

Department of Physics
University of Patras
University Campus
Patras, 26504
Greece

kngourg@upatras.gr

<http://www.astro.upatras.gr/el/astrotheory/members/kng/>

ACADEMIC CAREER

- 2019: Assistant Professor of Theoretical and Computational Astrophysics. Department of Physics, University of Patras.
- 2017-2019: Assistant Professor of Magnetohydrodynamics, Durham University, Department of Mathematical Sciences.

UNIVERSITY EDUCATION

- 2005-2009: PhD, “Relativistic Magnetohydrodynamics”, Institute of Astronomy, University of Cambridge, supervised by Prof D. Lynden-Bell.
- 2004-2005: Master of Advanced Study in Mathematics, (Part III of the Mathematical Tripos), Department of Applied Mathematics and Theoretical Physics, University of Cambridge.
- 2000-2004: BSc in Physics, University of Patras, Greece (Excellent 9.1/10).

RESEARCH SUMMARY

I am a theoretical Astrophysicist interested in problems of Relativistic Magnetohydrodynamics. My research focuses on the magnetic field evolution of neutron stars and astrophysical jets via analytical and numerical techniques using High Performance Computing.

I have authored more 47 peer reviewed publications, 29 of which are first author. My work has received more than 1000 citations with h-index 18. I have given more than 60 seminar and conference talks.

SELECTED RESEARCH OUTPUT

- 3-D simulations of relativistic jets, identified and suggested the centrifugal instability as novel mechanism leading to the Fanaroff-Riley Dichotomy (Nature Astronomy 2, 167, 2018, MNRAS Letters 475, 125, 2018).

- 3-D simulations of crustal magnetic field evolution with poloidal and toroidal magnetic fields demonstrating the operation of non-axisymmetric instabilities and reconciling the radiative properties of magnetars with the observed magnetic fields (Proceedings of the National Academy of Sciences, 113, 3944, 2016, ApJ 852, 21, 2018).
- Hall attractor: identification of the end-point of crustal magnetic field evolution in axial symmetry (Physical Review Letters 112, 171101, 2014).
- Discovery and theoretical interpretation of the first anti-glitch in a magnetar (Nature, 497, 591, 2013).
- Analytical solutions of relativistic magnetised jets without confining current sheets, significantly more stable than conventional models (MNRAS, 419, 3048, 2012).

RESEARCH EXPERIENCE

- 2015- 2017: Post-Doctoral Research Associate, Department of Applied Mathematics, University of Leeds. Supervised by Prof Serguei Komissarov (Relativistic MHD), Prof Rainer Hollerbach (Neutron Star Magnetic Field Evolution).
- 2012 - 2014: Post-Doctoral Centre for Research in Astrophysics of Quebec Fellow, Department of Physics, McGill University, supervised by Prof Andrew Cumming, co-supervised by Prof Vicky Kaspi.
- 2012 (August): Research visitor, University of Cambridge, hosted by Prof Donald Lynden-Bell.
- 2009-2012: Post-Doctoral Research Associate, Purdue University, supervised by Prof Maxim Lyutikov.
- 2011 (March): Research visitor, Pontificia Universidad Catolica de Chile, hosted by Prof Andreas Reisenegger.
- 2008 (October-November): Research visitor, Department of Physics, University of Athens, Greece, hosted by Prof Nektarios Vlahakis.
- 2007 (April-July): Marie Curie Innovative Training Network student at MPA Garching, Germany.
- 2005 (July-August): Summer student at the Armagh Observatory, supervised by Prof C. S. Jeffery.

