

## Curriculum Vitae

### GEORGE KARAPETSAS

#### PERSONAL INFORMATION

Year and Place of Birth: 1979, Thessaloniki, Greece  
Gender: Male  
Nationality: Greek  
E-mail: gkarapetsas@auth.gr

#### EDUCATION

2002-2007 **Ph.D. in Chemical Engineering**  
University of Patras, Department of Chemical Engineering, Greece  
2002-2004 **MSc in Process Simulation, Optimization, and Control**  
University of Patras, Department of Chemical Engineering, Greece  
1996-2002 **Diploma in Chemical Engineering**  
Aristotle University of Thessaloniki, Department of Chemical Engineering, Greece

#### CURRENT AND PREVIOUS POSITIONS

Jan 2018 – today **Assistant Professor**  
Aristotle University of Thessaloniki, Department of Chemical Engineering, Greece  
**Post-doctoral researcher**  
Oct 2015 – Jan 2018 University of Patras, Department of Chemical Engineering, Greece  
Jan 2015 – Sep 2015 National Technical University of Athens, School of Chemical Engineering, Greece  
Jan. 2012 – Jan. 2015 University of Thessaly, Department of Mechanical Engineering, Greece  
May 2009 – Dec. 2011 Imperial College London, Department of Chemical Engineering, United Kingdom  
Nov. 2008 – May 2009 University of Patras, Department of Chemical Engineering, Greece  
  
Aug. 2011 – Jan. 2013 **Academic Consultant** at Imperial Consultants, United Kingdom  
Feb. 2008 – Nov. 2008 **Chemical Analyst**, Greek Army  
Summer 2000 **Internship** at 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 interests are focused on the area of transport phenomena, fluid mechanics and applied mathematics. Emphasis is placed on the fundamental understanding of the underlying mechanisms in interfacial and multiphase flows motivated by a wide variety of technological and biological applications. These range from evaporative cooling, surfactant-replacement therapy, crude-oil, polymer and food processing, coating flow technology to microfluidics and nanotechnology. The fascinating phenomena that emerge in the motion of liquids are investigated using advanced theoretical models the solution of which typically requires a combination of analytical tools, such as asymptotics and perturbation theory, and the development of efficient computational methods.

## HONORS AND AWARDS

2019: The following publications:

1. 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
2. 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 superspreading of liquid drops on solid surfaces', J. Fluid Mech. 670 (2011) 5-37, was selected for the Focus on Fluids feature of this journal. In this article, we proposed the crucial missing piece, which has unravelled the surfactant-assisted superspreading puzzle that existed in the surface and colloid science community for decades.

2007: The presentation entitled: "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.

## RESEARCH GRANTS AWARDED

- "Electrically Induced Flows of Viscoelastic Materials", General Secretariat for Research and Technology (GSRT), Ministry of Education, Greece, "Support of Postdoctoral Researchers" ESPA 2007-2013, 3 years, 150,000 € (Grant No. PE8/906).
- "Dynamics of SPREADING on liquid substrates with complex rheology", General Secretariat for Research and Technology (GSRT) and Hellenic Foundation for Research and Innovation (HFRI), Greece, 2018-2021, 3 years, 180,000 € (Grant No. 792).

## PARTICIPATION IN RESEARCH PROJECTS

### National Technical University of Athens

- 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)

### Imperial College London

- Engineering and Physical Sciences Research Council (EPSRC) (EP/E056466/1)

### University of Patras

- LIMMAT foundation under the grant MuSiComPS
- KARATHEODORI, Basic Research, 2003-2005 (Code: 568)
- General Secretariat for Research and Technology, Ministry of Education, Greece, PENED 2001 (Code: 01ED136)

## TEACHING EXPERIENCE

### Aristotle University of Thessaloniki - Department of Chemical Engineering

2018 – present Transport Phenomena – (Postgraduate 1' Semester – Compulsory Course)

2018 – present Numerical Methods for Engineers (4' Semester – Compulsory Course)

2019 – present Unit Operations II – (6' Semester – Compulsory Course)

2019 – present Introduction to Computing (2' Semester – Compulsory Course)

2019 – present Practical training – Energy / Environment ( $\geq 8$ ' Semester – Elective Course)

2020 – present Chemical Product and Plant Design Project I (9' Semester – Compulsory Course)

2020 – present Chemical Product and Plant Design Project II (10' Semester – Compulsory Course)

2020 – present Chemical Engineering Laboratory I (7' Semester – Compulsory Course)

## **STUDENTS SUPERVISED/CO-SUPERVISED**

### **Doctoral students**

- 2018 – present G. A. Ioannidis, Aristotle University of Thessaloniki, Spreading of liquid droplets on Non-Newtonian liquid substrates.
- 2019 – present K. Thomson, University of Edinburgh, Evaporation of multiple droplets of a binary mixture of liquids.
- 2013-2019 D. Pettas, University of Patras, Steady flow and stability analysis of a thin film over variable topography.
- 2016-2019 A. Williams, University of Edinburgh, Evaporation of Binary Liquids: Planar Layers and Sessile Drops.
- 2016-2019 R. Nazareth, University of Edinburgh, Multiphase Dynamics in Liquid Mixtures: Thermocapillary propulsion of bubbles and instabilities in evaporating layers.

