Prof. Patrick Guio

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Profile

An experienced and recognised observational and theoretical space and planetary physicist, and software engineer in leading edge scientific and technological projects. This blend of academic and industrial backgrounds would be an asset to any project and any team working in these areas.

Education and qualifications

2010–2011	**Post Graduate Certificate in Learning and Teaching in Higher Education** (PGCLTHE), University College London (UCL)
2001–2002	**Certificates** *Parallelisation and MPI*, *High Performance Computing* and *Scientific Scripting*, University Centre for Information Technology , University of Oslo, Norway
Dec 1998	**Ph.D. in Physics** (joint French *Doctorat* with honours and Norwegian *Dr. Scient.*) Université Joseph Fourier–Grenoble 1, France and UiT – The Arctic University of Norway. Thesis: *Studies of ionospheric parameters by means of electron plasma lines observed by* EISCAT
1990–1991	**M.Sc. in Computer Science and Applied Mathematics,** French *DEA Informatique, Mathématiques et Applications* École Normale Supérieure and Université Pierre et Marie Curie, France. Discrete and Computational Geometry Option
1987–1990	**M.Eng. in Electrical, Electronic and Computer Science,** French *Diplôme d'Ingénieur* École Nationale Supérieure de l'Électronique et de ses Applications, Cergy-Pontoise, France. Computer Science and Signal Processing Option
1985–1987	**Classes Préparatoires** (Mathematics and Physics), preparation for the French Grandes Écoles entrance examinations, Nice, France

Employment

Feb 2020–present	**Professor of Space Physics,** department of Physics and Technology, UiT **Honorary Professor,** Physics and Astronomy department, UCL
Feb 2007–Jan 2020	**Senior researcher,** Physics and Astronomy department, UCL. Turbulence in space plasmas, planetary ionosphere–magnetosphere modelling
May 2004–Mar 2006	**Senior scientist,** Bergen Centre for Computational Sciences, Norway. EGEE grid computing project: local coordination and management, middleware development and grid deployment and local project coordination
Dec 2003–Apr 2004	**Senior scientist,** Multiwave Geophysical Company ASA, Bergen. 2D/4C seismic data processing for exploration geophysics
Oct 2000–Aug 2003	**Associate professor,** Institute for Theoretical Astrophysics, University of Oslo
Jan 1999–Sept 2000	**Post-doc,** Institute for Theoretical Astrophysics, University of Oslo

Teaching activities

UiT (2020–present)

Course leader

Introduction to Plasma Physics (FYS2009), Year 3, 2020–2023, 2025

Quantum Mechanics (FYS2000), Year 2, 2020–2023, 2025

UCL (2007–2019)

Lecturer

Practical Mathematics II (PHAS2443), Year 2, 2014–2018

Miracle Postgraduate Computational Lecture (Good practice in computing) 2011

Teaching Assistant

Practical Physics/Astrophysics: Python (PHAS0029/PHAS0020), Year 2, 2019

Practical Physics: Matlab/Mathematica (PHAS2441), Year 2, 2013

Tutorial Leader

Physics and Mathematics (Year 1) and *Astrophysics* (Year 2), 2007–2010

Invited Teaching
COMAC Workshop (MHD Simulation in Astrophysics and Space Plasma), Thailand, 2018
ESPAS training school, Poland, 2015
University Centre in Svalbard, 2000–2006

Assessment responsibilities
M.Sc. Research essay examiner
Postgraduate course external examiner
Astrophysics Ph.D. progress reviewer
Astrophysics project talk and report (Year 4) moderator
Astrophysics synoptic interviews (Year 3) second marker and moderator
Admissions interviewer and assessor for UCL undergraduate applicants (UCAS)

Research supervision
Principal or co-supervisor of six Ph.D. students since 2009.
Supervised seven M.Sc. students.
Supervised numerous undergraduate and internship students.

University of Oslo (2001–2002)
Lecturer, *Physics of Stars and Radiation* (AST-112), B.Sc. level

UiT (1997–1998)
Course Leader, *Computer Use* (FYS-010), Year 1
Teaching assistant, *General Physics* (FYS-100), Year 1
Teaching assistant, *Classical Theoretical Physics* (FYS-200), Year 2

Computational expertise and digital teaching expertise

Programming	C/C++, MATLAB®, Mathematica, Python, Fortran 77/90
Libraries	STL C++; Scientific Blitz++ (contributor and co-maintainer); Mathematics: NAG, SlatecFFTW; Scientific data I/O netCDF, HDF 4/5; Parallel computing: MPI; NASA's Navigation and Ancillary Information Facility SPICE; Graphics: PLplot, VTK; Database MySQL
Tools	Course management system: Canvas, Moodle; version control: git; configuration: autotools cmake; documentation: doxygen

Research interests

Space plasma physics, including plasma turbulence, wave–particle interactions, and kinetic and fluid modelling
Planetary ionospheres and magnetospheres, including modelling of planetary environments and space plasmas
Computational physics and scientific modelling, including numerical simulations, high-performance computing, and data-driven approaches to understanding complex physical systems
Scientific software development and research computing, with applications in space science, astrophysics, and computational physics

Publications and Conferences

Publications	**55** peer-reviewed articles in total, lead author on **17** (**1070+** citations in total, h-index 21, joint statistics from ORCID, ResearcherID, Scopus and ADS, Jan 2021)
Conferences	**102** contributions (presentations and posters) in total, **4** invited

∗ note: hired for an advanced software development and management position between 2004–2006

Research funding and awards

UCL Provost's Excellence Scheme Award, recognising exceptional contributions to research and teaching, 2018
HPC-Europa2 Transnational Access Award, visiting researcher, CINECA,Bologna, Italy, 2011 and 2012
Norwegian Academy of Science, visiting researcher, Centre of Advanced Study, 2005
Norwegian Research Council, project grants, 1999–2001

Professional affiliations and activities

Editorial responsibilities

Associate editor in Space Physics for *Frontiers in Astronomy and Space Sciences*, 2023–present

Editorial Board Member for *Journal of Space Weather and Space Climate*, 2020–present

Professional societies and fellowships

Fellow of the Royal Astronomical Society since 2008

Member of the American Geophysical Union since 2009

Associate fellow of the Higher Education Academy since 2011

Member of the International Astronomical Union since 2023

Research projects and international collaborations

Co-investigator, Hubble Space Telescope (HST) Cycle 20 general observer time (2011 and 2012)

UCL senior researcher, European Planetary Network (EPN2020) 2016–2021

UCL research affiliate, European Planetary Network (EuroPlaNet) 2009–2012

Research infrastructure and software leadership

Point of contact, European project 'near Earth space data infrastructure for e-science' ESPAS; in charge of the integration of UCL FPI data into ESPAS service, preparation and coordination of deliverables, 2013–2015

Software design authority for UCL 'Miracle' High Performance Computing (HPC) project, 2009.

Administrator of the UCL Planetary Plasmas Group repository and github organisation since 2007

Institutional services

Member of the *Space Physics Study Program Board* the Department of Physics and Technology, UiT since 2023

Committee member, Physics and Astronomy department, UCL for the Juno Awards (IoP) for 'principles of good practice that promote transparency and fairness', 2012–2014

Member of the Astrophysics Group computing committee, UCL 2008–2010

Co-Organiser of the UCL Cumberland Lodge Meeting on *Exploration of the Solar System* (7–10 July 2008)

Norwegian representative, management committee of the European COST 724 2006–2007

Professional service

Research funding review

Grant proposal reviewer for major funding agencies including *NSF* (USA), *NASA* (USA), *NERC* (UK), *STFC* (UK), *SNSF* (Switzerland), *Academy* of Finland (space science grant panel *board member*), *SNSA* (Sweden), *CONICyT* (Chile),and *FONCyT* (Argentina)

Journal Reviewing

Scientific papers: *Advances in Space Research*, *Annales Geophysicae*, *Earth, Moon, and Planets*, *Earth Planets and Space*, *Journal of Atmospheric and Solar-Terrestrial Physics*, *Journal of Geophysical Research*, *Journal of Space Weather and Space Climate*, *Nature Communications*, *Physica Scripta*, *Physics of Plasmas*, *Radio Science*

Software papers: *Journal of Open Research Software*

Academic assessment

Reviewer for academic promotions

Examiner for Ph.D. and M.Sc.