GRANTS

- 2021: KALIPPOS+ Action, Hellenic Academic Texts, “Introduction to Cosmology” (8100 €).
- 2021: “Theoretical and Computational Astrophysics”, F.K. 81641, ELKE- University of Patras, (2759.67 €).
- 2019: Durham University Research Grant: Collaboration with McGill University (£2000).
- 2019: Short-term scientific mission: PHAROS EU-COST Action, hosted Dr Daniele Viganò (2000 Euro).
- 2018: Short-term scientific mission: PHAROS EU-COST Action, hosted Dr Vasileios Karageorgopoulos (2000 Euro).
- 2018: Royal Astronomical Society Bursary, Astrophysical Instabilities, hosted summer student Gavin Taylor (£1200).
- 2018: IASTE summer studentship, Astrophysical Jets, hosted summer student Chrysolite Baafi (£1200).
- 2015-2018: Co-I DiRAC supercomputing time “Astrophysical MHD” 2×10^6 CPU-hours, P.I. Prof Sam Falle.
- 2012-2014:

PARTICIPATION IN RESEARCH GRANTS

- 2016-2019: Astrophysical Consolidated Grant, ST/N000676/1 P.I. Rainer Hollerbach, University of Leeds, £376,479. Role: Post-Doctoral Research Associate.
- 2013-2016, A consolidated grant in Astrophysical Fluids in Applied Mathematics at Leeds, ST/K000853/1 P.I. Prof S. Tobias, University of Leeds, Leeds, £1,519,863. Role: Post-Doctoral Research Associate

TEACHING EXPERIENCE

1. Teaching in the Undergraduate Study Program of the Department of Physics of the University of Patras upon assignment by the Assembly of the Department:
 - a. 2019-2022: Linear Algebra - Analytical Geometry, 1st Semester, Compulsory Core Module.
 - b. 2019-2022: Cosmology, 7th Semester, Compulsory Specialisation Module..

- c. 2019-2022 Astrophysics I, 7th Semester, Department of Physics, Compulsory Specialisation Module., co-teaching with Assistant Professor P.-E. Christopoulou.
 - d. 2019-2022: Physics Laboratory IV, 4th Semester, Core Compulsory.
2. Teaching in the Postgraduate Study Program of the Department of Physics of the University of Patras, Advanced Studies in Physics, upon assignment by the Assembly of the Department:
 - a. 2019-2022: Special Topics in Cosmology, Winter Semester.
 - b. 2019-2022: Computational Astrophysics, Spring Semester.
 - c. Special Topics in Theoretical Astrophysics, Winter Semester, independent teaching.
3. Teaching at Durham University:
 - a. 2018-2019: Module Manager: Partial Differential Equations, Department of Mathematical Sciences, Durham University.
 - b. 2018-2019: Module Manager: Numerical Differential Equations, Department of Mathematical Sciences, Durham University.
 - c. 2017-2018: Module Manager: Continuum Mechanics, Department of Mathematical Sciences, Durham University.
4. Teaching at Leeds University:
 - a. 2016-2017: Module Manager: Special Relativity, School of Mathematics, University of Leeds.
 - b. 2015-2016: Module Manager: Quantum Mechanics MATH 3385, Advanced Quantum Mechanics MATH 5386, School of Mathematics, University of Leeds (Awarded the Academic Development Fellowship for teaching).

STUDENT PROJECT SUPERVISION

1. 2022-Present: PhD supervision: Dimitrios Skiathas (University of Patras).
2. 2021-Present: PhD supervision: Dimitrios Ntotsikas (University of Patras).
3. 2020-2022: Master's Theses(6) – University of Patras: Varvara Agalianou, Nikolitsa Psylla, Athanasia Papaioannou, Dimitrios Ntotsikas, Georgios Kampylis, Georgios Chouliaras.
4. 2020-2022: Undergraduate Theses (13).
5. 2018-2019: Fluid instabilities (Master in Mathematics Final Year Project), Clare Thompson, Hannah Cambell, Alex Bushell, Adam Kirk.
6. 2017-2018: Neutron star relativistic magnetospheres (Bachelor in Mathematics, Final Year projet), Victoria Klein, Sean Burton.

7. 2014: Supervision of undergraduate student Mr Reinhold Willcox on the project: “Visualization of the Magnetic Evolution of a Neutron Star”, McGill University.
8. 2011: Supervision of graduate student Mr Eric Clausen-Brown at Purdue University on the project “Magnetic Jets”.

