

GEORGE LIVADIOTIS

Ph.D., Research Scientist

Princeton University

Astrophysical Sciences

- BRIEF RESUME**
- ANALYTICAL CURRICULUM VITAE**
- PUBLICATION RECORD**

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A. BRIEF RESUME

GEORGE LIVADIOTIS, Ph.D., Senior Research Scientist

1. Professional Preparation / Education

Ph.D., in Physics, 2007; **M.Sc.**, in Astrophysics, Astronomy and Theoretical Mechanics, 2002; **B.Sc. #1**, in Physics, 1999; **B.Sc. #2**, in Chemistry, 2008; All by: National & Kapodistrian University of Athens, Greece (<https://en.uoa.gr/>).

2. Professional Appointments

1. Research Scholar (Princeton University, Astrophysical Sciences, USA, 2021-present): Space Physics Group.
2. Senior Research Scientist (Southwest Research Institute, USA, 2015-2021): Plasma & Space Physics.
3. Adjunct Physics Instructor (Univ. of Texas at San Antonio, 2018-2019): Statistical Mechanics in Space Plasmas.
4. Adjunct Physics Instructor (St. Marys University, 2015-2016): Dynamics.
5. Associate Scientist (Physics Dept, National & Kap. Univ. of Athens, Greece, 2008-2015): graduate supervisor
6. Research Scientist (Southwest Research Institute, USA, 2012-2015): Plasma & Space Physics.
7. Researcher Scholar (Southwest Research Institute, USA, 2008-2012): Modeling & data analysis of space plasmas.
8. Post-Doctoral Research/Teaching Associate (Univ. of Athens, Greece, 2007-2008): Modeling of sunspots.
9. Teaching Assistant & Supervisor in Space Physics & Solar Physics (University of Athens, Greece, 2003-2006).
10. Laboratory Supervisor (University of Athens, Greece (2003-2006).
11. Chemist-Analyst, Internship (Medochemie, industrial chemical company, Cyprus, 2005).
12. Chemist-Analyst, Internship (Sundial, industrial microbiological company, Cyprus, 2002).

3. Publication Record

- **Publications:** – Refereed: Book: **1**; Journal Papers: **163**; Chapters: **13**; (Sole Author: **56**; 1stAuthor: **46**; Co-author: **75**; Total Impact Factor: **~820**). –Refereed Greek: Popular Science: **17**; Dissertations: **8**; –NonRefereed Announcements: **196**.
- **Citations:** **~6600**. *h-index*: **45**. *m-index*: **3.0** (*h-index*/years since PhD); *i10-index* (*papers with ≥10 citations*): **~105**. (<https://scholar.google.com/citations?user=5qdbypQAAAAJ>)

4. Research Interests & Skills

• Research Grant Proposals

- *Grants: Awarded:* 11 (Budget: **~1.3M\$**).
- *Experience with funding agencies:* *National:* NASA, NSF, NOAA, NIST; *International:* RAS, FWO, FONDECYT.

• Research Interests

Research Experience: ~25 years research activities in Space, Plasma, & Statistical Physics:

- *Generalized Statistical Mechanics & Thermodynamics - Fundamentals of Physics:* 1) Foundation of the generalized statistical physics and thermodynamics for particle systems residing in stationary states outside the classical thermal equilibrium; 2) Theory of kappa distributions for describing particle velocities and phase-space; 3) Connection with Polytopic processes; 4) Quantum - Plasma Theory to include the Large-Scale Quantization constant \hbar^* , similar to Planck constant, but 12 orders larger, observed to characterize space plasmas; 5) Entropy Defect, the origin of generalized thermodynamics; 6) Thermodynamic Relativity, a unified theory for Thermodynamics and Relativity.
- *Space Physics:* 1) Theoretical methods in plasma physics; 2) Model particle populations (solar wind, energetic particles, pickup ions); 3) Data analysis (*ACE, Wind, Ulysses, Voyagers, IBEX, New Horizons, Juno*).
- *Nonlinear dynamics & Complexity:* 1) Difference equations (stability, phase-space, bifurcation diagrams; order & chaos); 2) Population dynamics (Allee effect, competition & predator-prey models, stability & phase-space); 3) Nonlinear models of solar activity (sunspots & active regions); 4) Chemical kinetics (nonArrhenius).
- *Probability Theory, Statistics, Functional Analysis:* 1) Error analysis; 2) Optimization & Fitting methods – generalization based on non-Euclidean metrics; 3) Correlation analysis; 4) Multivariate regression.

• Short-Term Career Goals (next 5 years)

Improve understanding of the theory and applications of the following topics:

- *Space Thermodynamics:* Generalized framework of Thermodynamics for describing particle populations in space plasmas.
- *Plasma - Field connection:* Connection of anisotropy, heat transfer, and thermodynamic processes in space plasmas.
- *Polytropic vs. Cooling:* Polytropes of pickup ions, replacing the current phenomenological description of “cooling process”.
- *Kappa-Tail-Technique:* Application of the technique for fitting kappa distributions in spectral suprathermal tails.
- *Thermodynamic Relativity:* Generalization of the special relativity for describing particles with correlations.
- *Quantum-Plasma Theory:* Large-Scale Quantization constant \hbar^* , similar to Planck constant, but 12 orders larger, characterizing space plasmas.
- *Planck-law generalization & Cosmology:* Implications in Cosmic Microwave Background radiation thermodynamics.
- *Statistical theory based on Non-Euclidean Norms:* Fitting methods based on L_p norms, implications in Statistical Mechanics and machine learning.

• Professional Skills

- *Advanced Academic Writing & Publishing Skills* (seminar at SwRI for improving academic writing and publishing skills);
- *Statistical Analysis:* Statistical Computing, Optimization, Multivariate Statistics, Robust Statistics, Heuristic methods;
- *Data Processing & Analysis:* Data Interpretation, Analyzing Results, Data Analysis Techniques, Data Filtering, Ad-hoc Reports, Problems Identification, Mining & Segmentation, Task Prioritization, Nonlinear analysis;
- *Mathematical Analysis:* Mathematical modeling, Numerical and analytical methods;
- *Computer & Programming:* Languages (Fortran, IDL, Pascal, Basic); Operating systems (Windows, Dos, Mac); Text processing (Word Office; Latex; PageMaker; WordPerfect); Math/Statistics (Mathcad, Origin, Mathematica, R, GnuPlot, Excel); Image processing (Photoshop, Paintshop, Acrobat, PowerPoint, Ghostscript); Blind system typing.

5. Selected Activities & Experience

• Educator/Teaching Experience

- *Tutoring & mentoring* Ph.D. graduate post-doctoral students (Princeton University, 2022-present).
- *Reviewer/Evaluator* of post-doc applications and awards (e.g. USCIS, FWO; 2015-present).
- *Instructor* in “Dynamics” (St. Mary’s University, 2015-2016).
- *Instructor* in “Theoretical Methods in Plasma Physics” (University of Texas at San Antonio, 2018-2019).
- *Teaching Assistant* in “Space Physics” (Univ. of Athens, 9/2006-8/2008; SwRI graduate program, 2014-2021).
- *Educator* of academic writing and publishing skills (course in SwRI, 2018).
- *Tutoring and mentoring* SwRI Ph.D. graduate students (SwRI, annually, 2012-2020).
- *Thesis Supervisor* of M.Sc. & Ph.D. graduate students (Univ. of Athens, 2008-2015).
- *Thesis Supervisor* of B.Sc. students (Univ. of Athens, 2004-2008).
- *Lab Supervisor* in Mechanics, Dynamics, Stat. Physics, Electromagnetism, Astrophysics (Univ. of Athens, 2003-2006).

- **Conferences (115) & Seminars (72):** Plenary/Invited: **37**; Chair/Committee: **48**; Talks: **115**; Posters: **74**; Seminars: **72**.

• Organizer of Conferences and Seminars

- Triannual Int. Workshop on Statistical Mechanics and Kappa distributions in Space Science (Corfu, 2017; Crete, 2023).
- Annual Meeting in Space and Plasma Physics; (Athens, Princeton Athens Center, 2022 – to present).
- COSPAR Meeting; D5.1 all-day event: Theory and Applications of Kappa Distributions in Space Science (Athens, 2022).
- Int. Workshop (with Beck C., Rapisarda A., Tirnakli U., Tsallis C., co-organizers): Nonextensive Statistical Mechanics, Superstatistics & beyond: Theory and Applications in astrophysical and other complex systems (Erice, 2019).
- Annual AGU Fall-Meeting session on “Statistical physics of space plasmas” (2013-2020).
- SwRI seminar series on mathematical physics (2013-2020).
- Participation in ~40 Conf. committees & chaired sessions.

• Editor

- Editor & Author of the book: “Kappa distributions: Theory and applications in plasmas” (Elsevier), 2015-2017, <https://www.elsevier.com/books/kappa-distributions/livadiotis/978-0-12-804638-8>
- Editor of special issue in *JGR-Space Physics* (AGU): “Origins and Properties of Kappa Distributions”, 2014-2015, [https://agupubs.onlinelibrary.wiley.com/doi/toc/10.1002/\(ISSN\)2169-9402.KAPPA1](https://agupubs.onlinelibrary.wiley.com/doi/toc/10.1002/(ISSN)2169-9402.KAPPA1)
- Co-Editor of special issue in *EPJ-ST*: “Nonextensive statistical mechanics, superstatistics & beyond: Theory & applications in astrophysical and other complex systems”, 2019-2020, <https://epjst.epj.org/epjst-open-calls-for-papers>
- Editor of special issue in *Entropy* (MDPI): “Theoretical aspects of Kappa Distributions”, 2018-2019, https://www.mdpi.com/journal/entropy/special_issues/Kappa_Distributions
- Editor of focus issue in *Astrophysical Journal* (AAS): “Theory of kappa distributions”, 2023-2024, to be announced.
- Associate Editor of *Frontiers in Physics*, 2019-present, <https://www.frontiersin.org/journals/physics#editorial-board>
- Review Editor of *Frontiers in Complex Systems*, 2023-present, <https://www.frontiersin.org/journals/complex-systems/editors>
- Associate Editor of *Frontiers in Space Physics*, 2019-present, <https://www.frontiersin.org/journals/astromony-and-space-sciences/editors>
- Editorial member of *Statistics* (MDPI), 2017-present, <http://www.mdpi.com/journal/stats/editors>
- Editorial member of *Entropy* (MDPI), 2019-present, <https://www.mdpi.com/journal/entropy/editors>

• Reviewer

- *External & Panel reviewer* of research grant proposals submitted to NASA, NSF, FWO, & FONDECYT.
- *Referee* for 45 scientific journals (e.g., *Nature*; *Science*; *Space Sci Rev*; *Astrophys J*; *Astron Astrophys*; *Math Reviews*; *Geophys Res Lett*; *J Geophys Res*; *Astrophys Space Sci*; *New Astron*; *J Plasma Phys*; *Phys Plasmas*; *EPL*; *J Phys A*)

• Nominator/Evaluator

- Nominator for AGU Fellowship (2020-2021).
- Reviewer/Evaluator for South Africa’s National Research Foundation (2019).
- Reviewer/Evaluator for USCIS outstanding scientists (2018, 2022, 2023).
- Nominator of the Bernd Aulbach Prize of the Int. Society of Difference Equations (2017).
- Nominator for the Louise Webster Prize of the Astronomical Society of Australia (2016).
- Nominator/Evaluator for carrier promotion to Professorship (Democritus Univ. of Thrace, 2016; Univ. of Kavala, 2022).
- Reviewer for Research Foundation Flanders (Fonds Wetenschappelijk Onderzoek – FWO) (2015-present)
- Evaluator for Ph.D. awards in University of Athens (2014, 2015).