### **Master Theses**

- Expected in 2021 C. Potamopoulos, Aristotle University of Thessaloniki, Bubble entrapment in viscoplastic medium
- June 2015 D. Pettas, University of Patras, Linear stability analysis of viscoelastic fluid extrusion through a planar die.
- Sept. 2010 R. Zhang, Imperial College London, Modelling of hydrothermal waves in evaporating droplets.

### **Diploma Theses**

Eight (8) diploma theses under way (expected in 2021)

Completed:

- 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

## **POST-DOCTORAL ASSOCIATES**

2019 – present C. Dritselis, Aristotle University of Thessaloniki.

2019 – present S. Evgenides, Aristotle University of Thessaloniki.

## **JOURNAL AND PROPOSAL REVIEWING**

- **Reviewer** for international scientific journals
  1. Langmuir
  2. Journal of Fluid Mechanics
  3. Physical Review Fluids
  4. Physics of Fluids
  5. Journal of Non-Newtonian Fluid Mechanics
  6. Soft Matter
  7. Applied Surface Science
  8. International Journal of Heat and Mass Transfer
  9. International Journal of Thermal Sciences
  10. Chemical Engineering Science
  11. Physical Review E
  12. Chemical Engineering Research and Design
  13. Microgravity Science and Technology
  14. The European Physical Journal E

15. Computers and Mathematics with Applications
16. Tribology International
17. Fluid Dynamics Research
18. Journal of Engineering Mathematics

- **Reviewer** for research funding organisations:
  1. Czech Science Foundation
  2. German Research Foundation (DFG)

#### **MEMBERSHIP IN PROFESSIONAL SOCIETIES**

- Technical Chamber of Greece (since 2005)
- American Physical Society (APS) (since 2009)
- European Physical Society (EPS) (since 2019)
- Hellenic Rheology Society (since 2006)
- Panhellenic Association of Chemical Engineers (since 2006)

#### **PUBLICATIONS AND PRESENTATIONS (until Nov 2020)**

Peer-reviewed articles: 36 published, 2 under review

Conference presentations: 99 given

Invited Lectures: 4 given

Citations of Journal articles (Google scholar): 1022

Hirsch index (Google scholar): 20

i10 index (Google scholar): 27

Citations of Journal articles (Web of Science): 742

Hirsch index (Web of Science): 17

#### **A. Articles in international refereed journals**

1. 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 (under review)
2. 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 (under review)
3. 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 (2020) (10.1017/jfm.2020.840)
4. 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
5. 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
6. 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
7. 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
8. M. Balla, M. K. Tripathi, K. C. Sahu, G. Karapetsas, O. K. Matar, ‘Non-isothermal bubble rise dynamics in a self-wetting fluid: three-dimensional effects’ J. Fluid Mechanics 858 (2019) 689-713

9. 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
10. G. Karapetsas, N. T. Chamakos, A. G. Papathanasiou, "Thermocapillary Droplet Actuation: Effect of Solid Structure and Wettability" *Langmuir* 33 (2017) 10838-10850
11. 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
12. 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
13. 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
14. G. Karapetsas, K. C. Sahu, O. K. Matar, "Evaporation of sessile droplets laden with particles and insoluble surfactants", *Langmuir*, 32 (2016) 6871–6881
15. 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
16. G. Karapetsas, N. T. Chamakos, A. G. Papathanasiou, "Efficient modelling of droplet dynamics on complex surfaces" *J. Phys.: Condens. Matter* 28 (2016) 085101
17. 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
18. 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
19. 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
20. 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
21. 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
22. 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
23. 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
24. 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
25. 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
26. 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
27. G. Karapetsas and V. Bontozoglou , "The primary instability of falling films in the presence of soluble surfactants", *J. Fluid Mech.* 729 (2013) 123-150
28. 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
29. 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
30. 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
31. 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

32. G. Karapetsas, R. V. Craster and O. K. Matar, ‘Surfactant-driven dynamics on liquid lenses’, *Phys. Fluids* 23 (2011) 122106
33. 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
34. 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
35. 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
36. G. Karapetsas and J. Tsamopoulos, “Steady extrusion of viscoelastic materials from an annular die”, *J. Non-Newt. Fluid Mech.*, 154 (2008) 136-152
37. 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
38. G. Karapetsas and J. Tsamopoulos, “Transient squeeze flow of viscoplastic materials”, *J. Non-Newtonian Fluid Mech.* 133 (2006) 35–56