CONFERENCE ORGANISATION

- «Advanced Physics Lectures», Conference and Cultural Centre of the University of Patras, 13 December 2021, co-organiser: C. Anastopoulos, V. Loulopoulos.
- “15th Hellenic Astronomical Conference” Hellenic Astronomical Society, 5-8 July 2021, LOC Chair.
- “EAS 2021 – Neutron Stars and Fast Radio Bursts, a Magnetic Connection” 28 June – 2 July 2022, Member of Symposium SOC.
- “The multi-messenger Physics and Astrophysics of Neutron Stars”, PHAROS Conference 2020 - Patras, LOC Chair, Co-Chair of the SOC, (cancelled due to COVID-19).
- European Week of Astronomy and Space Science (EWASS), Scientific Organising Committee, Neutron Star Symposium, Magnetar Session Leader, 4-8 July 2016, Athens Greece.

SCHOLARSHIPS, AWARDS and PRIZES

- 2019: Honorary Fellow, Department of Mathematical Sciences, Durham University, 2019.
5. 2019: Research Visitor, School of Mathematics, University of Leeds.
 6. 2015: Best Post-Doc Talk Prize, UK MHD meeting, Northumbria University, 14-15/5/2015.
- 2012-2014: Centre for Research in Astrophysics of Québec Fellowship (55,000 CAD p.a., 8,000 CAD for research expenses), McGill University.
 - 2005-2009: Isaac Newton Studentship for study in Astronomy and Gravitation, University of Cambridge (£6,000 p.a., £1,000 for research expenses).
 - 2004-2009: Master and PhD Studentship, Cambridge EU Trusts, Vergottis Fund (£2,000 Master, £4,000 p.a. PhD).
 - 2005-2009: PhD Studentship, Science and Technology Funding Council, University of Cambridge (PhD fees).
 - 2007: Marie Curie Innovative Training Network, Fellow, MPA, Garching (4,500 €).

- 2000-2004: Scholarship awarded by the Foundation of National Scholarships, Greece) Undergraduate Prize Scholarship (1,000 € p.a.).
- 2000: Entry at University, Prize Scholarship awarded by the Foundation of National Scholarships, Greece (1,000 €).
- 2000: National Student Contests in Astronomy (Greece), 1st Prize. Represented Greek students to the “International Space Camp”, NASA Marshall Space Flight Center, Huntsville Alabama.

PROFESSIONAL AFFILIATIONS

- Fellow of the Royal Astronomical Society, since 2006.
- Member of the Hellenic Astronomical Society, since 2010.
- Member of the Canadian Astronomical Society, 2014.
- Elected Member of the Hellenic Astronomical Society, Council, 2020-2022, re-elected 2022-2024.
- Member on PHAROS Collaboration, Exploring fundamental physics with compact stars.
- Member of the Cherenkov Telescope Array Consortium.
- Member of the eXTP Consortium.

INVITED REVIEWER

- Nature Publishing Group.
- Astrophysical Journal (Main Journal and Letters).
- Monthly Notices of the Royal Astronomical Society (Main Journal and Letters).
- Astronomy and Astrophysics.

PUBLIC OUTREACH - AMATEUR ASTRONOMY

- SOC, 12th National Amateur Astronomy Conference, 14-16/10/2022, Patras, Greece.
- SOC, 9th National Amateur Astronomy Conference, 9-11/10/2015, Sparta, Greece.
- LOC, 5th National Amateur Astronomy Conference, 3-5/10/2007, Patras, Greece.
- Member of Outreach Astronomy Group at McGill University.

- Founding member and PR officer of Purdue Post-Doctoral Association, 2009-2010
- President of the Cambridge University Hellenic Society 2006-2007.
- Secretary (2001-2004) and Founding Member of the Astronomical Association of Patras.
- Moderator of www.astrovox.gr (popular greek astronomical website, ~50,000 unique visitors per month).