Languages

French	Native
English	Fluent (professional proficiency); extensive experience teaching, supervising, and conducting research in English-speaking universities, including UCL
Norwegian	Fluent (professional proficiency); university teaching and academic experience in Norway
Danish and Swedish	Fluent reading comprehension; good spoken understanding

Publications

[1] M. Gupta and **P. Guio**. Data reduction of incoherent scatter plasma line parameters. *Ann. Geophysicæ*, 44(1):109–122, February 2026. doi:10.5194/angeo-44-109-2026.

[2] A. Santos, N. Achilleos, D. Millas, **P. Guio**, W. Dunn, G. Provan, J. D. Nichols, and C. S. Arridge. Inter-orbit variability of Jupiter's current sheet morphology. *J. Geophys. Res.*, 131(6):e2025JA034864, 2026. doi:10.1029/2025JA034864.

[3] C. Paranicas, J. Kinrade, P. Kollmann, L. Regoli, G. Clark, T. Nordheim, S. Wing, N. Krupp, E. Roussos, R. C. Allen, S. K. Vines, N. Achilleos, and **P. Guio**. Identifying Fast Plasma Injections in Data From Saturn. *Geophys. Res. Lett.*, 52(17):e2025GL117837, September 2025. doi:10.1029/2025GL117837.

[4] I. Cheng, N. Achilleos, X. Blanco-Cano, C. Bertucci, and **P. Guio**. Waves and Instabilities in Saturn's Magnetosheath: 2. Dispersion Relation Analysis. *J. Geophys. Res.*, 129(10):e2024JA032585, October 2024. doi:10.1029/2024JA032585.

[5] I. Cheng, N. Achilleos, X. Blanco-Cano, C. Bertucci, N. Sergis, C. Paranicas, and **P. Guio**. Waves and Instabilities in Saturn's Magnetosheath: 1 Mirror Mode Waves and Their Impact on Magnetopause Reconnection. *J. Geophys. Res.*, 129(10):e2024JA032584, October 2024. doi:10.1029/2024JA032584.

[6] A. Santos, N. Achilleos, D. Millas, W. Dunn, **P. Guio**, and C. S. Arridge. Characterizing the Magnetic and Plasma Environment Upstream of Ganymede. *J. Geophys. Res.*, 129(10):e2024JA032689, October 2024. doi:10.1029/2024JA032689.

[7] D. Millas, N. A. Achilleos, **P. Guio**, and C. S Arridge. Modelling magnetic fields and plasma flows in the magnetosphere of Jupiter. *Planet. Space Sci.*, 225:105609, January 2023. doi:10.1016/j.pss.2022.105609.

[8] I. Cheng, N. Achilleos, A. Masters, G. Lewis, M. Kane, and **P. Guio**. Electron Bulk Heating at Saturn's Magnetopause. *J. Geophys. Res.*, 126(5):e28800, May 2021. doi:10.1029/2020JA028800.

[9] **P. Guio** and H. L. Pécseli. The Impact of Turbulence on the Ionosphere and Magnetosphere. *Front. Astron. Space Sci.*, 7:573746, January 2021. doi:10.3389/fspas.2020.573746.

[10] F. Hardy, N. A. Achilleos, and **P. Guio**. Magnetopause Compressibility at Saturn with Internal Drivers. *Geophys. Res. Lett.*, 47(10):e86438, May 2020. doi:10.1029/2019GL086438.

[11] **P. Guio** and H. L. Pécseli. Weakly nonlinear ion sound waves in gravitational systems. *Phys. Rev. E*, 101(4):043210, April 2020. doi:10.1103/PhysRevE.101.043210.

[12] **P. Guio**, N. Staniland, N. A. Achilleos, and C. S Arridge. Trapped Particle Motion in Magnetodisk Fields. *J. Geophys. Res.*, 125(7):e27827, July 2020. doi:10.1029/2020JA027827.

[13] N. Achilleos, **P. Guio**, N. André, and A. M. Sorba. A magnetodisc model service for planetary space weather studies. *J. Space Weather Space Clim.*, 9:A24, May 2019. doi:10.1051/swsc/2019022.

[14] F. Hardy, N. A. Achilleos, and **P. Guio**. A Self-Regulating Equilibrium Magnetopause Model With Applications to Saturn. *J. Geophys. Res.*, 124(8):6833–6849, Aug 2019. doi:10.1029/2019JA026751.

[15] A. M. Sorba, N. A. Achilleos, N. Sergis, **P. Guio**, C. S Arridge, and M. K. Dougherty. Local Time Variation in the Large-Scale Structure of Saturn's Magnetosphere. *J. Geophys. Res.*, 124(9):7425–7441, September 2019. doi:10.1029/2018JA026363.

[16] N. André, M. Grande, N. Achilleos, M. Barthélémy, M. Bouchemit, K. Benson, P.-L. Blelly, E. Budnik, S. Caussarieu, B. Cecconi, T. Cook, V. Génot, **P. Guio**, A. Goutenoir, B. Grison, R. Hueso, M. Indurain, G. H. Jones, J. Lilensten, A. Marchaudon, D. Matthiäe, A. Opitz, A. Rouillard, I. Stanislawska, J. Soucek, C. Tao, L. Tomasik, and J. Vaubaillon. Virtual Planetary Space Weather Services offered by the Europlanet H2020 Research Infrastructure. *Planet. Space Sci.*, 150:50–59, January 2018. doi:10.1016/j.pss.2017.04.020.

[17] S. Erard, B. Cecconi, P. Le Sidaner, A. P. Rossi, T. Capria, B. Schmitt, V. Génot, N. André, A. C. Vandaele, M. Scherf, R. Hueso, A. Määttänen, W. Thuillot, B. Carry, N. Achilleos, C. Marmo, O. Santolik, K. Benson, P. Fernique, L. Beigbeder, E. Millour, B. Rousseau, F. Andrieu, C. Chauvin, M. Minin, S. Ivanoski, A. Longobardo, P. Bollard, D. Albert, M. Gangloff, N. Jourdane, M. Bouchemit, J.-M. Glorian, L. Trompet, T. Al-Ubaidi, J. Juaristi, J. Desmars, **P. Guio**, O. Delaa, A. Lagain, J. Soucek, and D. Pisa. VESPA: a community-driven Virtual Observatory in Planetary Science. *Planet. Space Sci.*, 150:65–85, January 2018. doi:10.1016/j.pss.2017.05.013.

[18] N. Sergis, N. Achilleos, **P. Guio**, A. Sorba, E. Roussos, C. S. Arridge, G. Balasis, M. K. Dougherty, O. Giannakis, D. C. Hamilton, S. M. Krimigis, N. Krupp, D. G. Mitchell, and C. Paranicas. Mapping Saturn's Night Side Plasma Sheet Using Cassini's Proximal Orbits. *Geophys. Res. Lett.*, 45:6798–6804, July 2018. doi:10.1029/2018GL078141.