	Journal Title (all data are from web of science)	Rank (Quartile, 2019)	Categories	Impact Factor (2019)	5-Year Impact Factor	Number published + submitted
1	Journal of Fluid Mechanics	29/136 (Q1) 6/34 (Q1)	Mechanics Physics, Fluids & Plasma	3.333	3.616	8+3
2	Journal of Non-Newt. Fluid Mechanics	48/136 (Q2)	Mechanics	2.538	2.785	8
3	Langmuir	60/177 (Q2) 64/159 (Q2) 107/314 (Q2)	Chemistry, Multidisciplinary Chemistry, Physical Materials Science, Multidisciplinary	3.557	3.702	5
4	Physics of Fluids	23/136 (Q1) 4/34 (Q1)	Mechanics Physics, Fluids & Plasma	3.514	3.385	5
5	Physical Review Fluids	10/34 (Q2)	Physics, Fluids & Plasma	2.512	2.565	3
6	Colloids and Surfaces A: Physicochemical and Engineering Aspects	58/159 (Q2)	Chemistry, Physical	3.99	3.48	2
7	Journal of Rheology	19/136 (Q1)	Mechanics	3.711	3.712	1
8	Journal of Physics: Condensed Matter	31/69 (Q2)	Physics, Condensed Matter	2.705	2.658	1
9	European Journal of Mechanics B / Fluids	68/136 (Q2) 16/34 (Q2)	Mechanics Physics, Fluids & Plasma	2.131	2.204	1
10	Microfluidics & Nanofluidics	67/103 (Q3) 25/64 (Q2) 12/34 (Q2)	Nanoscience & Nanotechnology Instruments & Instrumentation Physics, Fluids & Plasma	2.489	2.489	1

## B. Conference presentations

1. 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
2. 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
3. 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
4. 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
5. 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
6. 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
7. 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
8. 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
9. 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
10. 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
11. 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
12. 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
13. 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
14. 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
15. A. Williams, P. Saenz, G. Karapetsas, K. Sefiane, O. K. Matar, P. Valluri, “Evaporation of binary mixtures: pools and droplets” 16<sup>th</sup> International Heat Transfer Conference, August 2018, Beijing, China
16. 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
17. 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

18. 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
19. 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
20. 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
21. G. Karapetsas, D. Photeinos, Y. Dimakopoulos, J. Tsamopoulos, "Acoustic excitation of a bubble inside a viscoplastic medium" 12<sup>th</sup> European Fluid Mechanics Conference, September 2018, Vienna, Austria
22. D. Pettas, G. Karapetsas, Y. Dimakopoulos, J. Tsamopoulos, "Stability analysis of viscoelastic fluid over a structured topography" 12<sup>th</sup> European Fluid Mechanics Conference, September 2018, Vienna, Austria
23. 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 – 11<sup>th</sup> International conference, June 2018, Twente, Netherlands
24. 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
25. 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
26. 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
27. 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
28. 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
29. 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
30. 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
31. 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
32. 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
33. 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
34. 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



35. 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
36. 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
37. 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
38. 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
39. 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
40. 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
41. 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
42. 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
43. 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
44. 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
45. 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
46. 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
47. 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
48. 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
49. 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
50. 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
51. 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
52. 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

53. 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
54. 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
55. 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
56. 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
57. 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
58. 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
59. 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
60. 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
61. 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
62. 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
63. 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
64. 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
65. E. Mitsoulis and G. Karapetsas, "Some experiences with slip boundary condition in viscous and viscoelastic flows", Annual European Rheology Conference, April 2013, Leuven, Belgium
66. 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
67. 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
68. 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
69. 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

70. 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
71. 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
72. 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
73. 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
74. 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
75. 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
76. 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
77. 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
78. 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
79. 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
80. 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
81. 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
82. 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
83. 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
84. 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
85. 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
86. 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, volume 2
87. 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

88. 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
89. 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
90. 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
91. G. Karapetsas & J. Tsamopoulos, "Axisymmetric linear stability analysis for the extrusion of viscoelastic fluids", FLOW 2006, Patras, November. 2006, p. 18
92. 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
93. 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
94. 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
95. 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
96. G. Karapetsas and J. Tsamopoulos, "Transient squeeze flow of viscoplastic materials", AERC 2005, 2nd Annual European Rheology Conference, Grenoble, FRANCE, April 2005, p. 163
97. 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
98. 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
99. G. Karapetsas, N. Chatzidai, M. Pavlidis and J. Tsamopoulos, "Transient squeeze flow of viscoplastic liquids", HSR 2004, Athens, Greece, June 2004, p. 50

### **C. Invited lectures at Universities and Conferences**

1. University of Edinburgh, School of Engineering, Edinburgh, United Kingdom, May 2016, "Droplet interaction with structured substrates"
2. University of Patras, Department of Chemical Engineering, Rio, Greece, September 2013, "Interfacial flows, contact lines, evaporation and the Marangoni effect"
3. 7th International Conference Material Technologies and Modeling, Ariel, ISRAEL, August 2012, "Surfactant-assisted superspreading of liquid drops on dry substrates"
4. Imperial College London, Department of Mathematics, London, UK, February 2011, "Dynamics of droplets on solid and liquid substrates"