PUBLICATION LIST

1. A.P. Igoshev, A. Frantsuzova, **K.N. Gourgouliatos**, S. Tsihli, L. Konstantinou, S.B. Popov, “Initial periods and magnetic fields of neutron stars”, 2022, MNRAS, 514, 4606.
2. M.V. Barkov, P. Sharma, **K.N. Gourgouliatos**, M. Lyutikov, “Relativistic Magnetic Explosions”, 2022, ApJ, 934, 140.
3. D. Gakis, **K.N. Gourgouliatos**, “Orbit determination of the moons of the Pluto-Charon system”, *Celestial Mechanics and Dynamical Astronomy*, Volume 134, Issue 2, article id.14, 2022.
4. **K.N. Gourgouliatos**, D. De Grandis, A. Igoshev, “Magnetic Field Evolution in Neutron Star Crusts: Beyond the Hall Effect”, *Symmetry*, 14, 1, 130, 2022.
5. G. Chouliaras, **K.N. Gourgouliatos**, “Application of an Upwind integration method to plane parallel Hall-MHD”, *Astronomy and Computing*, 100553, 2022.
6. **K.N. Gourgouliatos**, S.K. Lander, “Axisymmetric magneto-plastic evolution of neutron-star crusts”, MNRAS, 506, 3, pp.3578-3587, 2021.
7. V. Karageorgopoulos, **K.N. Gourgouliatos**, V. Geroyannis, “Polytropic wind solutions via the Complex Plane Strategy”, *Astronomy and Computing*, Volume 36, article id. 100491, 2021.
8. J. Matsumoto, S.S. Komissarov, **K.N. Gourgouliatos**, “Magnetic Inhibition of the Recollimation Instability in Relativistic Jets”, MNRAS, 503, 4, pp.4918-4929, 2021.
9. A. Igoshev, **K.N. Gourgouliatos**, R. Hollerbach, T. Wood, “3D Magnetothermal Simulations of Tangled Crustal Magnetic Field in Central Compact Objects, ApJ”, 909, 2, 101, 9 pp., 2021.
10. H. Abdalla et al., “Sensitivity of the Cherenkov Telescope Array for probing cosmology and fundamental physics with gamma-ray propagation”, *Journal of Cosmology and Astroparticle*

Physics, Issue 02, article id. 048, 2021.

11. A. Igoshev, R. Hollerbach, T.S. Wood, **K.N. Gourgouliatos**, “Strong toroidal magnetic fields required by quiescent X-ray emission of magnetars”, *Nature Astronomy*, 215, 2021.
12. D. De Grandis, D., R. Turolla, T.S. Wood, S. Zane, R. Taverna, **K.N. Gourgouliatos**, “Three dimensional Modeling of the Magnetothermal Evolution of Neutron Stars: Method and Test Cases”, *ApJ*, 903, 40, 2020.
13. **K.N. Gourgouliatos**, R. Hollerbach, & A. Igoshev “Powering central compact objects with a tangled crustal magnetic field”, *MNRAS*, 495, 1692, 2020.
14. **K.N. Gourgouliatos** & Jose Pons “Nonaxisymmetric Hall instability: A key to understanding magnetars”, *Physical Review Research*, 1, 032049, 2019.
15. S. Komissarov, **K.N. Gourgouliatos**, J. Matsumoto “Magnetic inhibition of the centrifugal instability”, *MNRAS*, 488, 4061, 2019.
16. V. Karageorgopoulos, **K.N. Gourgouliatos**, I. Contopoulos “Current closure through the neutron star crust”, *MNRAS*, 487, 3333, 2019.
17. A. Acharyya et al. “Monte Carlo studies for the optimisation of the Cherenkov Telescope Array layout”, *Astroparticle Physics*, 111, 35, 2019.
18. S.K. Lander & **K.N. Gourgouliatos** “Magnetic-field evolution in a plastically failing neutron star crust”, *MNRAS* 486, 4130, 2019.
19. C. Prior & **K.N. Gourgouliatos** “Observational signatures of magnetic field structure in relativistic AGN jets”, *A&A* 622, 122, 2019.
20. **K.N. Gourgouliatos** & D. Lynden-Bell “Coupled axisymmetric pulsar magnetospheres”, *MNRAS* 482, 1942, 2019.