• Team Member

- 12 Prof. Scientific Societies (IAU, RAS, AAS, HelAs, APS, AAPPS; AGU, EGU, AMS, ISDE, AAAS, NPG).
- Space Physics Group, Princeton University. (<https://spacephysics.princeton.edu/>)
- Science Team of IBEX & IMAP Space Missions (<https://www.spaceops.swri.org/ibex/PublicData/sr3/>).
- International Space Science Institute (ISSI #347): “Particle acceleration in solar flares and terrestrial substorms” (<http://research.ssl.berkeley.edu/~moka/issi/members.html>).
- Group of “Difference Equations with Allee effect”, Trinity University.

• Awards (selected):

- Nominated Lecture in 5th Asia-Pacific Conference on Plasma Physics (2021)
- Nominated Lecture in Nonlinear Wave & Chaos Workshop (2017).
- Nominated Lecture in International Congress on Plasma Physics (2016).
- Grant awarded by King Abdulaziz University, Saudi Arabia (2014).
- Permanent Residency as Outstanding Researcher (2013).
- NASA Group Achievement Award to the IBEX mission (2011).
- Scholarship Award from the “A.G. Leventis Foundation” in Paris (2004).
- Scholarship Award from the “Bodossaki Foundation” in Athens (1999).
- Award & Honor from the “Pancyprian Union of Chemists” (1989).

• Press Release/News:

1. *Space Thermodynamics*, George Livadiotis, 7/26/2023, *Observatory of Athens*
<https://www.blod.gr/lectures/thermodynamiki-toy-diastimatos/>

2. *AAS Journal Author Series: George Livadiotis on 2022ApJS..262...53L*, 12/16/2022
<https://www.youtube.com/watch?v=TAdbkylFg>
3. *Space Answers*: “New equation can more accurately predict space weather”, 10/22/2018
<https://www.spaceanswers.com/solar-system/new-equation-can-more-accurately-predict-space-weather/>
Phys.org News: “SwRI Scientist explores a better way to predict space weather”, 10/22/2018
<https://phys.org/news/2018-10-scientist-explores-space-weather.html>
Astrobiology Magazine: “SwRI scientist explores a better way to predict space weather”, 10/23/2018
<https://www.astrobio.net/also-in-news/swri-scientist-explores-a-better-way-to-predict-space-weather/>
SwRI News: “SwRI Scientist explores a better way to predict space weather”, 10/22/2018
<https://www.swri.org/press-release/predicting-space-weather-thermodynamics-kappa-equation>
Space Daily: “Scientist explores a better way to predict space weather”, 10/23/2018
http://www.spacedaily.com/reports/Scientist_explores_a_better_way_to_predict_space_weather_999.html
4. *Spectrum News*: “Scientist Sheds Light On ‘Space Weather’”, 10/23/2018
<http://spectrumlocalnews.com/tx/san-antonio/news/2018/10/23/sa-scientists-sheds-light-on-space-weather>
5. Elsevier books: “Kappa Distributions: Theory and Applications in Plasmas”, 4/21/2017
<https://www.elsevier.com/books/kappa-distributions/livadiotis/978-0-12-804638-8>
6. *Chaos Research*: “Findings from Southwest Research Institute broaden understanding of chaos research”, 7/11/2016
<http://www.newsr.com/Butter/>
7. *ScienceDaily*: “NASA’s IBEX observations pin down interstellar magnetic field”, 2/26/2016
<https://www.sciencedaily.com/releases/2016/02/160226173206.htm>
8. *SwRI News*: “IBEX Spacecraft Measures Changes in the Direction of Interstellar Winds”, 9/2013
<https://www.swri.org/press-release/ibex-spacecraft-measures-changes-direction-interstellar-winds-buffeting-our-solar>
9. *ScienceDaily/Phys.org*: “IBEX spacecraft images the heliotail, revealing an unexpected structure”, 7/10/2013
<http://www.sciencedaily.com/releases/2013/07/130710141901.htm>
<http://phys.org/news/2013-07-ibex-spacecraft-images-heliotail-revealing.html>
10. “*To Vima*”/*Science*: “The Greek eyes that saw the heliotail”, 7/2013 (In Greek)
<http://www.tovima.gr/science/article/?aid=523085>
11. *NATURE News*, “Space plasmas share a secret”, 6/13/2013
<http://www.nature.com/news/space-plasmas-share-a-secret-1.13159>
12. *Blog: In the dark*, “Universality in Space Plasmas?”, 6/16/2013
<https://telescope.wordpress.com/tag/livadiotis-mccomas/>
13. *SwRI News*: “Knot in the ribbon at the edge of the solar system ‘unties’”, 9/2010
<https://missionjuno.swri.edu/9what/releases/2010/knot.htm>
14. *ScienceDaily*: “Catching the interstellar wind: Spacecraft finds Ribbon-like structure at edge of heliosphere”, 10/16/2009
<http://www.sciencedaily.com/releases/2009/10/091015144522.htm>
15. “*Eleftherotypia*”/*Science*: “The boundaries of solar system have been mapped”, 10/2009 (In Greek)
<http://www.inewsg.com/22/chartografithikan-ta-synora-tou-iliakou-mas-systimatos.htm>

6. Recent Leading 1st author Publications (in the last seven years)

1. Livadiotis, G., & McComas, DJ, 2023, Entropy Defect: Algebra and Thermodynamics”, *EPL*, 144, 21001 (8pp).
2. Livadiotis, G., & McComas, DJ, 2023, Connection between polytropic index and heating, *Astrophys. J.*, 956, 88 (9pp).
3. Livadiotis, G., & McComas, DJ, 2023, Transport equation of kappa distributions in the heliosphere, *Astrophys. J.*, 954, 72 (11pp).
4. Livadiotis, G., McComas, DJ, Zirnstein, E. 2023, Temperature of the polar inner heliosheath: Connection to solar activity, *ApJ*, 951, 21.
5. Livadiotis, G., & McComas, DJ, 2023, Extensive entropy: The case of zero entropy defect, *Phys. Scr.*, 98, 105605.
6. Livadiotis, G., & McComas, DJ, 2023, Entropy defect in Thermodynamics, *Nature Sci. Reports*, 13, 9033.
7. Livadiotis, G., & McComas, DJ, 2022, Physical correlations lead to kappa distributions, *Astrophys. J.*, 940, 83.
8. Livadiotis, G., McComas, et al. 2022, Thermodynamics of the inner heliosheath, *Astrophys. J. Suppl. Ser.* 262, 53.
9. Livadiotis, G & McComas, DJ 2021, Thermodynamic definitions of temperature and kappa, introduction of entropy defect, *Entr*, 23, 1683.
10. Livadiotis, G., & McComas, D.J. 2021, Black-body radiation in space plasmas, *EPL*, 135, 49001.
11. Livadiotis, G. 2021, Effect of environmental temperature on growth rate of cases infected by Covid-19 in Cyprus, medRxiv.
12. Livadiotis G., & Nicolaou, G., 2021, Relationship between polytropic index and thermal anisotropy in space plasmas, *ApJ*, 909, 127.
13. Livadiotis G., Nicolaou, G., & Allegrini, F. 2021, Anisotropic kappa distributions I: Formulation based on particle correlations, *Astrophys. J. Suppl. Ser.*, 253, 16 (28pp).
14. Livadiotis, G., 2021, Radial profile of the polytropic index of solar wind plasma in the heliosphere, *ResNotes AAS*, 5, 4.
15. Livadiotis, G., Dayeh, M.A., & Zank, G.P. 2020, Estimation of turbulent heating of solar wind protons at 1AU, *Astrophys. J.*, 905, 137.
16. Livadiotis, G. 2020, Polytropes in plasmas described by κ -distributions-Application in atmospheric models, *CPP*, 60, e202000041.
17. Livadiotis, G. 2020, Statistical analysis of the impact of environmental temperature on the exponential growth rate of cases infected by COVID-19, *PLOS ONE*, 15, e0233875 (21pp); medRxiv, (18pp), doi: 10.1101/2020.04.21.20072405.
18. Livadiotis, G. 2020, Nonextensive statistical mechanics: Equivalence between dual entropy and dual probabilities, *Entropy*, 22, (17pp).
19. Livadiotis, G. 2020, General fitting methods based on L_q norms and their optimization, *Stats.*, 3, 16-31.
20. Livadiotis, G. 2019, Turbulent heating in solar wind thermodynamics, *Astrophys. J.*, 887, 117 (10pp).
21. Livadiotis, G. 2019, On the origin of the polytropic behavior in space plasmas, *J. Phys. Conf Ser*, 1332, 012010 (13pp).
22. Livadiotis, G. 2019, R-H shock conditions for space & astrophysical plasmas described by kappa distributions, *ApJ*, 886, 3 (10pp).
23. Livadiotis, G. 2019, Geometric interpretation of errors in multi-parametrical fitting method”, *Stats*, 2, 426-438 (13pp).
24. Livadiotis, G. 2019, Connection of turbulence with polytropic index in the solar wind proton plasma, *Entropy*, 21, 1041 (12pp).
25. Livadiotis, G. 2019, Collision frequency and mean free path for plasmas described by kappa distributions, *AIP Adv.*, 9, 105307 (8pp).
26. Livadiotis, G. 2019, Linear regression with optimal rotation, *Stats*, 2, 416–425 (10pp).
27. Livadiotis, G. 2019, On the generalized formulation of Debye shielding in plasmas, *Phys Plasmas*, 26, 050701(6pp).
28. Livadiotis, G. 2019, Theoretical aspects of Hamiltonian kappa distributions, *Phys Scr.* 94, 105009 (13pp).
29. Livadiotis, G. 2019, On the origin of polytropic behavior in space and astrophysical plasmas, *Astrophys J*, 874, 10 (8pp).
30. Livadiotis, G. 2018, Kappa distributions: Statistical physics and thermodynamics in astrophysical plasmas, *Universe*, 4, 144 (19pp).
31. Livadiotis, G. 2018, Thermal Doppler broadening of spectral emissions by space plasma particles, *Astrophys J Suppl Ser.*, 239, 25 (21pp).
32. Livadiotis, G. 2018, Kappa distributions: Thermodynamic origin & Generation in space plasmas, *J Phys Conf Ser*, 1100, 012017 (17pp).
33. Livadiotis, G. 2018, Long-term independence of solar wind polytrope to plasma flow speed, *Entropy*, 20, 799 (12pp).
34. Livadiotis, G. 2018, Thermodynamic origin of kappa distributions, *EPL*, 122, 50001 (8pp).
35. Livadiotis, G. 2018, Complex symmetric formulation of Maxwell Equations for fields and potentials, *Mathematics*, 6, 114 (10pp).

36. Livadiotis, G. 2018, Using kappa distributions to identify the potential energy, *JGR*, 123, 1050–1060 (11pp).
37. Livadiotis, G. 2018, Derivation of the entropic formula for the statistical mechanics of space plasmas, *NPG*, 25, 77-88.
38. Livadiotis, G. Desai, M.I., & Wilson, L.B. 2018, Generation of kappa distributions in solar wind at 1au, *ApJ*, 853, 142 (15pp).
39. Livadiotis, G. 2018, High density nodes in the chaotic region of 1D discrete maps, *Entropy*, 20, 24 (21pp).
40. Livadiotis, G. 2017, BOOK: Kappa distributions, Theory and applications in plasmas, *Elsevier*, Netherlands, UK, USA.
41. Livadiotis, G. et al. 2017, Experimental analysis of interacting plasma membrane cholesterol and β -Amyloid, *AAD*, 6, 75 (22pp).
42. Livadiotis, G. 2017, Statistical origin and properties of kappa distributions, *J Phys Conf Ser*, 900, 012014 (17pp).
43. Livadiotis, G. 2017, On the simplification of statistical mechanics for space plasmas, *Entropy*, 19, 285 (16pp).
44. Livadiotis, G. 2017, Law of Large Numbers for non-Euclidean L^p means, *Entropy*, 19, 217 (12pp).
45. Livadiotis, G. 2016, Modeling anisotropic Maxwell–Jüttner distributions: Derivation and properties, *AnGeo*. 34, 1–14 (14pp).
46. Livadiotis, G. & Desai, M.I. 2016, Plasma-field coupling at small length scales in solar wind near 1AU, *ApJ*, 829, 88 (14pp).
47. Livadiotis, G. 2016, Invariant spectra in N -coupled standard maps, *IJBC*, 26, 1650084 (8pp).
48. Livadiotis, G. 2016, Superposition of polytropa in the inner heliosheath, *ApJ Suppl. Ser.* 223, 13 (13pp).
49. Livadiotis, G. 2016, Curie law for systems described by kappa distributions, *EPL*, 113, 10003 (6pp).
50. Livadiotis, G. 2016, Non-Euclidean-normed Statistical Mechanics, *Physica A*, 445, 240–255 (16pp).
51. Livadiotis, G. et al. 2016, Kappa function as unifying framework for discrete population modeling, *NRM*, 29, 130-144 (15pp).