[19] A. M. Sorba, N. A. Achilleos, **P. Guio**, C. S Arridge, N. Sergis, and M. K. Dougherty. The periodic flapping and breathing of Saturn's magnetodisk during equinox. *J. Geophys. Res.*, 123:8292–8316, October 2018. doi:10.1029/2018JA025764.

[20] L. Lamy, R. Prangé, K. C. Hansen, C. Tao, S. W. H. Cowley, T. S. Stallard, H. Melin, N. Achilleos, **P. Guio**, S. Badman, T. Kim, and N. Pogorelov. The aurorae of Uranus past equinox. *J. Geophys. Res.*, 122:3997–4008, April 2017. doi:10.1002/2017JA023918.

[21] A. M. Sorba, N. A. Achilleos, **P. Guio**, C. S Arridge, A. Masters, N. Sergis, A. J. Coates, and M. K. Dougherty. Modelling the compressibility of Saturn's magnetosphere in response to internal and external influence. *J. Geophys. Res.*, 122:1572–1589, February 2017. doi:10.1002/2016JA023544.

[22] H. Akbari, **P. Guio**, M. A. Hirsch, and J. L. Semeter. Zakharov simulations of beam-induced turbulence in the auroral ionosphere. *J. Geophys. Res.*, 121(5):4811–4825, May 2016. doi:10.1002/2016JA022605.

[23] **P. Guio** and H. L. Pécseli. Weakly nonlinear ion waves in striated electron temperatures. *Phys. Rev. E*, 93(4):043204, April 2016. doi:10.1103/PhysRevE.93.043204.

[24] H. Akbari, J. L. Semeter, M. A. Hirsch, **P. Guio**, and M. J. Nicolls. Evidence for generation of unstable suprathermal electron population in the auroral F-region. *Geophys. Res. Lett.*, 42:185–192, 2015. doi:10.1002/2014GL062598. **AGU Research Spotlight: Unstable Electron Populations in the Ionosphere**.

[25] N. M. Pilkington, N. A. Achilleos, C. S Arridge, **P. Guio**, A. Masters, L. Ray, N. Sergis, M. Thomsen, A. J. Coates, and M. K. Dougherty. Asymmetries observed in Saturn's magnetopause geometry. *Geophys. Res. Lett.*, 42:6890–6898, September 2015. doi:10.1002/2015GL065477.

[26] N. M. Pilkington, N. A. Achilleos, C. S Arridge, **P. Guio**, A. Masters, L. Ray, N. Sergis, M. Thomsen, A. J. Coates, and M. K. Dougherty. Internally Driven Large-Scale Changes in the Size of Saturn's Magnetosphere. *J. Geophys. Res.*, 120:7289–7306, September 2015. doi:10.1002/2015JA021290.

[27] G. Tinetti, P. Drossart, P. Eccleston, P. Hartogh, K. Isaak, M. Linder, C. Lovis, G. Micela, M. Ollivier, L. Puig, and et al. The EChO science case. *Experimental Astronomy*, 40:329–391, December 2015. doi:10.1007/s10686-015-9484-8.

[28] N. Achilleos, C. S. Arridge, C. Bertucci, **P. Guio**, N. Romanelli, and N. Sergis. A combined model of pressure variations in Titan's plasma environment. *Geophys. Res. Lett.*, 41:8730–8735, December 2014. doi:10.1002/2014GL061747.

[29] J. N. Yates, N. Achilleos, and **P. Guio**. Response of the Jovian thermosphere to a transient 'pulse' in solar wind pressure. *Planet. Space Sci.*, 91:27–44, February 2014. doi:10.1016/j.pss.2013.11.009.

[30] B. Isham, M. T. Rietveld, **P. Guio**, F. R. E. Forme, T. Grydeland, and E. Mjølhus. Cavitating Langmuir Turbulence in the Terrestrial Aurora. *Phys. Rev. Lett.*, 108(10):105003, March 2012. doi:10.1103/PhysRevLett.108.105003. **APS Synopsis (spotlighting exceptional research): Watch Those Cavities**.

[31] L. Lamy, R. Prangé, K. C. Hansen, J. T. Clarke, P. Zarka, B. Cecconi, J. Aboudarham, N. André, G. Branduardi-Raymont, R. Gladstone, M. Barthélémy, N. Achilleos, **P. Guio**, M. K. Dougherty, H. Melin, S. W. H. Cowley, T. S. Stallard, J. D. Nichols, and G. Ballester. Earth-based detection of Uranus' aurorae. *Geophys. Res. Lett.*, 39:7105, April 2012. doi:10.1029/2012GL051312. **AGU Press Release: Uranus auroras glimpsed from Earth**.

[32] G. Tinetti, J. P. Beaulieu, T. Henning, M. Meyer, G. Micela, I. Ribas, D. Stam, M. Swain, O. Krause, M. Ollivier, E. Pace, B. Swinyard, A. Aylward, R. van Boekel, A. Coradini, T. Encrenaz, I. Snellen, M. R. Zapatero-Osorio, J. Bouwman, J. Y-K. Cho, V. Coudé du Foresto, T. Guillot, M. Lopez-Morales, I. Mueller-Wodarg, E. Palle, F. Selsis, A. Sozzetti, P. A. R. Ade, N. Achilleos, A. Adriani, C. B. Agnor, C. Afonso, C. Allende Prieto, G. Bakos, R. J. Barber, M. Barlow, P. Bernath, B. Bezard, P. Bordé, L. R. Brown, A. Cassan, C. Cavarroc, A. Ciaravella, C. O. U. Cockell, A. Coustenis, C. Danielski, L. Decin, R. De Kok, O. Demangeon, P. Deroo, P. Doel, P. Drossart, L. N. Fletcher, M. Focardi, F. Forget, S. Fossey, P. Fouqué, J. Frith, M. Galand, P. Gaulme, J. I. González Hernández, O. Grasset, D. Grassi, J. L. Grenfell, M. J. Griffin, C. A. Griffith, U. Grözinger, M. Guedel, **P. Guio**, O. Hainaut, R. Hargreaves, P. H. Hauschildt, K. Heng, D. Heyrovsky, R. Hueso, P. Irwin, L. Kaltenegger, P. Kervella, D. Kipping, T. T. Koskinen, G. Kovács, A. La Barbera, H. Lammer, E. Lellouch, G. Leto, M. Lopez Morales, M. A. Lopez Valverde, M. Lopez-Puertas, C. Lovis, A. Maggio, J. P. Maillard, J. Maldonado Prado, J. B. Marquette, F. J.

Martin-Torres, P. Maxted, S. Miller, S. Molinari, D. Montes, A. Moro-Martin, J. I. Moses, O. Mousis, N. Nguyen Tuong, R. Nelson, G. S. Orton, E. Pantin, E. Pascale, S. Pezzuto, D. Pinfield, E. Poretti, R. Prinja, L. Prisinzano, J. M. Rees, A. Reiners, B. Samuel, A. Sanchez-Lavega, J. Sanz Forcada, D. Sasselov, G. Savini, B. Sicardy, A. Smith, L. Stixrude, G. Strazzulla, J. Tennyson, M. Tessenyi, G. Vasisht, S. Vinatier, S. Viti, I. Waldmann, G. J. White, T. Widemann, R. Wordsworth, R. Yelle, Y. Yung, and S. N. Yurchenko. EChO. Exoplanet characterisation observatory. *Exp. Astron.*, 34(2):311–353, October 2012. doi:10.1007/s10686-012-9303-4.

[33] J. N. Yates, N. Achilleos, and **P. Guio**. Influence of upstream solar wind conditions on atmospheric flows at Jupiter. *Planet. Space Sci.*, 61:15–31, February 2012. doi:10.1016/j.pss.2011.08.007.