21. **K.N. Gourgouliatos**, R. Hollerbach, R.F. Archibald “Modelling neutron star magnetic fields” *Astronomy and Geophysics*, 59, 37, 2018.
22. **K.N. Gourgouliatos** & S.S. Komissarov “Relativistic Centrifugal Instability”, *MNRAS Letters*, 475, 125, 2018.
23. **K.N. Gourgouliatos** & S.S. Komissarov “Reconfinement and loss of stability in jets from active galactic nuclei”, *Nature Astronomy*, 2, 167, 2018.
24. R.D. Ferdman, R.F. Archibald, **K.N. Gourgouliatos**, V.M. Kaspi “The Glitches and Rotational History of the Highly Energetic Young Pulsar PSR J0537-6910”, *ApJ*, 852, 123, 2018.
25. **K.N. Gourgouliatos** & R. Hollerbach “Magnetic Axis Drift and Magnetic Spot Formation in Neutron Stars with Toroidal Fields”, *ApJ*, 562, 12, 2018.
26. **K.N. Gourgouliatos** & R. Hollerbach “Resistive Tearing Instability in Electron-MHD: Application to Neutron Star Crusts”, *MNRAS*, 463, 3381, 2016.
27. **K.N. Gourgouliatos**, T. Wood, R. Hollerbach “Magnetic Field Evolution in Magnetar Crusts through three dimensional simulations”, *Proc. of the National Acad. of Science*, 113, 3944, 2016.
28. **K.N. Gourgouliatos**, T. Kondic, M. Lyutikov, R. Hollerbach “Magnetar Activity via the Density Shearing Instability in Hall-MHD”, *MNRAS Letters*, 453, 93, 2015.
29. **K.N. Gourgouliatos** & A. Cumming “Hall drift and the braking indices of young pulsars”, *MNRAS*, 446, 1121, 2015.
30. **K.N. Gourgouliatos** & A. Cumming, “Hall Attractor in Axially Symmetric Magnetic Fields”, *Physical Review Letters*, 112, 171101, 2014.
31. **K.N. Gourgouliatos** & A. Cumming, “Hall effect in neutron star crusts: evolution, endpoint and dependence on initial conditions”, *MNRAS* 438, 1618, 2014.

32. **K.N. Gourgouliatos**, A. Cumming, A. Reisenegger, C. Armaza, M. Lyutikov, J.A. Valdivia, “Hall equilibria with toroidal and poloidal fields: application to neutron stars”, *MNRAS*, 434, 2480, 2013.
33. D. Tsang & **K.N. Gourgouliatos**, “Timing Noise in Pulsars and Magnetars and the Magnetospheric Moment of Inertia”, *ApJL*, 773, 17, 2013.
34. R.F. Archibald, V.M. Kaspi, C.Y. Ng, **K.N. Gourgouliatos**, D. Tsang, P. Scholz, A.P. Beardmore, N. Gehrels, J.A. Kennea, “An anti-glitch in a magnetar”, *Nature*, 497, 591, 2013.
35. B. B. P. Perera, D. Lomiashvili, **K. N. Gourgouliatos**, M. A. McLaughlin, M. Lyutikov, “PSR J0737–3039B: A probe of radio pulsar emission heights”, *ApJ*, 750, 130, 2012.
36. **K.N. Gourgouliatos** & M. Lyutikov, “Dynamics of rising magnetic cavities and UHECR acceleration in clusters of galaxies”, *MNRAS*, 420, 505, 2012.
37. **K.N. Gourgouliatos**, Ch. Fendt, E. Clausen-Brown, M. Lyutikov, “Magnetic field structure of relativistic jets without current sheets”, *MNRAS*, 419, 3048, 2012.
38. M. Lyutikov & **K.N. Gourgouliatos**, “Coronal mass ejections as expanding force-free structures”, *Solar Physics* 270, 537, 2011.
39. **K.N. Gourgouliatos** & D. Lynden-Bell, “Corotating light cylinders and Alfvén waves”, *MNRAS* 410, 257, 2011.
40. **K.N. Gourgouliatos**, J. Braithwaite & M. Lyutikov, “Structure of magnetic fields in intracluster cavities”, *MNRAS*, 409, 1660, 2010.
41. **K.N. Gourgouliatos** & N. Vlahakis, “Relativistic expansion of a magnetized fluid”, *Astrophysical and Geophysical Fluid Dynamics*, 104, 431, 2010.
42. **K.N. Gourgouliatos**, “Relativistic magnetohydrodynamics”, *The Observatory*, 129, 396, 2009.
43. **K.N. Gourgouliatos**, “Relativistically expanding cylindrical electromagnetic fields”, *MNRAS*, 396, 2399, 2009.

