrical or planar stick-slip flow for a PTT fluid model”, 6th Annual European Rheology Conference, AERC, Cardiff, UK, April 2009
- C15 J. Tsamopoulos, Y. Dimakopoulos, N. Chatzidai, **G. Karapetsas** and M. Pavlidis, “Steady bubble rise and deformation in Bingham fluids and conditions for their entrapment”, 4th Annual European Rheology Conference, AERC, Napoli, ITALY, April 2007, p. 227
- C14 J. Tsamopoulos, Y. Dimakopoulos, N. Chatzidai, **G. Karapetsas** and M. Pavlidis, “Steady bubble rise and deformation in Newtonian and Bingham fluids and conditions for their entrapment”, 6th European congress of chemical engineering, Copenhagen, Denmark, September 2007, p. 245, vol. 2
- C13 J. Tsamopoulos, Y. Dimakopoulos, N. Chatzidai, **G. Karapetsas** and M. Pavlidis, “Steady bubble rise and deformation in Bingham fluids and conditions for their entrapment”, XVth International Workshop on Numerical Methods for non-Newtonian Flows, Rhodes, GREECE, June 2007, p. 42
- C12 **G. Karapetsas** & J. Tsamopoulos, “Axisymmetric linear stability analysis of the extrusion of viscoelastic materials through an annular die”, 6th Panhellenic scientific conference in Chemical Engineering, Athens, May 2007
- C11 M. Pavlidis, **G. Karapetsas**, N. Chatzidai, Y. Dimakopoulos and J. Tsamopoulos, “Steady flow, deformation and

- entrapment of bubbles in a viscoplastic fluid”, 6th Panhellenic scientific conference in Chemical Engineering, Athens, May 2007, p. 1057
- C10 N. Chatzidai, **G. Karapetsas**, M. Pavlidis, Y. Dimakopoulos και J. Tsamopoulos, “Flow and deformation of a bubble rising in a viscoplastic material”, FLOW 2006, Patras, November.2006, p. 17
- C9 **G. Karapetsas** & J. Tsamopoulos, “Axisymmetric linear stability analysis for the extrusion of viscoelastic fluids”, FLOW 2006, Patras, November. 2006, p. 18
- C8 **G. Karapetsas** and J. Tsamopoulos, “Viscoelastic simulations of the extrudate swell problem using the PTT model”, 6th EUROMECH Fluid Mechanics Conference, Stockholm, SWEDEN, June 2006, p. 267
- C7 **G. Karapetsas** and J. Tsamopoulos, “A numerical study of extrudate swell for viscoelastic fluids”, AERC 2006, 3rd Annual European Rheology Conference, Hersonisos, GREECE, April 2006, p. 18
- C6 **G. Karapetsas** & J. Tsamopoulos, “Squeeze flow of viscoplastic materials fully accounting for the highly deforming domain of the material”, 5th GRACM International Congress on Computational Mechanics, Limassol, CYPRUS, July 2005, p. 613-620
- C5 **G. Karapetsas** & J. Tsamopoulos, “Transient simulation of the squeeze flow of a viscoplastic material between two parallel disks”, 5th Panhellenic scientific conference in Chemical Engineering, Thessaloniki, May 2005. p. 797-800
- C4 **G. Karapetsas** and J. Tsamopoulos, “Transient squeeze flow of viscoplastic materials”, AERC 2005, 2nd Annual European Rheology Conference, Grenoble, FRANCE, April 2005, p. 163
- C3 **G. Karapetsas** and J. Tsamopoulos, “Transient squeeze flow of viscoplastic materials”, 77th Annual meeting of SOR (Society of Rheology), Vancouver, CANADA, October 16-20, 2005, p. 63
- C2 **G. Karapetsas** & J. Tsamopoulos, “Transient simulation of the squeeze flow of a viscoplastic material between two parallel plates”, FLOW 2004, Athens, November 2004, p. 252-259
- C1 **G. Karapetsas**, N. Chatzidai, M. Pavlidis and J. Tsamopoulos, “Transient squeeze flow of viscoplastic liquids”, HSR 2004, Athens, Greece, June 2004, p. 50

INVITED LECTURES AT UNIVERSITIES AND CONFERENCES

- L6 EUROMECH Colloquium 666: Beyond the Free Surface: Liquid Film Flow from Theory to Applications!, Coventry, United Kingdom, April 2026, “Evaporating Droplets on Soft Substrates: Interactions and Instabilities”
- L5 10th International Bifurcations and Instabilities in Fluid Dynamics Symposium, Edinburgh, June 2024, “Unravelling the complex dynamics of wetting and phase change”, **Keynote Lecture**
- L4 University of Edinburgh, School of Engineering, Edinburgh, United Kingdom, May 2016, “Droplet interaction with structured substrates”
- L3 University of Patras, Department of Chemical Engineering, Rio, Greece, September 2013, “Interfacial flows, contact lines, evaporation and the Marangoni effect”
- L2 7th International Conference Material Technologies and Modeling, Ariel, ISRAEL, August 2012, “Surfactant-assisted superspreading of liquid drops on dry substrates”
- L1 Imperial College London, Department of Mathematics, London, UK, February 2011, “Dynamics of droplets on solid and liquid substrates”

MEETINGS ORGANIZED - SESSIONS CHAIRED

7. 11th Hellenic Society of Rheology conference, Syros, Greece, July 2025, Member of the Scientific Committee and Chaired Session on “Complex Fluids”
6. 14th Panhellenic Chemical Engineering Conference, Thessaloniki, Greece, May 2024, Member of the Organizing Committee and Chaired Sessions on “Transport Phenomena”
5. European Fluid Mechanics Conference, Athens, Greece, September 2022, Member of the Organizing Committee and Chaired Sessions on “Compressible flows 1”, “General fluid dynamics 1” and “Porous media 1”
4. 13th Panhellenic Conference in Chemical Engineering, Patras, Greece, May 2022, Member of the scientific committee and Chaired Session on “Unit Operations”
3. 5th International Conference on Droplets, Darmstadt, Germany, August 2021, Chaired Session on “Droplets of Complex Fluids I”
2. 71st Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, Georgia, USA, November 2018, Chaired Session on “Bubble Dynamics II”
1. European Fluid Mechanics Conference, Vienna, Austria, September 2018, Chaired Session on “Drops and bubbles 3”