[34] C. S. Arridge, N. Achilleos, and **P. Guio**. Electric field variability and classifications of Titan's magnetoplasma environment. *Ann. Geophysicæ*, 29(7):1253–1258, July 2011. doi:10.5194/angeo-29-1253-2011.

[35] G. Tinetti, J. Y.-K. Cho, C. A. Griffith, O. Grasset, L. Grenfell, T. Guillot, T. T. Koskinen, J. I. Moses, D. Pinfield, J. Tennyson, M. Tessenyi, R. Wordsworth, A. Aylward, R. van Boekel, A. Coradini, T. Encrenaz, I. Snellen, M. R. Zapatero-Osorio, J. Bouwman, V. C. du Foresto, M. Lopez-Morales, I. Mueller-Wodarg, E. Pallé, F. Selsis, A. Sozzetti, J.-P. Beaulieu, T. Henning, M. Meyer, G. Micela, I. Ribas, D. Stam, M. Swain, O. Krause, M. Ollivier, E. Pace, B. Swinyard, P. A. R. Ade, N. Achilleos, A. Adriani, C. B. Agnor, C. Afonso, C. A. Prieto, G. Bakos, R. J. Barber, M. Barlow, P. Bernath, B. Bézard, P. Bordé, L. R. Brown, A. Cassan, C. Cavarroc, A. Ciaravella, C. Cockell, A. Coustenis, C. Danielski, L. Decin, R. De Kok, O. Demangeon, P. Deroo, P. Doel, P. Drossart, L. N. Fletcher, M. Focardi, F. Forget, S. Fossey, P. Fouqué, J. Frith, M. Galand, P. Gaulme, J. I. G. Hernández, D. Grassi, M. J. Griffin, U. Grözinger, M. Guedel, **P. Guio**, O. Hainaut, R. Hargreaves, P. H. Hauschildt, K. Heng, D. Heyrovsky, R. Hueso, P. Irwin, L. Kaltenegger, P. Kervella, D. Kipping, G. Kovacs, A. L. Barbera, H. Lammer, E. Lellouch, G. Leto, M. L. Morales, M. A. L. Valverde, M. Lopez-Puertas, C. Lovi, A. Maggio, J.-P. Maillard, J. M. Prado, J.-B. Marquette, F. J. Martin-Torres, P. Maxted, S. Miller, S. Molinari, D. Montes, A. Moro-Martin, O. Mousis, N. N. Tuong, R. Nelson, G. S. Orton, E. Pantin, E. Pascale, S. Pezzuto, E. Poretti, R. Prinja, L. Prisinzano, J.-M. Réess, A. Reiners, B. Samuel, J. S. Forcada, D. Sasselov, G. Savini, B. Sicardy, A. Smith, L. Stixrude, G. Strazzulla, G. Vasisht, S. Vinatier, S. Viti, I. Waldmann, G. J. White, T. Widemann, R. Yelle, Y. Yung, and S. Yurchenko. The science of EChO. In A. Sozzetti, M. G. Lattanzi, & A. P. Boss, editor, *IAU Symposium*, volume 276 of *IAU Symposium*, pages 359–370, November 2011. doi:10.1017/S1743921311020448.

[36] N. Achilleos, **P. Guio**, and C. S. Arridge. A model of force balance in Saturn's magnetodisc. *Mon. Not. R. Astron. Soc.*, 401(4):2349–2371, February 2010. doi:10.1111/j.1365-2966.2009.15865.x.

[37] N. Achilleos, **P. Guio**, C. S. Arridge, N. Sergis, R. J. Wilson, M. F. Thomsen, and A. J. Coates. Influence of hot plasma pressure on the global structure of Saturn's magnetodisk. *Geophys. Res. Lett.*, 37:L20201–+, October 2010. doi:10.1029/2010GL045159.

[38] **P. Guio** and H. L. Pécseli. Collisionless plasma shocks in striated electron temperatures. *Phys. Rev. Lett.*, 104(8):085002–+, February 2010. doi:10.1103/PhysRevLett.104.085002.

[39] R. J. Barber, S. Miller, N. Dello Rosso, M. J. Mumma, J. Tennyson, and **P. Guio**. Water in the Near IR spectrum of Comet 8P/Tuttle. *Mon. Not. R. Astron. Soc.*, 398(3):1593–1600, September 2009. doi:10.1111/j.1365-2966.2009.15239.x.

[40] **P. Guio** and N. Achilleos. The VOISE Algorithm: a Versatile Tool for Automatic Segmentation of Astronomical Images. *Mon. Not. R. Astron. Soc.*, 398(3):1254–1262, September 2009. doi:10.1111/j.1365-2966.2009.15218.x.

[41] **P. Guio**, W. Miloch, H. L. Pécseli, and J. Trulsen. Sound radiation from moving point-like charged particles in plasmas. In P. K. Shukla, B. Eliasson, & L. Stenflo, editor, *ICTP Int. Workshop on the Frontiers of Modern Plasma Physics*, volume 1061 of *AIP Conference Series*, pages 142–151. American Institute of Physics, October 2008. doi:10.1063/1.3013762. ISBN 978-0-7354-0591-2.

[42] **P. Guio**, W. J. Miloch, H. L. Pécseli, and J. Trulsen. Patterns of sound radiation behind pointlike charged obstacles in plasma flows. *Phys. Rev. E*, 78(1):016401–+, July 2008. doi:10.1103/PhysRevE.78.016401.

[43] J. Montagnat, Á Frohner, D. Jouvenot, C. Pera, P. Kunszt, N. Santos, C. Loomis, R. Texier, D. Lingrand, **P. Guio**, R. B. da Rocha, R. S. de Almeida, and Z. Farkas. A secure grid medical data manager interfaced to the gLite middleware. *J. Grid Computing*, 6(1):45–59, March 2008. doi:10.1007/s10723-007-9088-2. URL http://dx.doi.org/10.1007/s10723-007-9088-2.

[44] **P. Guio** and F. Forme. Zakharov simulations of Langmuir turbulence: effects on the ion-acoustic waves in incoherent scattering. *Phys. Plasmas*, 13(12):122902–+, December 2006. doi:10.1063/1.2402145.

[45] J. Montagnat, D. Jouvenot, C. Pera, Á Frohner, P. Kunszt, B. Koblitz, N. Santos, C. Loomis, R. Texier, **P. Guio**, R. B. da Rocha, Z. Farkas, D. Lingrand, and A. S. de Almeida. Bridging clinical information systems and grid middleware: a Medical Data Manager. In V Hernandez and I Blanquer, editors, *Challenges and Opportunities of Healthgrids*, volume 120 of *Studies in Health Technology and Informatics*, pages 14–24, 2006. ISBN 978-1-58603-617-1.

[46] **P. Guio** and H. L. Pécseli. Phase space structures generated by absorbing obstacles in streaming plasmas. *Ann. Geophysicæ*, 23:853–865, March 2005. doi:10.5194/angeo-23-853-2005.

[47] **P. Guio** and H. L. Pécseli. Phase space structures generated by an absorbing obstacle in a streaming plasma. *Geophys. Res. Lett.*, 31:L03806–+, February 2004. doi:10.1029/2003GL018461.

[48] **P. Guio**, S. Børve, L. K. S. Daldorff, J. P. Lynov, P. Michelsen, H. L. Pécseli, J. J. Rasmussen, K. Saeki, and J. Trulsen. Phase space vortices in collisionless plasmas. *Nonlin. Proc. in Geophys.*, 10:75–86, 2003. doi:10.5194/npg-10-75-2003.