Erratum: 401, 2816, 2010.

44. A.A. Christou, F. Lewis, P. Roche, Y. Hashimoto, D. O'Donoghue, H. Worters, D.A.H. Buckley, T. Michalowski, D.J. Asher, A. Bitsaki, A. Psalidas, V. Tsamis, **K.N. Gourgouliatos**, A. Liakos, M.G. Hidas, T.M. Brown, "Observational detection of eight mutual eclipses and occultations between the satellites of Uranus", *A&A* 497, 589, 2009.
45. **K.N. Gourgouliatos**, D. Lynden-Bell, "Fields from a relativistic magnetic explosion", *MNRAS*, 391, 268, 2008.
46. **K.N. Gourgouliatos**, "Self-similar magnetic arcades", *MNRAS*, 385, 875, 2008.
47. **K.N. Gourgouliatos** & C.S. Jeffery, "On the angular momentum evolution of merged white dwarfs", *MNRAS*, 371, 1381, 2006.

CONFERENCE and INVITED SEMINAR TALKS

1. "Resolving Dark Matter Tension: The impact of dynamical friction due to fuzzy dark matter on satellites with triaxial and logarithmic potentials", **Invited Speaker**, Tensions in Cosmology, Corfu, 7-12/9/2022.
2. "Reconfinement and loss of stability of MHD relativistic astrophysical jets", COSPAR 44th Scientific Assembly, Athens, 16-24/7/2022.
3. "Implications for magnetic field evolution in young neutron stars from supernova remnant – pulsar associations", PHAROS Annual Conference, Rome, 16-19/5/2022.
4. "Magnetic field evolution in neutron star crusts: Hall effect and beyond", Centre for Research of Applied Mathematics and Astronomy of the Academy of Athens, 1/2/2022.
5. "Theoretical Astrophysics Group Neutron stars: binary interaction, flares, outbursts and glitches", AISA in Greece, Workshop, 23/2/2022, Aristotle University of Thessaloniki..
6. "Magnetic Field Evolution in the Crust of Neutron Stars: Crust Failure and Plastic Flow", **Invited Speaker**, IAU Symposium 363: Neutron Star Astrophysics at the Crossroads: Magnetars and the Multimessenger Revolution, 29/11-3/12/2021.
7. "Double neutron stars magnetosphere interaction – Implications for FRBs" FRB 2021, 28/7-5/8 2021.