B. ANALYTICAL CURRICULUM VITAE

GEORGE LIVADIOTIS, Ph.D., Research Scientist

1. General Information

- *Full Name:* George Livadiotis

<https://www.linkedin.com/in/george-livadiotis-43b3b3164/>

<https://scholar.google.com/citations?user=5qdbypQAAAAJ&hl=en&oi=ao>

<https://spacephysics.princeton.edu/people/george-livadiotis-phd>

- *USCIS Status:* USA Citizen.
- *Mailing Address:* 171 Broadmead St., 103C
- *Tel:* 1-210-274-4028 (cell), 609-258-7812 (work); • *Email:* glivadiotis@princeton.edu ; glivad@phys.uoa.gr

2. Professional Education

All by National & Kapodistrian University of Athens, Greece (<https://en.uoa.gr/>).

- *Ph.D. in Physics* (2007).
Grade: Excellent, 10/10 (GPA equivalent: 4.0).
Awarded Scholarship by the A.G. Leventis Foundation in Paris.
Thesis: "Evolution of sunspots: Nonlinear dynamical models - Optimization methods".
- *M.Sc. in Astrophysics, Astronomy & Theoretical Mechanics* (2002).
Grade: Excellent, 10/10 (GPA equivalent: 4.0).
Awarded by State Scholarship Foundation. Awarded Scholarship by Bodossaki Foundation.
Thesis: "Order and chaos in 1-dimensional nonlinear maps".
- *B.Sc. in Physics* (1999).
Grade: Excellent 9.30/10 (GPA equivalent: 3.72); highest grade achieved in the University of Athens.
Awarded Scholarship by State Scholarship Foundation of Greece.
Undergraduate Thesis: "Applications in general relativity - Extension to Finsler geometry".
- *2nd B.Sc. in Chemistry* (2008),
Grade: Excellent 9.00/10 (GPA equivalent: 3.6).
Undergraduate Thesis: "Non-extensive thermostatics. Applications in non-Arrhenius kinetics".

3. Secondary Education

- IDL programming language training course (2015).
- Business English (Certificate by IACET/ 2011).
- Fortran programming language training course (2001).
- General Certificate of Education (GCE) in Pure Mathematics Advanced Level, Grade: A (1989).
- General Certificate of Education (GCE) in Additional Mathematics Ordinary Level, Grade: A (1988).
- General Certificate of Education (GCE) in Modern Greek Ordinary Level (1987).
- Cambridge Preliminary English Test Intermediate (1986).
- Cambridge Preliminary English Test Elementary (1985).
- High School at "Lanition Lyceum II" in Limassol, Cyprus (1989). Grade: Excellent (19/20).

4. Professional Skills

- *Advanced Academic Writing & Publishing Skills* (at my current employment, I was asked to provide seminars for improving academic writing and publishing skills).
- *Statistical & Data Analysis:* Statistical Computing, Optimization, Multivariate Statistics, Robust Statistics, Heuristic methods, Ad-hoc Reports Creation, Data Interpretation & Analysis Techniques, Interpreting Trends, Data Filtering, Problems Identification, Mining & Segmentation, Task Prioritization, Nonlinear analysis.
- *Mathematical Methods:* Mathematical modeling, Numerical and analytical methods.
- *Computer & Programming:*
 - Programming languages (Primary: Fortran; Other: IDL, Pascal, Basic).
 - Operating systems (Primary: Windows; Other: Dos, Mac, Linux).
 - Text processing (Primary: Word Office, Latex; Other: PageMaker, WordPerfect).
 - Mathematical/Statistical software programs (Mathcad, Origin, Mathematica, R, GnuPlot, Excel, etc)
 - Image processing (Photoshop, Paintshop, Acrobat, PowerPoint, Ghostscript, etc).
 - Variety of scientific software programs (physics, astronomy, chemistry, etc).
 - Touch typing (English, Greek).
- *Laboratory Education:* Physics (Mechanics, Molecular & Statistical Physics, Electromagnetism, Astronomy & Astrophysics); Chemistry (Analytical, Inorganic, Physical; Gas & HPLC chromatography, UV-VIS spectrophotometry, Karl Fischer, controlled dissolutions).

5. Language

1. English
2. Greek

6. Employment (12)

1. Research Scholar, Astrophysical Sciences, Princeton University, USA (8/2021-present).

- Title: Research Scholar, Space Physics Group, Astrophysical Sciences Department.
- Director: Dr. David J. McComas; dmccomas@princeton.edu.

2. Senior Research Scientist, Southwest Research Institute, USA (3/2015-8/2021).

- Title: Senior Research Scientist, Space Science & Engineering.
- Evaluations (annually): Clearly Outstanding (Highest degree)
- Director: Dr. Stephen Fuselier, sfuselier@swri.edu

3. Adjunct Physics Instructor, University of Texas at San Antonio, USA (2018).

- Title: Physics Instructor, course: Theoretical Methods in Plasma Physics.
- Offered by Prof. Miguel José Yacamán, Depart. of Physics & Astronomy, Univ. of Texas at San Antonio.

4. Adjunct Physics Instructor, Science Engineering & Technology, St. Mary's Univ., USA (2015).

- Title: Physics Instructor in Dynamics.
- School of Science Engineering & Technology, St. Mary's University.

5. Associate Scientist, Physics Dept, National & Kapodistrian Univ. of Athens, Greece (2009-present).

- Title: Associate Scientist / graduate theses Supervisor in Astrophysics, Astronomy & Theoretical Mechanics.
- Director: Prof. Xenophon Moussas, Space Physics, Director of Astrophysics Laboratory, Physics Department, National & Kapodistrian Univ. of Athens. Tel: +30-210-727-6853; Email: xmoussas@phys.uoa.gr

6. Research Scientist, Southwest Research Institute, USA (3/2012-3/2015).

- Title: Research Scientist for theoretical research in Kinetic Theory, Statistical Mechanics, Thermodynamics, Plasma Physics, and Space Physics, with applications in space plasmas.
- Director: Dr. Stephen Fuselier, Space Science and Engineering Division, Southwest Research Institute.
- Achievements: 1) Develop the "Large-Scale quantization" for any space/laboratory plasmas. 2) Develop/Complete the statistical theory of kappa distributions. 3) Derive temperature, thermal pressure, and other thermodynamic variables of the inner heliosheath, using 5-year sky maps of IBEX, and detect time variation. 4) Improve the statistical tests of fits, in the case of errors in all variables.

7. Research Scholar, Southwest Research Institute, USA (10/2008-3/2012).

- Title: Research Scholar for theoretical modeling & statistics of space plasma populations; data analysis using observations from *IBEX* and other missions (*ACE*, *Wind*, *Ulysses*, *IBEX*, etc.).
- Supervisor: Dr. David J. McComas, Vice President for PPPL, Professor of Astrophysical Sciences. Tel: 1-609-243-3501; Email: dmccomas@princeton.edu.
- Achievements: 1) Statistical Mechanics for space plasmas and other systems that are out of thermal equilibrium. 2) *IBEX* Science Operations Center. 3) Nonlinear dynamics. 4) Regression analysis.

8. Post-Doctoral - Research & Teaching Assistant, Nat. & Kap. Univ. of Athens, Greece (10/2007-10/2008).

- Title: Theoretical modeling and data analysis of sunspots.
- Supervisor: Prof. Xenophon Moussas, Prof. of Space Physics, Director of Astrophysics Laboratory, Physics Dept., National & Kapodistrian Univ. of Athens. Tel: +30-210-727-6853; Email: xmoussas@phys.uoa.gr
- Achievements: 1) Theoretical modeling and data analysis of sunspots evolution. 2) Entropic analysis of signals and regression analysis. 3) Teaching assistant for Physics courses. 4) Supervisor of B.Sc., M.Sc., and Ph.D. theses at the University of Athens.

9. Teaching Assistant, National & Kapodistrian University of Athens, Greece (9/2006-8/2008).

- Title: Teaching Assistant.
- Director: Prof. Xenophon Moussas, Space Physics, Director of Astrophysics Laboratory, Physics Department, National & Kapodistrian Univ. of Athens. Tel: +30-210-727-6853; Email: xmoussas@phys.uoa.gr
- Duties: Teaching Assistant for Physics courses: Space Physics, Solar Physics.

10. Laboratory Supervisor, National & Kapodistrian University of Athens, Greece (9/2003-6/2006).

- Title: Physics Laboratory Supervisor.
- Director(s): Prof. Christos Trikalinos (& Pavlos Ioannou[†]), Department of History and Philosophy of Sciences, National & Kapodistrian University of Athens. Tel: +30-210-727-5547; Email: ctrikall@phs.uoa.gr
- Duties: Laboratory Supervisor for the following Physics courses: Theoretical Mechanics, Molecular & Statistical Physics, Electromagnetism, Astronomy & Astrophysics.

11. Chemist-Analyst, "Medochemie" industrial chemical company, Cyprus (5/2005-9/2005, intership).

- Title: Industrial Chemist-Analyst.
- Duties: Gas & HPLC chromatography, UV-VIS spectrophotometry, Karl Fischer, controlled dissolutions.

12. Chemist-Analyst in "Sundial" industrial/microbiological company, Cyprus (5/2002-9/2002, intership).

- Title: Clinical Chemist.
- Duties: Clinical Microbiological laboratories.

7. General Research Activities & Interests

Research Experience: ~25 years research activities in Space, Plasma, & Statistical Physics:

- *Generalized Statistical Mechanics & Thermodynamics - Fundamentals of Physics*: 1) Foundation of the generalized statistical physics and thermodynamics for particle systems residing in stationary states outside the classical thermal equilibrium; 2) Theory of kappa distributions for describing particle velocities and phase-space; 3) Connection with Polytopic processes; 4) Quantum - Plasma Theory to include the Large-Scale Quantization constant \hbar^* , similar to Planck constant, but 12 orders larger, observed to characterize space plasmas; 5) Entropy Defect, the origin of generalized thermodynamics; 6) Thermodynamic Relativity, a unified theory for Thermodynamics and Relativity.
- *Space Physics*: 1) Theoretical methods in plasma physics; 2) Model particle populations (solar wind, energetic particles, pickup ions); 3) Data analysis (*ACE, Wind, Ulysses, Voyagers, IBEX, New Horizons, Juno*).
- *Nonlinear dynamics & Complexity*: 1) Difference equations (stability, phase-space, bifurcation diagrams; order & chaos); 2) Population dynamics (Allee effect, competition & predator-prey models, stability & phase-space); 3) Nonlinear models of solar activity (sunspots & active regions); 4) Chemical kinetics (nonArrhenius).
- *Probability Theory, Statistics, Functional Analysis*: 1) Error analysis; 2) Optimization & Fitting methods – generalization based on non-Euclidean metrics; 3) Correlation analysis; 4) Multivariate regression.