[49] **P. Guio** and H. L. Pécseli. Radiation of sound from a charged dust particle moving at high velocity. *Phys. Plasmas*, 10:2667–2676, July 2003. doi:10.1063/1.1585031.

[50] H. C. Carlson, K. Oksavik, J. Moen, A. P. van Eyken, and **P. Guio**. ESR mapping of polar-cap patches in the dark cusp. *Geophys. Res. Lett.*, 29:1386, May 2002. doi:10.1029/2001GL014087.

[51] L. K. S. Daldorff, **P. Guio**, S. Børve, H. L. Pécseli, and J. Trulsen. Ion phase-space vortices in 3 spatial dimensions. *Europhys. Lett.*, 54:161–167, April 2001. doi:10.1209/epl/i2001-00290-6.

[52] **P. Guio**, S. Børve, H. L. Pécseli, and J. Trulsen. Low frequency waves in plasmas with spatially varying electron temperature. *Ann. Geophysicæ*, 18:1613–1622, January 2001. doi:10.1007/s00585-001-1613-1.

[53] **P. Guio** and J. Lilensten. Effect of suprathermal electrons on the intensity and doppler frequency of electron plasma lines. *Ann. Geophysicæ*, 17:903–912, July 1999. doi:10.1007/s00585-999-0903-x.

[54] **P. Guio**, J. Lilensten, W. Kofman, and N. Bjørnå. Electron velocity distribution function in a plasma with temperature gradient and in the presence of suprathermal electrons: application to incoherent-scatter plasma lines. *Ann. Geophysicæ*, 16:1226–1240, October 1998. doi:10.1007/s00585-998-1226-z.

[55] **P. Guio**, N. Bjørnå, and W. Kofman. Alternating-code experiment for plasma-line studies. *Ann. Geophysicæ*, 14:1473–1479, December 1996. doi:10.1007/s00585-996-1473-9.

Submitted

In preparation

[56] **P. Guio**, N. A. Achilleos, and C. Paranicas. Effect of magnetodisc fields on plasma injection signatures, 2025.

Book Chapters, Reports and Theses

[1] N. Achilleos, **P. Guio**, F. Hardy, C. Paranicas, and A. M. Sorba. The Magnetodisc Regions of Jupiter and Saturn. In R. Maggiolo; N. André; H. Hasegawa; D. Welling, editor, *Magnetospheres of the solar system*, volume Space Physics and Aeronomy, chapter 29, pages 455–469. Wiley, Hoboken, NJ, USA, May 2021. doi:10.1002/9781119815624.ch29. ISBN 978-1-119-50752-9.

[2] **P. Guio**, A. Aruliah, A. Aylward, A. Bushell, and Henley E. Fabry-Pérot Interferometer and CMAT2 model. In A. Belehaki, editor, *The ESPAS e-infrastructure: Access to data from near-Earth space*, chapter 3.1, pages 29–45. EDP Sciences, Les Ulis, France, 2017. doi:10.1051/978-2-7598-1949-2. URL https://www.edp-open.org/books/edp-open-books/336-the-espas-e-infrastructure. ISBN 978-2-7598-1949-2.

[3] **P. Guio**. PICSim – Validation and Improvement for Large Scale Simulations . In *HPC-Europa2 Science and Supercomputing in Europe Research Highlights 2012*. CINECA, 2012.

[4] **P. Guio**. PICSim: 5D/6D Particle-In-Cell Plasma Simulation – Code Porting, Validation, Optimising and Benchmarking. In *HPC-Europa2 Science and Supercomputing in Europe Research Highlights 2012*. CINECA, 2012.

[5] **P. Guio**. One-dimensional Zakharov solver with noise source terms: Itô calculus, 2005. (unpublished).

[6] **P. Guio**. MUDFAS: a nonlinear multigrid Poisson equation solver, 2000. (unpublished).

[7] **P. Guio**. *Studies of ionospheric parameters by means of electron plasma lines observed by EISCAT*. PhD thesis, Université Joseph Fourier, Grenoble, France / University of Tromsø, Norway, December 1998. doi:10.5281/zenodo.634010. ISBN-10 82-90487-92-4, ISBN-13 978-82-90487-92-3.

Conference Contributions and Proceedings

[1] N. Achilleos and **P. Guio**. Charged Particle Motion in a Dynamic Magnetodisc. In *Magnetospheres of the Outer Planets*, Toulouse, France, July 2026.

[2] Bag, T., and Virtanen, I. and Gupta, M. and **P. Guio** and Gustavsson, B. Estimation of F_1 Region Ion Composition Using Incoherent Scatter Plasma Line Data. In 22^{nd} *EISCAT Symposium*, Kiruna, Sweden, August 2026.

[3] Isham, B. and Belyey and Stramkals and **P. Guio** and Rietveld, M. and Gallop and La Hoz, C. The EISCAT LT Observing Programs and External Contributions to Science at EISCAT. In 22^{nd} *EISCAT Symposium*, Kiruna, Sweden, August 2026.

[4] A. Santos, N. Achilleos, and **P. Guio**. A study of the Jovian current sheet in the Juno era, using a combined modelling approach . In *AGU Fall Meeting*, San Francisco, USA, December 2025.

[5] A. Santos, N. Achilleos, D. Millas, W. Dunn, and **P. Guio**. A study of the Jovian current sheet in the Juno era, using a combined modelling approach . In *IAGA / IASPEI 2025*, Lisbon, Portugal, September 2025.

[6] M. Gupta and **P. Guio**. Modelling ISR plasma line frequency using ALPS dispersion relation solver. In *EGU General Assembly*, pages EGU–14792, Vienna, Austria, April 2024. doi:10.5194/egusphere-egu24-14792.

[7] C. Paranicas, P. Kollmann, L. Regoli, J. Kinrade, E. Roussos, N. Krupp, G. Clark, N. Achilleos, and **P. Guio**. Flux enhancements at Saturn and their various sources. In *AGU Fall Meeting*, pages SM51B–05, San Francisco, USA, December 2024.

[8] M. Gupta, **P. Guio**, and J. Vierinen. Data reduction of plasma lines in Incoherent Scatter Radar spectrum. In *EGU General Assembly*, pages EGU–14830, Vienna, Austria, April 2023. doi:10.5194/egusphere-egu23-14830.

[9] D. Millas, N. Achilleos, **P. Guio**, and C. S. Arridge. Investigating the compressibility of the Jovian magnetosphere. In *EGU General Assembly*, pages EGU–15246, Vienna, Austria, April 2023. doi:10.5194/egusphere-egu23-15246.

[10] D. Millas, N. Achilleos, and **P. Guio**. Loss of charged particles due to pitch angle scattering in the Jovian magnetodisc. In *AGU Fall Meeting*, pages SM43B–07, Chicago, USA, December 2022.

[11] D. Millas, N. Achilleos, **P. Guio**, and C. S. Arridge. Models of the Jovian magnetodisc & applications. In *44th COSPAR Scientific Assembly*, page 508, Athens, Greece, July 2022.

[12] D. Millas, N. Achilleos, **P. Guio**, and Q. Nénon. Particle motion and pitch angle scattering due to magnetic field curvature in the Jovian magnetosphere. In *Magnetospheres of the Outer Planets*, Liège, Belgium, July 2022.

[13] I. Cheng, N. Achilleos, and **P. Guio**. Automated Bow Shock and Magnetopause Boundary Classification At Saturn Using Statistics of Magnetic Fields and Particle Flux. In *AGU Fall Meeting*, volume 2021, pages SM45G–14, New orleans, USA, December 2021.