8. “Coupled Pulsar Magnetospheres”, National Astronomy Meeting, University of Bath, 19-23/7/2021.
9. “Plastic Flows in Neutron-Star Crusts”, 15th Hellenic Astronomical Conference, 5-8/7/2021.
10. “Magnetic field variation due to Biermann-Battery and timing noise in MSPs”, International Pulsar Timing Array, 14-18/6/2021, Διαδικτυακά.
11. “Magnetic Field Evolution in Neutron Star Crusts: Hall-MHD and Beyond” Oxford Pulsar Coffee, 16/2/2021.
12. “Magnetic Field Evolution in Neutron Star Crusts”, Observatory of Athens, 4 December 2019.
13. “An overview of the Hall effect in Neutron Star Crusts” MSSL Astrophysics Group Seminar, MSSL 19 September 2019.
14. “Centrifugal Instability in Astrophysical Jets” Harvard University, CfA, Cambridge 6 September 2019.
15. “Hall effect in the crust of neutron stars” Flatiron Centre for Computational Astrophysics, Compact Object Meeting, New York 5 September 2019.
16. “Electric currents in the crust and the magnetosphere of neutron stars”; McGill Space Institute seminar, Montreal, 29 August 2019.
17. “Coupled axisymmetric pulsar magnetospheres”; Spins-UK 2019, London, 29-31 May 2019.
18. “Magnetic field evolution in neutron stars”; **Invited Talk**, Pharos Conference 2019, Platja D’Aro, Girona, Spain, 22-26 April 2019.
19. “Spin-down torque and stress in axisymmetric pulsars”; **Invited Talk**, Building and releasing stresses in neutron-star crusts, Warsaw Poland, 21-22 March 2019.
20. “Implications of Hall inverse cascades to Central Compact Objects”; Magnetic Field Formation and Evolution, PHAROS Meeting, Saclay-Paris, 14-16 November 2018.
21. “Reconfinement and Loss of Stability of Active Galactic Nuclei Jets”; Centre for Research of Applied Mathematics and Astronomy of the Academy of Athens, 19 June 2018.
22. “Magnetic Dipole Axis Drift and Spot Formation on Neutron Stars”; First-spins UK, Norwich 16-18 April 2018.
23. “Neutron Star Magnetic Field: Beyond Dipole”; European Week of Astronomy and Space Science, Royal Astronomical Society National Astronomy Meeting, Liverpool 3-6 April 2018.
24. “Reconfinement and Loss of Stability of AGN Jets”; European Week of Astronomy and Space Science, Royal Astronomical Society National Astronomy Meeting, Liverpool 3-6 April 2018.

25. "Relativistic Centrifugal Instability"; Applied Math Seminar, Durham, 20 October 2017.
26. "3-D Simulations of FR-I Jets"; The 13th Hellenic Astronomical Conference, Heraklion Greece, 2-4 July, 2017.
27. "Electron-MHD Evolution in Strongly Magnetised Neutron Stars"; Seminar, University of East Anglia, 23 January 2017.
28. "Magnetic Field Evolution in Neutron Star Crusts"; Centre for Research of Applied Mathematics and Astronomy of the Academy of Athens, 21 February 2017.
29. "3-D Simulations of Relativistic Astrophysical Jets", UKMHD Meeting, 20-21 April 2017, Durham, UK.
30. "Resistive and Ideal Instabilities in Hall-MHD"; NewCompStar Working Group meeting on Oscillations and Instabilities in Neutron Stars, Southampton, UK, 13-14 September 2016.
31. "3-D Simulation of the Hall-Effect in Neutron Star Crusts"; European Week of Astronomy and Space Science, Athens 4-8 July 2016.
32. "3-D Simulations of Electron-MHD in magnetar crusts"; UK MHD meeting 2016, University of Glasgow, 12-13 May 2016.
33. "3-D Simulations of poloidal, toroidal and mixed fields, in neutron star crusts"; NewCompStar Working Group Meeting, Alicante Spain, 13-15 April 2016.
34. "Making Magnetars More Economical"; Department of Applied Mathematics, Fluids and MHD Seminars, University of Leeds, 18/2/2016.
35. "3-D evolution of the crustal magnetic field in Neutron Stars"; Columbia University, Astrophysics Seminar, 10 December 2015.
36. "Magnetic Field Evolution in Neutron Star Crusts through 3-D Simulations"; **Invited Talk**, The Dynamo Effect in Astrophysical and Laboratory Plasmas, University of Princeton, 7-9 December 2015.
37. "MHD in Neutron Stars"; STFC Advanced Summer School, **Invited Lecture**, University of Leeds, 12/9/2015.
38. "3-D Simulations of Magnetic Field Evolution in Neutron Star Crusts"; Royal Astronomical Society, National Astronomy Meeting, Llandudno 9 July 2015.
39. "Magnetic Field Evolution in Neutron Star Crusts through 3-D simulations"; 12th Hellenic Astronomical Conference, Thessaloniki, Greece 2 July 2015.
40. "Numerical Exploration of the Density Shearing Instability in Hall-MHD"; UK MHD meeting 2015, Northumbria University, 14-15 May 2015. **Best Post-Doc Talk Prize.**
41. "Hall Drift in Neutron Star Crusts", 5 February 2015, Newcastle University, Applied Math Seminar.