8. Short-Term Career Goals (next 5 years)

Improve understanding of the theory and applications of the following topics:

- *Space Thermodynamics*: Generalized framework of Thermodynamics for describing particle populations in space plasmas.
- *Plasma - Field connection*: Connection of anisotropy, heat transfer, and thermodynamic processes in plasmas.
- *Polytropic vs. Cooling*: Polytopes of pickup ions, replacing the current phenomenological description of “cooling process”.
- *Kappa-Tail-Technique*: Application of the technique for fitting kappa distributions in spectral suprathermal tails.
- *Thermodynamic Relativity*: Generalization of the special relativity for describing particles with correlations.
- *Quantum-Plasma Theory*: Large-Scale Quantization constant \hbar^* , similar to Planck constant, but 12 orders larger, characterizing space plasmas.
- *Planck-law generalization & Cosmology*: Implications in Cosmic Microwave Background radiation thermodynamics.
- *Statistical theory based on Non-Euclidean Norms*: Fitting methods based on L_p norms, implications in Statistical Mechanics and machine learning.

9. Teaching Experience

- *Tutoring and mentoring* Ph.D. graduate and Post-doctoral students (Princeton University, 2022-present).
- *Reviewer* in post-doc applications (FWO; USCIS; 2015-present).
- *Instructor* in “Dynamics” (St. Mary’s University, 2015-2016).
- *Instructor* in “Theoretical Methods in Plasma Physics” (Univ. of Texas at San Antonio, 2018-2019).
- *Teaching Assistant* in “Space Physics” (Univ. of Athens, 9/2006-8/2008; SwRI grad. program, 2014-2021).
- *Tutoring and mentoring* SwRI Ph.D. graduate students (SwRI, annually, 2012-2020).
- *Educator* of academic writing and publishing skills (course in SwRI, 2018).
- *Thesis Supervisor* of the following M.Sc. & Ph.D. theses (Univ. of Athens, 2008-2015):
 - “On the differential equation of evolution in Thermodynamics and MHD”, Ph.D. thesis, (2015).
 - “Essay on solar eruptive events”, Ph.D. thesis, (2014).
 - “Elements of generalized statistical mechanics”, M.Sc. thesis, (2009).
- *Thesis Supervisor* of the following B.Sc. theses (Univ. of Athens, 2004-2008):
 - “The expectation value in the non-extensive Statistical Mechanics”, B.Sc. thesis, (2008-2009).
 - “Solar energetic particles: Influence on cosmic rays spectrum”, B.Sc. thesis, (2006).
 - “Heat and ventilation of buildings - Energy loss and solutions”, B.Sc. thesis, (2006).
 - “The solar activity”, B.Sc. thesis, (2005).
 - “Statistics of the orbits of comets”, B.Sc. thesis, (2005).
 - “The nature and statistics of asteroids”, B.Sc. thesis, (2004).
 - “One-dimensional nonlinear maps”, B.Sc. thesis, (2004).
- *Laboratory Supervisor* in “Mechanics”, “Dynamics”, “Statistical Physics”, “Electromagnetism”, “Astrophysics” (University of Athens, 9/2003-6/2006).

10. Grants awarded (11)

- I am familiar and have significant experience with funding agencies:
- *National*: NASA, NSF, NOAA, NIST; - *International*: RAS, FWO, FONDECYT.
- **11 funding Grant awards** by NASA (2), NSF (1), NOAA (2), Universities (2), SwRI (4); **Budget ~\$1,3M**

1) **Extending and Improving the Wang-Sheeley-Arge Solar Wind Model**

Sponsoring Agency: NASA/ NNH19ZDA001N-SWO2R
Point of Contact: James Spann, (202) 358-0574, jim.spann@nasa.gov
Period of performance: 03/01/2021- 03/01/2023 (2 years)
Budget: \$82,000 for **CoI** Dr. Livadiotis

2) **Wave-particle thermodynamic equilibrium in the expanding solar wind**

Sponsoring Agency: Southwest Research Institute, IR&D
Point of Contact: Edith Gonzales, (210) 522-2506, edith.gonzales@swri.org
Period of performance: 09/15/2020- 01/15/2021 (4 months)
Budget: \$75,000 for **PI** Dr. Livadiotis

3) **Plasma-magnetic field coupling processes in the solar wind at 1 AU**

Sponsoring Agency: NASA/ ROSES-2016, NNH16ZDA001N- Heliophysics Guest Investigator Open
Point of Contact: Therese Kucera, (301)286-0829; therese.a.kucera@nasa.gov
Period of performance: 01/02/2017- 01/01/2020 (3 years)
Budget: \$340,000 for **PI** Dr. Livadiotis

4) **Mathematical models of Alzheimer's disease**

Sponsoring Agency: Trinity University
Point of Contact: Saber Elaydi, selaydi@trinity.edu
Period of performance: 01/01/2016 - 01/01/2018 (2 years)
Budget: \$40,000 for **CoI** Dr. Livadiotis

5) **Origin and acceleration of suprathermal ions near Earth orbit**

Sponsoring Agency: NSF/Shine
Point of Contact: Ilia Roussev, (202) 358-0727; irussev@nsf.gov
Period of performance: 01/01/2015- 01/01/2018 (3 years)
Budget: \$20,000 for **CoI** Dr. Livadiotis

6) **Position error maps for GPS/GNSS**

Sponsoring Agency: DOC-NOAA
Point of Contact: Vince Garcia, vincent.garcia@noaa.gov
Period of performance: 05/01/2018 -04/30/2020 (2 years)
Budget: \$17,000 for **CoI** Dr. Livadiotis

7) **Position error maps for GPS/GNSS – Step-1**

Sponsoring Agency: NOAA
Point of Contact: Marcia Elgar (ASTRA), melgar@astraspace.net
Period of performance: 06/01/2017- 8/01/2017 (1 month)
Budget: \$8,000 for **CoI** Dr. Livadiotis

8) **Large-Scale Quantization in space plasmas: Theory and Applications**

Sponsoring Agency: Southwest Research Institute, IR&D
Point of Contact: Laura Berger, (210)-522-3741, laura.berger@swri.org
Period of performance: 07/01/2014 - 07/01/2015 (1 year)
Budget: \$170,000 for **PI** Dr. Livadiotis

9) **Allee effects in population dynamics**

Sponsoring Agency: Trinity University
Point of Contact: Saber Elaydi, selaydi@trinity.edu
Period of performance: 01/01/2014 - 31/01/2016 (2 years)
Budget: \$80,000 for **PI** Dr. Livadiotis

10) **Rankine-Hugoniot shock conditions for kappa distributions**

Sponsoring Agency: Southwest Research Institute, IR&D
Point of Contact: Laura Berger, (210)-522-3741, laura.berger@swri.org
Period of performance: 01/01/2016 - 07/01/2016 (6 months)
Budget: \$50,000 for **PI** Dr. Livadiotis

11) **Wave-particle thermodynamic equilibrium in the expanding solar wind**

Sponsoring Agency: Southwest Research Institute, IR&D
Point of Contact: Edith Gonzales, (210) 522-2506, edith.gonzales@swri.org
Period of performance: 04/02/2019- 07/05/2019 (4 months)
Budget: \$75,000 for **PI** Dr. Livadiotis

11a. Awards and Honors (23)

1. *Research Awards/Honors.*

- Nominated Lecture in 5th Asia-Pacific Conference on Plasma Physics (2021)
- Nominated Lecture in Nonlinear Wave & Chaos Workshop (2017).
- Nomination for the IUPAP Young Scientists Prize in Plasma Physics (2016).
- Nominated Lecture in International Congress on Plasma Physics (2016).
- Award by King Abdulaziz University for the work of “Allee effect in population dynamics” (2014).
- Honor from SwRI president for 5 years excellence in research (2014).
- Honor from SwRI on the work of “Nonlinear dynamics & Allee effect” (2014).
- Permanent Residency awarded as an Outstanding Researcher (2013).
- NASA Group Achievement Award as a member of the IBEX Science Team (2011).
- Honor by SwRI for outstanding contribution to IBEX mission for mapping the outer heliosphere (2009).

2. Scholar Awards/Honors.

- Honor from the University of Athens for the Excellent Grade in Ph.D. (2008).
- Award from the State Scholarships Foundation of Greece for the highest grade in M.Sc. (2002).
- Honor from the University of Athens for the highest grade in B.Sc. in Physics (1999).
- 1st Prize Poster Award, 15th conference “Nonlinear Dynamics: Chaos & Complexity”, Patra (2002).
- 1st Prize Poster Award, 14th conference “Nonlinear Dynamics: Chaos & Complexity”, Patra (2001).
- Scholarship Award from the “A.G. Leventis Foundation” in Paris (2004).
- Scholarship Award from the “Bodossaki Foundation” in Athens (1999).
- Scholarship Award from the State Scholarships Foundation of Greece (1991).

3. School Awards/Honors.

- Award & Honor from the “Pancyprian Union of Chemists” (1989).
- Honor from the “Physics Society of Cyprus” (1989).
- Honor from the “Cyprus Mathematical Society” (1989).
- Honor from the “Lanition Lyceum II” in Cyprus for graduating with Excellent Grade (1989).
- Honor from “Unesco in Cyprus” (1989).
- Honor from the “Lanition Lyceum II” in Cyprus for participating in musical scenes (1989).

11b. Nominator and Evaluator for Awards/Honors/Promotions (8)

- Nominator for AGU Fellowship (2020-2021).
- Reviewer/Evaluator for South Africa’s National Research Foundation (2018).
- Reviewer/Evaluator for USCIS outstanding scientists (2018, 2022, 2023).
- Nominator of the Bernd Aulbach Prize of the Int. Society of Difference Equations (2017).
- Nominator for the Louise Webster Prize of the Astronomical Society of Australia (2016).
- Nominator/Evaluator for Professorship (Democritus University of Thrace, 2016; University of Kavala, 2022).
- Reviewer for Research Foundation Flanders – FWO (2015-present)
- Evaluator of two Ph.D. awards in University of Athens (2014, 2015).

12a. Editor (10)

1. Editor of the book: “Kappa distributions: Theory and applications in plasmas” (Elsevier), 2015-2017, <https://www.elsevier.com/books/kappa-distributions/livadiotis/978-0-12-804638-8>
2. Editor of special issue in *JGR-Space Physics* (AGU): “Origins and Properties of Kappa Distributions”, 2014-2015, <https://agupubs.onlinelibrary.wiley.com/doi/toc/10.1002/ISSN2169-9402.KAPPA1>
3. Co-Editor of special issue in *EPJ-ST*: “Nonextensive statistical mechanics, superstatistics & beyond: Theory & applications in astrophysical and other complex systems”, 2019-2020, <https://epjst.epj.org/epjst-open-calls-for-papers>
4. Editor of special issue in *Entropy* (MDPI): “Theoretical aspects of Kappa Distributions”, 2018-2019, https://www.mdpi.com/journal/entropy/special_issues/Kappa_Distributions
5. Editor of focus issue in *Astrophysical Journal* (AAS): “Theory of kappa distributions”, 2023-2024, to be announced.
6. Associate Editor of *Frontiers in Physics*, 2019-present, <https://www.frontiersin.org/journals/physics#editorial-board>
7. Review Editor of *Frontiers in Complex Systems*, 2023-present, <https://www.frontiersin.org/journals/complex-systems/editors>
8. Associate Editor of *Frontiers in Space Physics*, 2019-present, <https://www.frontiersin.org/journals/astrophysics-and-space-sciences/editors>
9. Editorial member of *Statistics* (MDPI), 2017-present, <http://www.mdpi.com/journal/stats/editors>
10. Editorial member of *Entropy* (MDPI), 2019-present, <https://www.mdpi.com/journal/entropy/editors>