[14] I. Cheng, N. Achilleos, and **P. Guio**. Automated plasma region classification and magnetic field statistics in Saturn's magnetosphere. In *Magnetospheres of the Outer Planets*, Virtual meeting by Université de Liège, Belgium, July 2021.

[15] D. Millas, N. Achilleos, **P. Guio**, and C. S. Arridge. Particle motion and scattering in the magnetospheres of giant planets. In *AGU Fall Meeting*, volume 2021, pages SM43B–07, New orleans, USA, December 2021.

[16] D. Millas, N. Achilleos, **P. Guio**, and C. S. Arridge. The compressibility of the Jovian magnetosphere. In *Magnetospheres of the Outer Planets*, Virtual meeting by Université de Liège, Belgium, July 2021.

[17] N. André, V. Génot, A. Opitz, B. Cecconi, N. Achilleos, **P. Guio**, A. Milillo, A. Mura, Y. Futaana, and S. Hess. Sun Planet Interactions Digital Environment on Request (SPIDER) for Europlanet RI H2024. In *Europlanet Science Congress*, Virtual meeting, October 2020.

[18] **P. Guio**. Trapped Particle Dynamics at the Gas Giants. In 14^{th} *BCSS Meeting*, Bergen University, September 2020.

[19] **P. Guio**, N. Achilleos, and N. André. Particle Motions in Planetary Magnetic Fields: Europlanet Service. In *Europlanet Science Congress*, Virtual meeting, October 2020.

[20] **P. Guio**, N. Achilleos, and C. Paranicas. Effect of Magnetodisc Fields on Plasma Injection Signatures. In *Magnetospheres of the Outer Planets*, Sendai, Japan, June 2019.

[21] **P. Guio**, N. Achilleos, and C. Paranicas. Effect of the Magnetodisc Field on Plasma Injection Signatures at Saturn. In *AGU Fall Meeting*, San Francisco, USA, December 2019. doi:10.1002/essoar.10501339.1.

[22] W. R. Dunn, G. Branduardi-Raymont, R. Elsner, R. Gray, P. Ford, G. R. Gladstone, L. Ray, C. Jackman, N. Achilleos, **P. Guio**, J. Nichols, R. Ebert, D. McComas, H. Elliott, I. J. Rae, Z. Yao, S. Badman, and R. Kraft. Jupiter's X-ray Aurora During Solar Minimum. In *Magnetospheres of the Outer Planets*, Boulder, USA, July 2018.

[23] F. Hardy, N. Achilleos, and **P. Guio**. Towards a self-regulating magnetopause model with application to Saturn. In *Magnetospheres of the Outer Planets*, Boulder, USA, July 2018.

[24] **P. Guio**, N. Achilleos, and C. S. Arridge. Effects of the Size of Gas Giant Magnetospheres on Dynamics of Trapped Particles. In *Magnetospheres of the Outer Planets*, Boulder, USA, July 2018.

[25] N. Sergis, N. Achilleos, **P. Guio**, A. Sorba, E. Roussos, C. Paranicas, S. M. Krimigis, M. K. Dougherty, D. C. Hamilton, N. Krupp, and D. G. Mitchell. Distribution of hot ion plasma in Saturn's middle magnetosphere, from >13 years of Cassini orbits. In *Magnetospheres of the Outer Planets*, Boulder, USA, July 2018.

[26] A. Sorba, N. Achilleos, N. Sergis, **P. Guio**, C. S. Arridge, and M. Dougherty. Investigating how the large -scale structure of Saturn's magnetosphere varies with local time using a combined data and modeling approach. In *Magnetospheres of the Outer Planets*, Boulder, USA, July 2018.

[27] N. Achilleos, **P. Guio**, and C. S. Arridge. Modelling Magnetodisc Response to Solar Wind Events. In *European Planetary Science Congress*, volume 11, pages EPSC2017–899, Riga, Latvia, September 2017.

[28] **P. Guio**, N. Achilleos, C. S. Arridge, and N. Sandiland. Dynamics of Charged Particles Trapped in a Gas Giant Magnetodisc. In *Magnetospheres of the Outer Planets*, Uppsala, Sweden, June 2017.

[29] **P. Guio**, N. Sandiland, N. Achilleos, and C. S. Arridge. Trapped Particle Motion In Magnetodisc Fields. In *AGU Fall Meeting*, New Orleans, USA, December 2017. doi:10.1002/essoar.b61258bcb9fd8ed4.2183cd6ce4bf4386.1.

[30] N. Sergis, N. Achilleos, **P. Guio**, A. Sorba, E. Roussos, C. S. Arridge, G. Balasis, M. K. Dougherty, O. Giannakis, D. C. Hamilton, S. M. Krimigis, N. Krupp, D. G. Mitchell, and C. Paranicas. Mapping Saturn's Night Side Plasma Sheet Using Cassini's Proximal Orbits. In *AGU Fall Meeting*, New Orleans, USA, December 2017.

[31] A. Sorba, N. Achilleos, **P. Guio**, C. S. Arridge, M. Dougherty, and N. Sergis. The Periodic Flapping and Breathing of Saturn's Magnetodisk During Equinox. In *AGU Fall Meeting*, New Orleans, USA, December 2017.

[32] A. Sorba, N. Achilleos, **P. Guio**, C. S. Arridge, N. Sergis, and M. Dougherty. Investigating the periodic 'flapping' and 'breathing' behaviour of Saturn's magnetodisc using Cassini equinox data. In *Magnetospheres of the Outer Planets*, Uppsala, Sweden, June 2017.

[33] N. Achilleos, **P. Guio**, C. S. Arridge, L. C. Ray, J. N. Yates, S. J. Fossey, G. Savini, M. Pearson, N. Fernando, R. Gerasimov, and T. Murat. Model Predictions and Ground-based Observations for Jupiter's Magnetospheric Environment: Application to the JUICE and Juno Missions. In *AGU Fall Meeting*, San Francisco, USA, December 2016.

[34] N. Achilleos, **P. Guio**, C. S. Arridge, L. C. Ray, J. N. Yates, S. J. Fossey, G. Savini, M. Pearson, N. Fernando, R. Gerasimov, and T. Murat. Model Predictions and Ground-based Observations for Jupiter's Magnetospheric Environment: Application to the JUICE and Juno Missions. In *Joint AAS/Division for Planetary Sciences and European Planetary Science Congress*, volume 48, page 422.07, Pasadena, USA, October 2016.

[35] **P. Guio**, W. O'Brien, N. Achilleos, and C. S. Arridge. Charged Particle Dynamics in a Magnetodisc-Field Structure. In *AGU Fall Meeting*, San Francisco, USA, December 2016.

[36] E. Henley, A. Bushell, D. Jackson, **P. Guio**, and I. Häggström. Comparison of Observed and Modelled Thermospheric Winds above Northern Scandinavia. In *AGU Fall Meeting*, San Francisco, USA, December 2015.

[37] N. M. Pilkington, N. A. Achilleos, C. S. Arridge, **P. Guio**, A. Masters, N. Sergis, A. J. Coates, and M. K. Dougherty. Internally Driven, Dynamical Behaviour of Saturn's Magnetosphere. In *EGU General Assembly*, Vienna, Austria, April 2015.

[38] N. A. Achilleos, C. S. Arridge, **P. Guio**, N. M. Pilington, A. Masters, N. Sergis, and M. K. Dougherty. Modelling the Compressibility of Saturn's Magnetosphere. In *AGU Fall Meeting*, page 4296, San Francisco, USA, December 2014.

[39] B. Isham, V. Belyey, **P. Guio**, J. W. Labelle, M. T. Rietveld, C. La Hoz, and T. B. Leyser. Nonthermal Electrostatic Plasma Modes in the Ionosphere. In *AGU Fall Meeting*, page B4251, San Francisco, USA, December 2014.