42. "Hall Effect in Neutron Star Crusts", Seminar, Department of Mathematics, University of Exeter, (Taylor and Francis Sponsored), UK, 11 September 2014.
43. "Magnetic Field Evolution in Neutron Star Crusts", Seminar, Department of Mathematics, University of Southampton, UK, 10 September 2014.
44. "Hall Drift in Neutron Star Crusts"; 30 October 2014, Purdue University Astronomy Seminar.
45. "Ferraro's Law of Isorotation in Hall-MHD"; 2014 Canadian Solar Workshop. 2014 17-19 October, La Petite Rouge, Canada.
46. "Magnetic Evolution of Neutron Stars towards the Hall Attractor"; Canadian Astronomical Society Annual Meeting, 8-12 June 2014, Quebec City, Canada.
47. "The effect of Hall drift on the braking indices of young pulsars"; Frontiers of Neutron Star Astrophysics, 29-30 May, 2014, at Cornell University.
48. "Neutron Stars and Their Magnetic Fields"; **Invited Review Talk**, Rencontre Annuelle du Centre de Recherche en Astrophysique en Québec, Auberge du Lac à l'Eau Claire, 21-23 May 2014.
49. "Self-similar models of CMEs"; 2013 Canadian Solar Workshop. 2013 18-21 October, La Petite Rouge, Canada.
50. "How to make a magnetar anti-glitch"; Explosive Transients; Lighthouses of the Universe, September 15-20, 2013, Santorini, Greece.
51. "Magnetospheric moment of inertia variations as a source of timing noise in magnetars"; The 11th Hellenic Astronomical Conference, 8-12 September 2013, Athens, Greece.
52. "Hall Effect in Neutron Star Crusts"; IAUS 302, Magnetic Fields Throughout Stellar Evolution, 25-30 August 2013, Biarritz, France.
53. "Hall Effect in Neutron Star Crusts", Rencontre Annuelle du Centre de Recherche en Astrophysique en Québec, Auberge du Lac à l'Eau Claire, 15-17 May 2013.
54. "Neutron Stars: Magnetic Equilibria in the Crust and Timing Noise from Magnetospheric Activity"; Astronomy Seminar 28 February 2013, Université de Montréal.
55. "Magnetic Models for Galaxy Cluster Cavities"; Stanford KIPAC tea talk, 10/7/2011.
56. "Relativistic magnetized jets without current sheets"; 10th Hellenic Astronomical Conference, 5-8 September 2011, Ioannina.
57. "Hall equilibria and stability of magnetic field structure in neutron star crusts"; 10th Hellenic Astronomical Conference, 5-8 September 2011, Ioannina.
58. "Evolution of rising magnetic cavities and UHECR acceleration"; Structure of Clusters and Groups of Galaxies in the Chandra Era, Boston, July 2011.
59. "UHECR acceleration in intracluster medium"; St Petersburg JENAM, July 2011.

60. "Interplanetary magnetic clouds as expanding force-free structures"; NASA Goddard Space Flight Centre, Washington, June 2011, Heliophysics Seminar.
61. "Magnetic models for AGN bubbles"; **Invited Review Talk**, Pontificia Universidad Catolica De Chile, March 2011, Galaxy Formation in Hierarchical Galaxy.
62. "Magnetic Fields in intracluster cavities"; University of Athens, May 2010, Seminar.
63. "Relativistically expanding magnetic fields"; Astronomical Institute Anton Pannekoek, Amsterdam, February 2009, Seminar.
64. "Relativistic magnetic explosions, Institute of Astronomy"; University of Cambridge, February 2009, Seminar.
65. "Relativistic Expansion of a Magnetized fluid"; High Energy Astrophysics Seminar, Department of Physics, University of Athens, 2/10/2008.
66. "Self-Similar Magnetic Fields"; Racah Institute, Jerusalem, February 2008, Seminar.
67. "Force-free magnetic arcades"; 8th Hellenic Astronomical Conference, Thassos Greece, 13-15/9/2008, Conference Talk.
68. "Self-similar magnetic arcades"; Max Planck Institute for Astrophysics, Garching, April 2007, Seminar.