12b. Organizer of Conferences and Seminars

1. Triannual Int. Workshop, Statistical Mechanics & Kappa distributions in plasmas
- 2017, 7/10-14, 2017, Corfu, “Kappa Distributions and Statistical Mechanics”
http://www.sigmaphi.polito.it/index.php?option=com_content&view=article&id=106&catid=21&Itemid=232
- 2023, 7/10-14, 2023, Crete, “Kappa distributions in Space and Complexity Science”
http://www.sigmaphi.polito.it/index.php?option=com_content&view=article&id=221:w9&catid=24:workshops-2023&Itemid=305
2. Annual Meeting in Space and Plasma Physics; (Athens, Princeton Athens Center, 2022 – to present).
3. COSPAR Scientific Meeting (Athens, 2022); D5.1 all-day event: Theory and Applications of Kappa Distributions in Space Science; https://www.cospar-assembly.org/admin/session_cospar.php?session=1044
4. Int. Workshop, Nonextensive Statistical Mechanics & Applications in astrophysical complex systems (Erice, 2019).
<https://sites.google.com/view/supernext2019/home>
5. Annual AGU Fall-Meeting session on “Statistical mechanics in plasmas”:
- 2013: Understanding kappa distributions in space science,
<http://abstractsearch.agu.org/meetings/2013/FM/SH33D.html>;
- 2014: Implications and applications of kappa distributions in space plasma physics,
<http://abstractsearch.agu.org/meetings/2014/FM/SH41A.html>;
- 2015: Approaching kappa distributions: statistical background, theoretical developments, applications in space plasmas
<https://agu.confex.com/agu/fm15/preliminaryview.cgi/Session8618>.
- 2016: Kappa distributions: (a) Theory & applications in space plasmas; (b) Origin & effects on planetary magn/res;
<https://agu.confex.com/agu/fm16/meetingapp.cgi/Session/13396>, <https://agu.confex.com/agu/fm16/meetingapp.cgi/Session/13399>
- 2017: Statistical mechanics and distributions in space plasmas;
<https://agu.confex.com/agu/fm17/preliminaryview.cgi/Session24338>
- 2018: The Forefront of Kappa Distributions: Understanding Plasma Processes in the Heliosphere;
<https://agu.confex.com/agu/fm18/preliminaryview.cgi/Session49135>
- 2019: Kappa Distributions and Turbulence: Theory and Applications in Space Plasmas;
<https://agu.confex.com/agu/fm18/preliminaryview.cgi/Session49135>
6. Seminar series on mathematical physics in Southwest Research Institute (from 2013 to 2020).
7. Participation in ~40 Conf. committees & chaired sessions.

12c. Conferences, Seminars & Teams

1. *Meetings Organizer (15) / Chairman (19) / Committee (14): 48*
2. *Conference Participations: 115; Invited/Plenary Talks: 37; Talks (total): 115; Posters: 74*

3. *Invited Seminars: 72*

4. *Member in international science teams:*

- Interstellar Boundary Explorer (IBEX) mission (<https://www.spaceops.swri.org/ibex/PublicData/sr3/>);
- Int. Space Science Institute (ISSI), Internat. Team #347: Particle Acceleration in Solar Flares and Terrestrial Substorms.
- Space Physics Group, Princeton University.
- Group of “Difference Equations with Allee effect”, Trinity University.

13. Professional & Scientific Societies (12)

1. International Astronomical Union (nominated membership) (IAU).
2. Royal Astronomical Society (nominated membership) (RAS).
3. American Astronomical Society (nominated membership) (AAS).
4. Hellenic Astronomical Society (nominated membership) (HelAS).
5. American Physical Society (APS).
6. Association of Asia Pacific Physical Societies (AAPPS)
7. American Geophysical Union (AGU).
8. European Geophysical Union (EGU).
9. American Mathematical Society (AMS).
10. International Society of Difference Equations (ISDE).
11. American Association for the Advancement of Science (AAAS).
12. Nature Publishing Group (NPG).

14a. Reviewer (External & Panel) of research grant proposals (4)

1. NASA Solicitation & Proposal Integrated Review and Evaluation System (NSPIRES).
2. National Science Foundation (NSF).
3. Fonds Wetenschappelijk Onderzoek (FWO).
4. Chilean National Science and Technology Commission (FONDECYT).

14b. Reviewer of International Scientific Journals (last 5-years) (45)

1. Science (AAAS).
2. Nature Communications (Nature).
3. Nature Astronomy (Nature).
4. Scientific Reports (Nature).
5. Space Science Reviews (Springer).
6. The Astrophysical Journal (IOP).
7. The Astrophysical Journal Letters (IOP).
8. Astronomy & Astrophysics (EDPS).
9. Geophysical Research Letters (AGU/Wiley).
10. Journal of Geophysical Research (AGU/Wiley).
11. New Journal of Physics (IOP).
12. Astrophysics and Space Science (Springer).
13. New Astronomy (Elsevier).
14. Journal of Plasma Physics (Cambridge Journals).
15. Physics of Plasmas (AIP).
16. Mathematical Reviews (AMS).
17. EuroPhysics Letters (IOP).
18. Journal of Physics A: Mathematical and General (IOP).
19. Journal of Physics B: Atomic, Molecular & Optical Physics (IOP).
20. Physica A (Elsevier).
21. Physics Letters A (Elsevier).
22. Astroparticle Physics (Elsevier).
23. Physica Scripta (IOP).
24. Advances in Space Research (Elsevier).
25. Mathematics and Computers in Simulation (Elsevier).
26. Frontiers of Physics (Taylor & Francis).
27. Journal of Difference Equations and Applications (Taylor & Francis).
28. Annales Geophysicae (EGU).
29. Chaos, Solitons & Fractals (Elsevier).
30. Chaos (AIP).
31. Journal of Biological Dynamics (Taylor & Francis).
32. International Journal of Biomathematics (WSP).
33. Entropy (MDPI).
34. Journal of Statistical Distributions & Applications (Springer).
35. Terrestrial, Atmospheric & Oceanic Sciences (CGU).
36. Physical Review & Research International (SDI).
37. British Journal of Mathematics & Computer Sciences (SDI).
38. British Journal of Applied Science & Technology (SDI).
39. Axioms (MDPI).
40. Journal of Applied Physical Science International (IKP).
41. Chinese Physics Letters (IOP).
42. Journal of Physics: Conference Series (IOP).
43. American Institute of Physics: Conference Proceeding Series (AIP).
44. American journal of Space Science (Science Publications).
45. Journal of Probability and Statistics (Hindawi).

15a. Publication Record (summary)

1. Publications: Papers/Books (177); Articles in Greek (25); Conf. Announcements (196)

- Refereed publications in journals & books: **177** (1 book; **163** papers; **13** book chapters):
 - Sole Author: **56** / - Leading 1st Author (with other co-authors): **46** / - Co-Author: **75**.
 - (a) *Refereed Books*: **1** (by G. Livadiotis)
 - (b) *Refereed papers in international Journals*: **163**.
 - Sole Author: **49** - Leading 1st Author (with other co-authors): **41** - Co-Author: **73**.
 - (c) *Refereed Book chapters*: **13**
 - Sole Author: **6** / - Leading 1st Author (with other co-authors): **5** / - Co-Author: **2**.
- Refereed publications in Greek: **25**
 - (d) *Refereed articles of popularized science* (Greek): **17**
 - (e) *Dissertations in National & Kapodistrian Univ. of Athens* (Greek): **8**
- Non-Refereed publications:
 - (f) *Announcements in international conferences, published*: **196**

Analytical Publications shown in (b):

Journal	I.F.	N_P	Total I.F.
Science	63.714	3	191.142
Astrophysical Journal Supplement Series	9.2	9	82.8
Space Science Reviews	8.943	2	17.886
Monthly Notices of the Royal Astronomical Society	8.938	1	8.938
Astrophysical Journal Letters	8.811	2	17.622
Astronomy & Astrophysics	6.24	1	6.24
International Journal of Molecular Sciences	6.208	1	6.208
Astrophysical Journal	5.745	42	241.29
Research Notes of AAS	5.5*	2	11
Scientific Reports	4.996	2	9.992
Geophysical Research Letters	4.58	4	18.32
Space Weather	4.288	1	4.288
Plos-One	3.752	3	11.256
Icarus	3.513	1	3.513
Journal of Physics D	3.169	1	3.169
Journal of Geophysical Research – Space Physics	3.111	13	40.443
Physica Scripta	3.081	3	9.243
Physica A	2.924	5	14.62
European Physics Journal Special Topics	2.891	1	2.891
Applied Sciences	2.838	2	5.676
Plasma Physics and Controlled Fusion	2.829	1	2.829
Universe	2.813	1	2.813
Entropy	2.738	17	46.546
Mathematics	2.592	1	2.592
Solar Physics	2.503	1	2.503
International Journal of Bifurcation and Chaos	2.469	2	4.938
Journal of Plasma Physics	2.312	1	2.312
Advances in Space Research	2.177	1	2.177
Journal of Physics A – Mathematical & General	2.11	1	2.11
Theoretical Ecology	1.986	1	1.986
Europhysics Letters	1.958	4	7.832
Physics of Plasmas	1.913	1	1.913
Journal of Biological Dynamics	1.856	6	11.136
Review of Scientific Instruments	1.843	1	1.843
Journal of Mathematical Chemistry	1.81	1	1.81
Nonlinear Processes in Geophysics	1.699	1	1.699
Astrophysics and Space Science	1.681	1	1.681
American Institute of Physics (AIP) Advances	1.627	1	1.627
Annales Geophysicae	1.585	1	1.585
Review of Scientific Instruments Geophysicae	1.523	1	1.523
Contributions to Plasma Physics	1.234	1	1.234
Advances in Alzheimer's Disease	1.19	1	1.19
Journal of Difference Equations & Applications	1.162	3	3.486
Stats	~ 1*	3	3
Journal Statistical Distributions & Applications	0.96	1	0.96
Advances in Complex Systems	0.94	1	0.94
Journal of Physics: Conference Series	**	4	-
Hipparchos	**	1	-
AIP Conference Proceedings & ASP Conference Series	**	3	-
Cyprus Mathematical Society Bulletin	**	1	-
Total Number of Papers and Impact Factor		163	~821
			Mean: ~5.1

I.F.: Impact Factor; N_P: Number of Papers; * Expected Impact Factor; ** No Impact Factor

2. Citations

- Citations: **~6600** (<http://scholar.google.com/citations?user=5qdbypQAAAAJ>)
- *h-index*: **45** / *m-index* (*h-index per years since Ph.D.*): **3.0** / *i10-index* (*papers with ≥10 citations*): **~105**

15b. Press Release (15)

Topics:

1. *Space Thermodynamics*, George Livadiotis, 7/26/2023, *Observatory of Athens*
<https://www.blod.gr/lectures/thermodynamiki-toy-diastimatos/>
2. *AAS Journal Author Series: George Livadiotis on 2022ApJS..262...53L*, 12/16/2022
<https://www.youtube.com/watch?v=TAdBckytIFg>
3. *Space Answers*: “New equation can more accurately predict space weather”, 10/22/2018
<https://www.spaceanswers.com/solar-system/new-equation-can-more-accurately-predict-space-weather/>
Phys.org News: “SwRI Scientist explores a better way to predict space weather”, 10/22/2018
<https://phys.org/news/2018-10-scientist-explores-space-weather.html>
Astrobiology Magazine: “SwRI scientist explores a better way to predict space weather”, 10/23/2018
<https://www.astrobio.net/also-in-news/swri-scientist-explores-a-better-way-to-predict-space-weather/>
SwRI News: “SwRI Scientist explores a better way to predict space weather”, 10/22/2018
<https://www.swri.org/press-release/predicting-space-weather-thermodynamics-kappa-equation>
Space Daily: “Scientist explores a better way to predict space weather”, 10/23/2018
http://www.spacedaily.com/reports/Scientist_explores_a_better_way_to_predict_space_weather_999.html
4. *Spectrum News*: “Scientist Sheds Light On ‘Space Weather’”, 10/23/2018
<http://spectrumlocalnews.com/tx/san-antonio/news/2018/10/23/sa-scientists-sheds-light-on-space-weather>
5. Elsevier books: “Kappa Distributions: Theory and Applications in Plasmas”, 4/21/2017
<https://www.elsevier.com/books/kappa-distributions/livadiotis/978-0-12-804638-8>
6. *Chaos Research*: “Findings from Southwest Research Institute broaden understanding of chaos research”, 7/11/2016
<http://www.newsr.com/Buffer/>
7. *ScienceDaily*: “NASA’s IBEX observations pin down interstellar magnetic field”, 2/26/2016
<https://www.sciencedaily.com/releases/2016/02/160226173206.htm>
8. *SwRI News*: “IBEX Spacecraft Measures Changes in the Direction of Interstellar Winds”, 9/2013
<https://www.swri.org/press-release/ibex-spacecraft-measures-changes-direction-interstellar-winds-buffeting-our-solar>
9. *ScienceDaily/Phys.org*: “IBEX spacecraft images the heliotail, revealing an unexpected structure”, 7/10/2013
<http://www.sciencedaily.com/releases/2013/07/130710141901.htm>
<http://phys.org/news/2013-07-ibex-spacecraft-images-heliotail-revealing.html>
10. “*To Vima*”/Science: “The Greek eyes that saw the heliotail”, 7/2013 (In Greek)
<http://www.tovima.gr/science/article/?aid=523085>
11. *NATURE News*: “Space plasmas share a secret”, 6/13/2013
<http://www.nature.com/news/space-plasmas-share-a-secret-1.13159>
12. *Blog: In the dark*, “Universality in Space Plasmas?”, 6/16/2013
<https://telescoper.wordpress.com/tag/livadiotis-mccomas/>
13. *SwRI News*: “Knot in the ribbon at the edge of the solar system ‘unties’”, 9/2010
<https://missionjuno.swri.edu/9what/releases/2010/knot.htm>
14. *ScienceDaily*: “Catching the interstellar wind: Spacecraft finds Ribbon-like structure at edge of heliosphere”, 10/16/2009
<http://www.sciencedaily.com/releases/2009/10/091015144522.htm>
15. “*Eleftherotypia*”/Science: “The boundaries of solar system have been mapped”, 10/2009 (In Greek)
<http://www.inewsgr.com/22/chartografithikan-ta-synora-tou-iliakou-mas-systimatos.htm>