[40] N. M. Pilkington, N. A. Achilleos, C. S. Arridge, **P. Guio**, A. Masters, N. Sergis, A. J. Coates, and M. K. Dougherty. Internally Driven, Dynamical Behaviour of Saturn's Magnetosphere. In *AGU Fall Meeting*, page D5, San Francisco, USA, December 2014.

[41] N. A. Achilleos, C. S. Arridge, C. Bertucci, **P. Guio**, and N. Romanelli. Modelling plasma conditions upstream of Titan. In *AGU Fall Meeting*, page B2189, San Francisco, USA, December 2013.

[42] N. A. Achilleos, C. S. Arridge, **P. Guio**, and C. Paranicas. Jupiter's Auroral Oval as a Probe of Magnetospheric Configuration. In *Magnetospheres of the Outer Planets*, Athens, Greece, July 2013.

[43] H. Akbari, J. L. Semeter, and **P. Guio**. Ionospheric beam-plasma interactions: production of quasi-mode in the ion density. In *AGU Fall Meeting*, page A1954, San Francisco, USA, December 2013.

[44] A. Belehaki, T. Gerzen, H. Barkmann, J. Watermann, I. Tsagouri, D. Heynderickx, A. Bushell, E. Henley, A. Aylward, and **P. Guio**. The design of value added services to serve ESPAS users. In *European Space Weather Week 10*, Antwerp, Belgium, November 2013.

[45] B. Isham, **P. Guio**, M. T. Rietveld, F. Forme, T. Grydeland, and E. Mjølhus. Naturally-enhanced Electrostatic Modes and Cavitating Turbulence in the Ionosphere. In *AGU Fall Meeting*, page A2053, San Francisco, USA, December 2013.

[46] **P. Guio**. Observation and Modelling of Langmuir turbulence in the Earth's ionosphere. In *Seminar Series – Centre for Space Physics*, Boston University, November 2013.

[47] J. Yates, N. A. Achilleos, **P. Guio**, and L. Ray. The Jovian thermospheric response to multiple solar wind shocks. In *European Planetary Science Congress*, page 729, London, United Kingdom, September 2013.

[48] N. A. Achilleos, C. S. Arridge, and **P. Guio**. Modeling the Forces in Saturn's Warped Magnetodisc. In *EGU General Assembly*, volume 14, page 8582, Vienna, Austria, April 2012.

[49] N. A. Achilleos, C. S. Arridge, and **P. Guio**. Shifts in jovian auroral features associated with time-dependent mass-loading. In *RAS Discussion Meeting*, London, UK, March 2012.

[50] N. A. Achilleos, **P. Guio**, and C. S. Arridge. Modelling Planetary Magnetodiscs. In *AGU Fall Meeting*, San Francisco, USA, December 2012.

[51] C. S. Arridge, N. A. Achilleos, and **P. Guio**. Modulation of the jovian ring current due to impulsive volcanism on Io. In *European Planetary Science Congress*, page 805, Madrid, Spain, September 2012.

[52] L. Lamy, R. Prangé, K. C. Hansen, J. T. Clarke, P. Zarka, B. Cecconi, J. Aboudarham, N. André, G. Branduardi-Raymont, R. Gladstone, M. Barthélémy, N. Achilleos, **P. Guio**, M. K. Dougherty, H. Melin, S. W. H. Cowley, T. S. Stallard, J. D. Nichols, and G. Ballester. Earth-based characterization of Uranus' aurorae. In *European Planetary Science Congress*, page 811, Madrid, Spain, September 2012.

[53] L. Lamy, P. Zarka, B. Cecconi, J. Aboudarham, K. C. Hansen, J. T. Clarke, N. André, G. Branduardi-Raymont, R. Gladstone, M. Barthélémy, N. Achilleos, **P. Guio**, M. K. Dougherty, H. Melin, S. W. H. Cowley, T. S. Stallard, J. D. Nichols, and G. Ballester. Observations of Uranus' auroral emissions. In *AGU Fall Meeting*, page C8, San Francisco, USA, December 2012.

[54] **P. Guio**, N. A. Achilleos, L. Lamy, and R. Prangé. Determining Disc Parameters in Planetary Images. In *AGU Fall Meeting*, page A2300, San Francisco, USA, December 2012.

[55] **P. Guio**, N. A. Achilleos, O. Santolik, A. Masters, and C. S. Arridge. Magnetic Field Statistics in Saturn's Magnetosphere. In *EGU General Assembly*, page 8849, Vienna, Austria, April 2012.

[56] J. Yates, N. Achilleos, and **P. Guio**. Perturbation of the Jovian thermosphere by a transient solar wind pulse . In *EGU General Assembly*, page 9169, Vienna, Austria, April 2012.

[57] J. Yates, N. A. Achilleos, and **P. Guio**. Perturbation of the Jovian thermosphere by a transient solar wind pulse. In *RAS Discussion Meeting*, London, UK, March 2012.

[58] J. Yates, N. A. Achilleos, and **P. Guio**. Response of Jovian atmospheric heating to a transient 'pulse' in solar wind pressure. In *European Planetary Science Congress*, page 675, Madrid, Spain, September 2012.

[59] J. Yates, N. A. Achilleos, and **P. Guio**. Transient heating of the Jovian thermosphere. In *AGU Fall Meeting*, page A2292, San Francisco, USA, December 2012.

[60] N. A. Achilleos, C. S. Arridge, and **P. Guio**. Modeling the Forces in Saturn's Warped Magnetodisc. In *AGU Fall Meeting*, page A2002, San Francisco, USA, December 2011.

[61] B. Isham, M. T. Rietveld, **P. Guio**, F. Forme, T. Grydeland, and E. Mjølhus. Cavitating Langmuir Turbulence in the Terrestrial Aurora. In *AGU Fall Meeting*, page A1847, San Francisco, USA, December 2011.

[62] **P. Guio**, N. A. Achilleos, O. Santolik, A. Masters, and C. S. Arridge. Magnetic Field Statistics in Saturn's Magnetosphere. In *AGU Fall Meeting*, page A1996, San Francisco, USA, December 2011.

[63] **P. Guio** and A. Zaslavsky. Effects of density inhomogeneities on the statistics of Langmuir waves in the solar wind. In *EGU General Assembly*, Vienna, Austria, April 2011.

[64] J. Yates, N. Achilleos, and **P. Guio**. Influence of transient magnetospheric compressions on thermospheric flows at Jupiter. In *EGU General Assembly*, Vienna, Austria, April 2011.

[65] J. Yates, N. Achilleos, and **P. Guio**. Influence of Upstream Solar Wind on Thermospheric Flows at Jupiter. In *Magnetospheres of the Outer Planets*, Boston, USA, July 2011.

[66] N. Achilleos, C. S. Arridge, and **P. Guio**. Influence of hot plasma pressure on magnetodisc structure at Saturn. In *Royal Astronomical Society National Astronomy Meeting*, Glasgow, UK, April 2010.

[67] N. Achilleos, **P. Guio**, C. S. Arridge, and N. Sergis. Influence of hot plasma on magnetodisc structure at Saturn. In *EGU General Assembly*, volume 12, pages 10173–+, Vienna, Austria, May 2010.

[68] C. S. Arridge, N. Achilleos, and **P. Guio**. Self-consistent Euler potential modelling of the jovian magnetodisc. In *European Planetary Science Congress*, Rome, Italy, September 2010.

[69] C. S. Arridge, N. Achilleos, **P. Guio**, and C. M. Jackman. Solar wind and internally-driven motions of Saturn's magnetotail. In *European Planetary Science Congress*, pages 799–+, Rome, Italy, September 2010.