16. Important Marketing Papers as leading author (32)

- STATISTICAL MECHANICS & KAPPA DISTRIBUTIONS:

1. **Livadiotis, G. & McComas, D.J.** (2023), “Entropy defect in Thermodynamics”, *Nature Scientific Reports*, 13, 9033. [Analogous to the mass defect that arises when nuclear particle systems are assembled, the entropy defect measures the decrease of the entropy of the system compared to the sum of its constituent’s entropies, caused by the order induced in a system through correlations among its constituents. The leads to a consistent generalization of thermodynamics]
2. **Livadiotis, G.** (2021), “Black-body radiation in space plasmas”, *EPL*, 135, 49001 (8pp). [Planck’s law for black-bodies in space plasmas described by kappa distributions.]
3. **Livadiotis, G.** (2019), “Rankine-Hugoniot shock conditions for space and astrophysical plasmas described by kappa distributions”, *Astrophys. J.*, 886, 3 (10pp). [Derivation of the Rankine-Hugoniot conditions for kappa distributions]
4. **Livadiotis, G.** (2018), “Thermal Doppler broadening of spectral emissions by space plasma particles”, *Astrophys J Suppl Ser.*, 239, 25 (21pp). [Derivation of the Thermal Doppler broadening in plasmas described by kappa distributions]
5. **Livadiotis, G.** (2018), Thermodynamic origin of kappa distributions, *EPL*, 122, 50001, (8pp). [Connection with thermodynamics. In News: <https://phys.org/news/2018-10-scientist-explores-space-weather.html>]
6. **Livadiotis, G., Desai, M.I., & Wilson III, L.B.** (2018), “Generation of kappa distributions in solar wind at 1 AU”, *Astrophys J*, 853, 142 (15pp). [First characterization of the mechanisms generating kappa distributions in plasmas]
7. **Livadiotis, G.** (2017), Kappa distributions: Theory and applications in plasmas, (Ed: **Livadiotis, G.**, Elsevier, Netherlands, UK, USA), ISBN: 9780128046395 (eBook), 9780128046388 (Paperback). [First book on the theory and applications of kappa distributions: [Kappa Distributions - 1st Edition \(elsevier.com\)](https://www.elsevier.com/books/kappa-distributions-livadiotis)]
8. **Livadiotis, G.** (2015), Statistical background and properties of kappa distributions in space plasmas, *J Geophys Res*, 120, 1607–1619, pp13. [Clarifications on the connection of kappa distributions to statistical mechanics.]
9. **Livadiotis, G.** (2015), Kappa distribution in the presence of a potential energy, *J Geophys Res*, 120, 880-903. [First systematic development of phase-space kappa distributions for particles with potential energy.]
10. **Livadiotis, G., & McComas, D.J.** (2013), Understanding kappa distributions: A toolbox for space science and astrophysics, *Space Sci Rev*, 75, 183–214, pp32. [Toolbox of kappa distributions. 3rd most downloaded paper.]
11. **Livadiotis, G., & McComas, D. J.** (2011), Invariant kappa distribution in space plasmas out of equilibrium, *Astrophys J*, 741, 88, pp28. [Connection of kappa distributions with correlations; development of the multiparticle kappa distribution.]
12. **Livadiotis, G., & McComas, D.J.** (2009), Beyond kappa distributions: Exploiting Tsallis statistical mechanics in space plasmas, *J Geophys Res*, 114, A11105, pp22. [Connects kappa distributions to Statistical Mechanics. Most downloaded & cited paper of this journal in 2010.]

- PLASMA THEORY & PROCESSES:

13. Livadiotis, G., & McComas, D.J. (2023), "Connection between polytropic index and heating", *Astrophys. J.*, 956, 88 (9pp). [Derivation of the one-to-one connecting relationships between plasma heating and its polytropic index, and addresses the consequences through the transport equation of temperature]
14. Livadiotis, G., & McComas, D.J. (2023), "Transport equation of kappa distributions in the heliosphere", *Astrophys. J.*, 954, 72 (11pp). [First development of the kappa distribution transport equation; application in the heliosphere]
15. Livadiotis, G. (2021), "Radial profile of the polytropic index of solar wind plasma in the heliosphere", *ResNotes AAS*, 5, 4. [Connection of all measurements of polytropic indices throughout the heliosphere]
16. Livadiotis, G. (2019), "Turbulent heating in solar wind thermodynamics", *Astrophys. J.*, 887, 117 (10pp). [Connection of the turbulent heating with the quantization constant for plasmas, \hbar^*]
17. Livadiotis, G. (2019), "On the generalized formulation of Debye shielding in plasmas", *Phys Plasmas*, 26, 050701(6pp). [The Debye length dependence on the polytropic index.]
18. Livadiotis, G. (2019), On the origin of polytropic behavior in space and astrophysical plasmas, *Astr J.* 874, 10 (8pp). [The polytropic behavior of plasmas is equivalent to the formalism of kappa distributions.]
19. Livadiotis, G. (2016), Superposition of polytropes in the inner heliosheath, *Astrophys J Suppl. Ser.* 223, 13, pp13. [Generalization of the state equation and Bernoulli's integral in plasmas via superposition of polytropes.]
20. Livadiotis, G., & McComas, D. J. (2014), Electrostatic shielding in plasmas and the physical meaning of the Debye length, *J Plasma Phys*, 80, 341-378, pp38. [Definitions and interpretations of Debye length in plasmas.]
21. Livadiotis, G., & McComas, D.J. (2013), Evidence of large scale phase space quantization in plasmas, *Entropy*, 15, 1118-1132, (15pp). [Discovery of a new quantization constant, \hbar^* , In Nature news: www.nature.com/articles/nature.2013.13159]

- SPACE PLASMA DATA ANALYSIS:

22. Livadiotis, G., McComas, & Zirnstein, E. (2023), "Temperature of the polar inner heliosheath: Connection to solar activity", *Astrophys. J.*, 951, 21. [Thermodynamics of polar inner heliosheath; first connection to solar activity]
23. Livadiotis, G., McComas, Funsten, H.O., Schwadron, N.A., Szalay, J.R. & Zirnstein, E. (2022), "Thermodynamics of the inner heliosheath", *Astrophys. J. Suppl. Ser.* 262, 53. [Measurements of the temperature and other thermodynamic parameters of the outer heliosphere over a solar cycle]
24. Livadiotis, G., McComas, D. J., Schwadron, N. A., Funsten, H. O., & Fuselier, S. A. (2013), Pressure of the proton plasma in the inner heliosheath, *Astrophys J*, 762, 134, pp19. [First measurement of the density and thermal pressure of the outer heliosphere]
25. Livadiotis, G., McComas, D.J, Dayeh, M.A., Funsten, H.O., & Schwadron, N.A. (2011), First sky map of the inner heliosheath temperature using IBEX spectra, *Astrophys J*, 734, 1 (19pp). [First measurements of the temperature of the outer heliosphere]

- NONLINEAR DYNAMICS:

26. Livadiotis, G. (2020), "Statistical analysis of the impact of environmental temperature on the exponential growth rate of cases infected by COVID-19", *PLOS ONE*, 15, e0233875 (21pp). [The first paper to show the strong dependence of infected cases to temperature, and the existence of a critical temperature above of which infected cases vanish]
27. Livadiotis, G., Assas, L., Dennis, B., Elaydi, S., & Kwessi, E. (2016), Kappa function as a unifying framework for discrete population modeling, *Nat Res Mod*, 29, 130-144, pp15. [First connection of biological species dynamics with kappa distributions and their statistical framework]
28. Livadiotis, G., & Elaydi S. (2012), General Allee effect in two-species population biology, *J Biol Dyn*, 6, 959, (15pp). [First study of two species Allee effect. In 10 most cited papers of the journal]

- PROBABILITY THEORY:

29. Livadiotis, G. (2020), "General fitting methods based on L_q norms and their optimization", *Stats.*, 3, 16-31. [Full development of the generalization of the fitting methods with non-Euclidean norms]
30. Livadiotis, G., & McComas, D. J. (2013), "Fitting method based on correlation maximization: Applications in Astrophysics", *J Geophys Res*, 118, 2863-2875 (13pp). [New fitting methods based on the maximization of correlation]
31. Livadiotis, G. (2012), Expectation value & variance based on L^p norms, *Entropy*, 14, 2375-2396, pp22. [Generalization of the expectation value and variance for non-Euclidean norms]
32. Livadiotis, G. (2007), Approach to general methods for fitting and their sensitivity, *Physica A*, 375, 518-536. [Generalization of the fitting methods with non-Euclidean norms]

17. Seminars (72)

1. "Generalized field theory", 2/1/2000, Solid State Physics, University of Athens, Greece.
2. "1-dimensional difference equations", 12/5/2000, Research Center for Astronomy & Applied Mathematics, Academy of Athens, Greece.
3. "Generalized gravitation", 2/15/2001, Nuclear Physics & Elementary Particles, Univ. Athens, Greece.
4. "Order and Chaos in 1-dim nonlinear maps", 9/24/2001, M.Sc. thesis, Astrophysics, Astronomy, & Theor. Mechanics, University of Athens, Greece.
5. "Multi-dimensional dynamical systems of discrete time and their description in phase spaces of smaller dimensionality", 12/10/2002, Research Center for Astronomy & Applied Math., Academy of Athens, Gr.
6. "Order and Chaos in 1-dimensional maps", 10/27/2004, Solid State Physics, Univ. Athens, Greece.
7. "Decay of fixed surfaces caused by heat diffusion", 2/2/2005, Solid State Physics, Univ. Athens, Greece.
8. "Order/Chaos in oscillating chemical reactions", 5/24/2005, Chemistry Dep., Univ. Athens, Greece.
9. "Definition and applications of the rotation number for 1-dimensional maps", 12/13/2005, Research Center for Astronomy and Applied Mathematics, Academy of Athens, Greece.
10. "Modelling the evolution of isolated sunspots", 12/21/2005, Astrophysics, Astronomy, & Theoretical Mechanics, University of Athens, Greece.
11. "The Evolution of Sunspots according to the Photometric-Magnetic Dynamical Model - Definition and Applications of the General Optimization Methods", 12/17/2007, PhD thesis, Astrophysics, Astronomy, & Theoretical Mechanics, University of Athens, Greece.
12. "Non-extensive thermodynamics. Applications to non-Arrhenius chemical kinetics", 9/29/2008, Chemistry Department, University of Athens, Greece.
13. "Generalization of Statistics and Statistical Mechanics through non-Euclidean-norms", 11/14/2008, Southwest Research Institute, San Antonio, TX, US.
14. "Non-Euclidean Statistics & Statistical Mechanics", 11/27/2008, Physics Depart., Univ. of Athens, Greece.
15. "Exploiting Tsallis Statistical Mechanics in solar wind ions distributions", 2/4/2009, Astrophysics, Astronomy, & Theoretical Mechanics, University of Athens, Greece.
16. "Beyond kappa distributions: Exploiting Tsallis Statistical Mechanics in Space Plasmas", 4/24/2009, University of Texas at San Antonio (UTSA), TX, US.
17. "Tsallis Statistical Mechanics in Space Plasmas", 6/12/2009, Depart. of Physics, Univ. of Athens, Greece.
18. "Understanding kappa distributions in space plasmas using Tsallis Statistical Mechanics: Dynamics of stationary states out of equilibrium in space plasmas", 8/14/2009, SwRI, San Antonio, TX, US.
19. "Generalizing the Boltzmann-Maxwell kinetic theory: Dynamics of non-equilibrium stationary states", 10/1/2009, Astrophysics, Astronomy, & Theoretical Mechanics, Univ. Athens, Greece.
20. "Measuring the windows of order in chaos", 10/8/2009, Trinity University, San Antonio, TX, US.
21. "General fitting methods", 3/26/2010, Astrophys Astron & Theor Mechanics, Univ. of Athens, Greece.
22. "Non-equilibrium transitions of space plasmas", 12/20/2010, Astrophys Astron & Theor Mechanics, Univ. of Athens, Greece.
23. "First sky maps of the inner heliosheath temperature and other thermodynamic observables", 4/28/2011, Southwest Research Institute, San Antonio, TX, US.
24. "Pick-up ions and their influence on plasma distributions", 5/13/2011, SwRI, San Antonio, TX, US.
25. "First sky maps of temperature and other thermodynamic observables of the inner heliosphere", 6/30/2011, Physics Depart., Univ. of Athens, Greece.
26. "Non-extensive Statistical Mechanics", 7/5/2011, Astrophys Astron & Theor Mechanics, Univ. Athens, Gr.
27. "Thermodynamics at the outer boundaries of the heliosphere", 9/10/2012, Astrophysics, Astronomy, & Theoretical Mechanics, University of Athens, Greece.
28. "Thermodynamics of space plasmas", 11/28/2012, Southwest Research Institute, San Antonio, US.
29. "Two species Allee effect", 3/26/2013, Trinity University, San Antonio, TX, USA.
30. "Large-scale quantization in space plasmas", 6/10/2013, SwRI, Planetary Science, Boulder, CO, US.
31. "Space plasmas: A new type of quantization", 8/8/2013, SwRI, San Antonio, TX, US.
32. "New type of quantization in plasmas", 9/19/2013, Physics Depart., University of Athens, Greece.
33. "Origins and properties of kappa distributions", 5/8/2014, SwRI, San Antonio, TX, US.
34. "Large-Scale Quantization in space plasmas: Theory & Applications", 5/27/2014, SwRI, San Antonio, US.
35. "New type of quantization in plasmas-An update", 7/3/2014, Physics Depart, Univ of Athens, Greece.
36. "e", 3/9/2015, Southwest Research Institute, San Antonio, US.
37. "Mechanisms of Kappa Distributions in Space Plasmas", 3/6/2015, SwRI, San Antonio, US.
38. "Galilean & Lorentz transformations", 4/6/2015, Eng/ring Dep., St.Mary's Univ, San Antonio, US.
39. "What is a kappa distribution and why is it fundamental for modern physics?", 7/9/2015, Institute for Astronomy, Astrophysics, Space Applications & Remote Sensing, National Observatory of Athens, Greece.
40. "Kappa distributions: Theory & applications in space plasmas", 7/16/2015, Physics Depart, Univ Athens, Gr.
41. "What is a kappa distribution and why is it fundamental for modern physics?", 11/12/2015, Univ. New Hampshire, Durham, NH, US.
42. "Revealing a new quantization constant", 11/13/2015, Univ. of New Hampshire, Durham, NH, US.
43. "Mechanisms generating Kappa Distributions in Space Plasmas", 11/30/2015, SwRI, San Antonio, US.
44. "Statistical Mechanics out of thermal equilibrium", 10/12/2015, St. Mary's University, San Antonio, US.
45. "Kappa distributions: Theory and applications in plasmas", 7/7/2016, Theory Depart., PPPL, US.
46. "Kappa Distributions: Theory and Applications", 4/28/2017, Math Depart., UTSA, San Antonio, US.
47. "Kappa Distributions: Theory and Applications", 7/7/2017, Chemistry Depart., Univ of Athens, Greece.
48. "Kappa Distributions: Theory and Applications in space plasmas", 7/21/2017, Astrophysics, Astronomy, & Theoretical Mechanics, University of Athens, Greece.
49. "Statistical Mechanics in space plasmas", 1/31/2018, Physics Depart. & Astronomy, UTSA, US.

50. "Kappa distributions in space plasma physics", 5/7/2018, SwRI, Space Science Directorate Presentation Meeting – 2018, San Antonio, TX, US.
51. "Paperback Writer: Writing successful papers", 5/14/2018, SwRI, San Antonio, TX, US.
52. "Kappa Distributions: Theory and Applications in Space Plasmas", 6/29/2018, Mullard Space Science Laboratory, UCL, London, UK.
53. "Kappa distribution and non-extensive statistical mechanics: Theory and applications in particle systems", 7/3/2018, The Cyprus Institute, Cyprus.
54. "Thermodynamic origin of thermal distribution functions", 7/6/2018, Physics Depart., Univ. of Athens, Gr.
55. "Thermodynamic origin of kappa distributions and the constant h^* ", 7/16/2018, Chemistry Depart., Univ. of Athens, Greece.
56. "Kappa Distributions: Theory and Applications in Plasmas", 7/17/2018, Academy of Athens, Greece.
57. "Scales of the Universe: h and h^* ", 8/7/2018 and 8/10/2018, Public Lectures, Limassol, Cyprus.
58. "Kappa Distributions: Theory and Applications in Space Thermodynamics", 4/8/2019, Rice Univ.
59. "Kappa distributions and generalized thermodynamics: Theory & Applications", 4/30/2019, Tx A&M Univ.
60. "Kappa distributions: theory and applications in space plasmas", 7/22/2019, Institute for Astronomy, Astrophysics, Space Applications & Remote Sensing, National Observatory of Athens, Greece.
61. "General fitting methods and optimization", 11/1/2019, Dep. Management Science & Statistics, UTSA, US.
62. "General fitting methods and optimization", 11/20/2019, SwRI, San Antonio, TX, US.
63. "Statistical analysis of the impact of environmental temperature on the exponential growth rate of cases infected by COVID-19", 6/5/2020, SwRI, San Antonio, TX, US.
64. "Radial profile of the polytropic index in the heliosphere", 8/26/2020, SwRI, San Antonio, TX, US.
65. "Anisotropic kappa distributions of electron populations in the jovian aurora", 9/25/2020, SwRI, San Antonio, TX, US.
66. "Derivation of turbulence parameters from entropy transportation in the heliosphere", 11/25/2020, SwRI, San Antonio, TX, US.
67. "The concept of entropy defect", 12/3/2021, Princeton University, Space Physics Group, Princeton, NJ, US.
68. "Turbulence and polytropes", 5/20/2022, Princeton University, Space Physics Group, Princeton, NJ, US.
69. "Upper limit of entropy", 12/23/2022, Princeton University, Space Physics Group, Princeton, NJ, US.
70. "Our Heliosphere and its Interstellar Interaction: A Solar Cycle of Global Observations and Discoveries by the Interstellar Boundary Explorer", McComas, D.J., & Livadiotis, G., 7/18/2023, University of Cyprus.
71. "Space Thermodynamics", 7/26/2023, National Observatory of Athens, Athens, Greece.
72. "Technique for fitting kappa distributions in spectra", 10/9/2023, Princeton University, Space Physics Group, Princeton, NJ, US.

18. Conferences (115)

- Conference Participations: 115
 - Organizer/Chairman/Committee: 48 (=15+19+14)
 - Plenary/Invited Talks: 37
 - Talks (total): 115
 - Posters: 74
1. 14th Conf. "Nonlinear Dynamics: Chaos & Complexity", Patra, Greece, 7/23-8/2, 2001.
- Poster: Livadiotis, G., & Voglis, N., "Definition and applications of the rotation number in 1D maps".
 2. 15th Conf. "Nonlinear Dynamics: Chaos & Complexity", Patra, Greece, 8/19-30/8, 2002.
- Local Committee Member.
- Chairman.
- Invited Talk: Livadiotis, G., & Voglis, N., "Symmetries of the multi-dimensional symplectic maps. Application on the N -coupled Standard maps".
 3. 1st Int. Workshop "Galaxies and Chaos: Theory & Observations", Academy of Athens, Greece, 9/16-19, 2002.
- Local Committee Member.
- Poster: Livadiotis, G., & Voglis, N., "Properties of coupled Standard maps".
 4. 13th Int. Conf. "The Emergence of Cosmic Structure", Maryland, USA, 10/7-9, 2002.
- Talk & Poster: Livadiotis, G., & Voglis, N., "Properties of N -coupled Standard Maps and Their Dynamical Spectra of Stretching Numbers".
 5. Int. Conf. NAM-2003, Dublin, Ireland, 4/7-11, 2003.
- Poster: Livadiotis, G., "Nemesis, a hypothetical companion of the sun- its influence on the trajectories of comets"
 6. 16th Conf. "Nonlinear Dynamics: Chaos & Complexity", Chalkida, Greece, 7/14-24, 2003.
- Poster: Livadiotis, G., Voglis, N., "Nonlinear 1-dimensional maps and applications".
 7. 6th Int. Conf. on Astronomy, Hellenic Astronomical Society, Penteli, Greece, 9/15-17, 2003.
- Poster: Livadiotis, G., & Moussas, X., "The cycles of sunspots in regards with planetary conjugations".
- Poster: Livadiotis, G., & Voglis, N., "Coupled standard maps & dynamical spectra of stretching numbers".
 8. 10th National Conf. on Physics, Loutraki, Greece, 1/29-2/1, 2004.
- Poster: Livadiotis, G., & Moussas, X., "Planetary tides and solar activity".
 9. Int. Conf. "Complexity in science & society", Ancient Olympia, Greece, 7/14-26, 2004.
- Poster: Livadiotis, G., & Voglis, N., "Numerical approximation of the percentage of order for 1D maps".
 10. 2nd Meeting of the Chemistry Department of the University of Athens, Greece, 3/18-20, 2005.
- Local Committee Member.
 11. 6th Int. Conf. on Physics, Balkan Physical Union, Constantinople, 8/22-26, 2006.
- Poster: Livadiotis, G., & Moussas, X., "Model of sunspot evolution: The growth and decay phase".