[70] C. S. Arridge, N. A. Achilleos, and **P. Guio**. Modulation of the jovian ring current and magnetodisc due to impulsive volcanic activity on Io. In *AGU Fall Meeting*, pages D1+, San Francisco, USA, December 2010.

[71] **P. Guio**. Langmuir turbulence in the Earth's ionosphere: theory and observation. In *Rencontres Niçoises de Mécanique des Fluides*, Observatoire de Nice, June 2010.

[72] **P. Guio** and N. Achilleos. Algorithm for planetary limb/terminator extraction using Voronoi tessellation. In *European Planetary Science Congress*, pages 672–+, Rome, Italy, September 2010.

[73] **P. Guio** and A. Zaslavsky. Langmuir waves observed by S/WAVES in the solar wind: nonlinear effects of the inhomogeneous plasma. In *AGU Fall Meeting*, pages D1720+, San Francisco, USA, December 2010.

[74] J. Yates, N. Achilleos, and **P. Guio**. Influence of upstream solar wind conditions on atmospheric flows at Jupiter. In *Royal Astronomical Society National Astronomy Meeting*, Glasgow, UK, April 2010.

[75] J. Yates, N. Achilleos, and **P. Guio**. Response of Jupiter's thermospheric flows to different magnetospheric conditions. In *EGU General Assembly*, volume 12, pages 10966–+, Vienna, Austria, May 2010.

[76] N. Achilleos, C. S. Arridge, and **P. Guio**. Adventures with Saturn's Magnetodisc. In *48th Cassini Project Science Group Meeting*, London, UK, June 2009.

[77] N. Achilleos, C. S. Arridge, and **P. Guio**. Force Balance in Saturn's Warped Magnetodisc. In *Magnetospheres of the Outer Planets*, Cologne, Germany, July 2009.

[78] N. A. Achilleos, C. S. Arridge, and **P. Guio**. Magnetodisc Structure: Saturn versus Jupiter. In *AGU Fall Meeting*, pages C1624+, San Francisco, USA, December 2009.

[79] C. S. Arridge, N. A. Achilleos, **P. Guio**, F. Bagenal, and R. Wilson. Self-consistent Euler potential modelling of the Jovian magnetodisc. In *AGU Fall Meeting*, pages B1613+, San Francisco, USA, December 2009.

[80] M. B. Lystrup, **P. Guio**, T. Satoh, N. A. Achilleos, and J. E. Connerney. Imaging studies of Jupiter's H_3^+ infrared aurora. In *AGU Fall Meeting*, pages B1715+, San Francisco, USA, December 2009.

[81] **P. Guio** and N. Achilleos. Detection of Magnetically Organized Auroral Features by Segmentation Technique. In *Magnetospheres of the Outer Planets*, Cologne, Germany, July 2009.

[82] **P. Guio**, N. A. Achilleos, and R. Prangé. Auroral Feature Detection by combined Image Segmentation and Clustering Analysis. In *AGU Fall Meeting*, pages A1689+, San Francisco, USA, December 2009.

[83] H. L. Pécseli and **P. Guio**. Weakly nonlinear ion-sound waves in inhomogeneous electron temperature, magnetized plasmas. In *AGU Fall Meeting*, pages B1372+, San Francisco, USA, December 2009.

[84] N. Achilleos, C. S. Arridge, and **P. Guio**. Modeling of a Giant Planet Magnetodisc. In *AGU Fall Meeting Abstracts*, pages B1263+, San Francisco, USA, December 2008.

[85] **P. Guio**. Langmuir turbulence and energy dissipation in the ionosphere. In *21st UCL Astronomy Colloquium: Exploration of the Solar System*, Cumberland Lodge, Windsor Great Park, UK, July 2008.

[86] **P. Guio**, N. Achilleos, J. Nichols, and J. T. Clarke. Automatic Segmentation of Jupiter's Aurora on HST images. In *AGU Fall Meeting Abstracts*, pages B1663+, San Francisco, USA, December 2008.

[87] **P. Guio**, W. Miloch, H. L. Pécseli, and J. Trulsen. Ion focusing behind point-like charged obstacles in a plasma flow. In *XXIX General Assembly of the URSI*, Chicago, Illinois, USA, August 2008.

[88] **P. Guio**, W. Miloch, H. L. Pécseli, and J. Trulsen. Sound radiation from moving point-like charged particles in plasmas. In *ICTP International Workshop on the Frontiers of Modern Plasma Physics*, Trieste, Italy, July 2008.

[89] **P. Guio**. Zakharov simulation of Langmuir turbulence: effects on waves as observed by incoherent scattering. In 13^{th} *International EISCAT Workshop*, Mariehamn, Finland, August 2007.

[90] A. Frohner, P. Kunszt, R. B. da Rocha, **P. Guio**, J. Montagnat, D. Jouvenot, C. Pera, and Z. Farkos. Encrypted data storage in EGEE. In *EGEE Users Forum*, CERN, Geneva, Switzerland, March 2006.

[91] F. Forme and **P. Guio**. Langmuir turbulence in the ionosphere. In 8^{th} *International Workshop on the Interrelationship between Plasma Experiments in Laboratory and Space*, Tromsø, Norway, July 2005.

[92] F. Forme and **P. Guio**. Parametric decay instability of beam-driven Langmuir waves in the auroral ionosphere. In *EGU General Assembly*, Vienna, Austria, April 2005.

[93] F. Forme and **P. Guio**. Zakharov equations to explain Naturally Enhanced Ion Acoustic Lines. In *EISCAT 2003 Workshop*, Menlo Park, USA, August 2003.

[94] **P. Guio** and Pécseli, H. L. Radiation of sound from a charged dust particle. In 26^{th} *International Conference on Phenomena in Ionized Gases*, volume 1, pages 227–228, Greifswald, Germany, July 2003.

[95] F. Forme and **P. Guio**. Parametric decay of beam generated Langmuir waves in the upper ionosphere. In 10^{th} *EISCAT Scientific Workshop*, Tokyo, Japan, July 2001.

[96] F. Forme, **P. Guio**, C. La Hoz, M. Rietveld, B. Isham, and T. Grydeland. Parametric decay of beam generated Langmuir wave in the upper ionosphere. In 26^{th} *EGS General Assembly, Nice*, Nice, France, March 2001.

[97] A. Strømme, U.-P. Løvhaug, N. Bjørnå, and **P. Guio**. Anomalous incoherent scatter spectra and ion outflow observed with the eiscat svalbard radar. In *Ninth EISCAT Scientific Workshop*, Wernigerode, Germany, September 1999.

[98] **P. Guio**. A simple model for the velocity distribution of particles in a plasma with temperature gradient. In 23^{rd} *EGS General Assembly*, Nice, France, April 1998.

[99] **P. Guio** and J. Lilensten. Doppler frequency interpretation of incoherent scatter plasma lines. In 23^{rd} *EGS General Assembly*, Nice, France, April 1998.

[100] **P. Guio**, J. Lilensten, W. Kofman, and N. Bjørnå. Incoherent scattering plasma lines in presence of suprathermal electrons. In *Eighth EISCAT Scientific Workshop*, Leicester, UK, June 1997.

[101] **P. Guio**, N. Bjørnå, and W. Kofman. Alternating code for plasma line studies. In *Seventh EISCAT Scientific Workshop*, Cargèse, France, October 1995.

[102] **P. Guio**, A. P. van Eyken, W. Kofman, and B. Cabrit. Plasma lines at the peak of the F-layer. In *Sixth EISCAT Scientific Workshop*, Andenes, Norway, September 1993.