12. 2nd Int. Workshop “Solar Orbiter”, Athens, Greece, 10/16-20, 2006.
- *Poster: Livadiotis, G., & Moussas, X., “Evolution of sunspots”.*
13. Int. Workshop of Athens Academy “Chaos in Astronomy”, Athens, Greece, 9/17-20, 2007.
- *Local Committee Member.*
- *Poster: Livadiotis, G., & Moussas, X., “Perturbed dynamical model of sunspot evolution”.*
14. Int. Symposium “Solar Extreme Events”, Athens, Greece, 9/24-27, 2007.
- *Local Committee Member.*
- *Poster: Livadiotis, G., & Moussas, X., “The Total Magnetic Flux in an Active Region”.*
15. 1st Meeting of the Physics Department of Univ. of Athens, Athens, Greece, 5/26-27, 2008.
- *Poster: Livadiotis, G., “Approach to Block Entropy Modeling and Optimization”.*
16. 4th Int. Conf. on Statistical Mechanics “SigmaPhi”, Kolympari-Crete, Greece, 7/14-18, 2008.
- *Poster: Livadiotis, G., “Non-Euclidean Normed Statistical Mechanics”.*
17. 21th Int. Conf. “Nonlinear Science & Complexity”, Athens, Greece, 7/21-8/2, 2008.
- *Poster: Livadiotis, G., & Moussas, X., “The perturbed Photometric-Magnetic nonlinear dynamical model: Consequences on the evolution of sunspots”.*
18. Int. Conf. IAU 257 “Universal Heliophysical Processes”, Ioannina, Greece, 9/15-19, 2008.
- *Talk: Livadiotis, G., Moussas, X., “Maximum Magnetic Flux in an Active Region”.*
19. Int. Conf. “Modern Challenges in Nonlinear Plasma Physics”, Sami, Greece, 6/15-19, 2009.
- *Talk: Livadiotis, G., & McComas, D.J., “On the theoretical basis of kappa distributions and their application in the solar wind”.*
- *Poster: Livadiotis, G., & McComas, D.J., “Beyond kappa distributions: Exploiting Tsallis Statistical Mechanics in space plasmas”.*
20. 7th Int. Conf. on Physics, Balkan Physical Union, Alexandroupolis, Greece, 9/9-13, 2009.
- *Invited Talk: Livadiotis, G., “Understanding kappa distributions in space plasmas using Tsallis Stat. Mech.”.*
- *Invited Talk: Livadiotis, G., “Dynamics of stationary states out of equilibrium in space plasmas”.*
21. 9th IBEX Meeting, Chicago, IL, USA, 11/3-5, 2009.
- *Local Committee Member.*
- *Talk: Livadiotis, G., & McComas, D.J., “Influence of spectral index $\kappa \sim 1.5$ in IBEX observations”.*
22. Fall-Meeting AGU, San Francisco, CA, USA, 12/14-18, 2009.
- *Talk: Livadiotis, G., & McComas, D.J., “The statistical mechanics basis of non-equilibrium stationary states in the solar wind and outer heliosphere”.*
- *Poster: McComas, D.J., Bzowski, M., Clark, G., Crew, G.B., Demajistre, R., Funsten, H.O., Fuselier, S.A., Gruntman, M., Janzen, P., Livadiotis, G., Möbius, E., Reisenfeld, D.B., Rölof, E.C., & Schwadron, N.A., “Time Variations of the ENA Flux Observed by IBEX: Is the Outer Heliosphere Evolving?”.*
- *Poster: Schwadron, N. A., Bzowski, M., Crew, G. B., Fahr, H., Fichtner, H., Frisch, P. C., Funsten, H. O., Fuselier, S. A., Gruntman, M., Heerikhuisen, J., Izmodenov, V., Kucharek, H., Lee, M. A., Livadiotis, G., McComas, D. J., Möbius, E., Moore, T., Mukherjee, J., Pogorelov, N.V., Prested, C. L., Reisenfeld, D. B., Rölof, E. C., & Zank, G. P., “Comparison of IBEX Observations with 3-D Global Heliospheric Models”.*
23. 215th Meeting of American Astronomical Society (AAS), Washington, DC, USA, 1/3-7, 2010.
- *Talk: Frisch, P. C., McComas, D. J., Allegrini, F., Bochsler, P., Bzowski, M., Christian, E. R., Crew, G. B., DeMajistre, B., Fahr, H., Fichtner, H., Funsten, H., Fuselier, S. A., Glöckler, G., Gruntman, M., Heerikhuisen, J., Izmodenov, V., Janzen, P., Knappenberger, P., Krimigis, S., Kucharek, H., Lee, M., Livadiotis, G., Livi, S., MacDowall, R. J., Mitchell, D., Möbius, E., Moore, T., Pogorelov, N.V., Reisenfeld, D., Rölof, E., Saul, L., Schwadron, N.A., Valek, P. W., Vanderspek, R., Wurz, P., & Zank, G. P., “First global observations of the interstellar interaction from the Interstellar Boundary Explorer”.*
24. 10th IBEX–Voyager Conf, Southwest Research Institute; San Antonio, TX, USA, 3/9-11, 2010.
- *Local Committee Member.*
- *Chairman.*
- *Invited Talk: Livadiotis, G., & McComas, D.J., “The dominance of far-equilibrium stationary states in the outer heliosphere as detected by IBEX”.*
25. 9th Ann. Int. Astrophys. Conf. (CSPAR) “Pickup ions throughout the heliosphere and beyond”, Maui, HI, USA, 3/14-19, 2010.
- *Invited Talk: Livadiotis, G., & McComas, D.J., “Non-equilibrium stationary states in the Heliosphere: The influence of pick-up ions”.*
26. 11th IBEX Meeting, Boulder, CO, USA, 9/14-16, 2010.
- *Talk: Livadiotis, G., & McComas, D. J., “Characterizing the stationary states of outer heliosphere from IBEX ENA spectra”.*
27. 52nd Ann. Meet. of Amer. Physical Society, Plasma Physics, Chicago, IL, USA, 11/8-12, 2010.
- *Invited Talk: Livadiotis, G., & McComas, D. J., “Transitions of solar wind in non-equilibrium states”.*
28. Fall-Meeting AGU, San Francisco, CA, USA, 12/13-17, 2010.
- *Poster: Livadiotis, G., Dayeh, M. A., Funsten, H. O., Janzen, P. H., McComas, D. J., Reisenfeld, D. B., & Schwadron, N. A., “Using spectral slopes to characterize the origin of ENAs in the IBEX maps”.*
- *Talk: Schwadron, N.A., Allegrini, F., Bzowski, M., Christian, E. R., Crew, G.B., Dayeh, M. A., Demajistre, R., Frisch, P.C., Funsten, H. O., Fuselier, S.A., Goodrich, K. A., Gruntman, M., Janzen, P. H., Kucharek, H., Livadiotis, G., McComas, D. J., Möbius, E., Prested, C. L., Reisenfeld, D. B., Reno, M. L., Rölof, E. C., Siegel, J. E., “Separation of the IBEX Ribbon from the Globally Distributed Energetic Neutral Atom Flux”.*
- *Poster: Dayeh, M.A., Ebert, R.W., Funsten, H.O., Fuselier, S.A., Janzen, P.H., Livadiotis, G., McComas, D.J., Reisenfeld, D.B., Schwadron, N.A., “Spectral properties of regions and structures in IBEX global ENA sky maps”.*
29. 12th IBEX Meeting, Durham, NH, USA, 4/18-20, 2011.

- *Talk: Livadiotis, G.,* McComas, D.J., Dayeh, M.A., Funsten, H.O., Schwadron, N. A., “First sky map of the inner heliosheath temperature using IBEX spectra”.
- 30. International Astrophys. Forum Alpbach, IAFA 2011, Tyrol, Austria, 6/20-24, 2011.
 - *Chairman.*
 - *Invited Talk: Livadiotis, G.,* “Thermostatistics of non-equilibrium stationary states”.
- 31. 5th Int. Conf. on Statistical Mechanics “SigmaPhi”, Larnaca, Cyprus, 7/11-15, 2011.
 - *Local Committee Member.*
 - *Chairman.*
 - *Invited Talk: Livadiotis, G.,* “Thermostatistics of plasmas in nonequilibrium stationary states”.
 - *Poster: Livadiotis, G.,* “The entire N -particle kappa distribution”.
- 32. 3rd Int. Conf. on Math Modeling & Analysis, San Antonio, TX, USA, 10/7-9, 2011.
 - *Local Committee Member.*
 - *Chairman.*
 - *Invited Talk: Livadiotis, G.,* Elaydi, S., “General Allee effect in planar dynamical systems”.
- 33. 13th IBEX Meeting, Palo Alto, CA, USA, 10/10-13, 2011.
 - *Talk: Livadiotis, G.,* McComas, D. J., Dayeh, M. A., Randol, B., “Analysis and significance of spectral curvature behavior of the ENA flux observed by IBEX”, 10/12, 2011.
- 34. Fall-Meeting AGU, San Francisco, CA, USA, 12/5-9, 2011.
 - *Poster: Livadiotis, G., & McComas, D. J.,* “Non-Equilibrium Transitions of Heliospheric plasma”.
 - *Poster: Dayeh, M.A., Allegrini, F., Desai, M.I., Demajistre, R., Funsten, H. O., Janzen, P. H., Livadiotis, G., McComas, D. J., Randol, B. M., Reisenfeld, D. B., Schwadron, N. A., Vanderspek, R.,* “Investigating polar spectra in IBEX’s global ENA sky maps”.
- 35. Joint Mathematics Meeting AMS, Boston, MA, USA, 1/4-7, 2012.
 - *Talk: Elaydi, S., & Livadiotis, G.,* “General Allee effect and semistability in planar difference equations”.
- 36. Solar Wind 13, Int. Conf., Big Island, HI, USA, 6/18-22, 2012.
 - *Chairman.*
 - *Poster: Livadiotis G. & McComas DJ,* “NearEquilibrium heliosphere/FarEquilibrium heliosheath: Mechanisms”.
- 37. 18th Int. Conf. on Difference Equations & Applications, Barcelona, Portugal, 7/23-27, 2012.
 - *Talk: Elaydi, S. N., Kang, Y., Livadiotis, G., & Kwessi, E.,* “Allee effect in two interacting species”.
- 38. 15th IBEX Meeting, Santa Fe, NM, USA, 10/29-11/1, 2012.
 - *Talk: Livadiotis, G.,* McComas, D. J., “Thermodynamic processes in the inner heliosheath”.
 - *Talk: Livadiotis, G.,* McComas, D.J., Schwadron, N.A., Funsten, H.O., Fuselier, S.A., “Thermal pressure in the inner heliosheath - the role of pick-up ions”.
- 39. Fall-Meeting AGU, San Francisco, CA, USA, 12/3-7, 2012.
 - *Talk: Funsten, H. O., Frisch, P. C., Higdon, D., Janzen, P. H., Livadiotis, G.,* McComas, D. J., Reese, S., Reisenfeld, D. B., & Schwadron, N. A., “The Circularity of the IBEX ENA Ribbon”.
 - *Poster: Livadiotis, G.,* McComas, D.J., Schwadron, N.A., Opher, M., Funsten, H.O., Fuselier, S.A., & Dayeh, M.A., “Thermal pressure of the proton plasma in the inner heliosheath”.
 - *Poster: Dayeh, M.A.,* McComas, D.J., Allegrini, F., Desai, M.I., Ebert, R.W., Livadiotis, G., & Schwadron, N.A., “Latitudinal variation of heliospheric ENAs and their correlation with solar wind observations”.
 - *Poster: Frisch, P. C., Slavin, J. D., Dayeh, M. A., Funsten, H. O., Heerikhuisen, J., Janzen, P. H., Avinash, K., Livadiotis, G.,* McComas, D. J., Mueller, H.-R., Pogorelov, N. V., Reisenfeld, D. B., Schwadron, N. A., Zank, G. P., “Charging of Interstellar Dust Grains in the Inner Heliosheath”.
 - *Poster: Lee, M. A.,* Schwadron, N. A., Saul, L., Mobius, E., French, J., Bochsler, P., Bzowski, M., Fuselier, S., Kucharek, H., Livadiotis, G., McComas, D.J., & Wurz, P., “Radiation pressure from IBEX observations of interstellar neutral hydrogen”.
 - *Poster: Ogasawara, K.,* Angelopoulos, V., Dayeh, M. A., Fuselier, S. A., Livadiotis, G., McComas, D. J., McFadden, J.P., “Diagnosing dayside magnetosheath using ENAs: IBEX & THEMIS observations”.
- 40. 16th IBEX Meeting, Austin, TX, USA, 3/18-21, 2013.
 - *Talk: Livadiotis, G.,* “Effects and performance of statistical model fits to the IBEX spectra”.
 - *Talk: Livadiotis, G.,* McComas, D. J., “New ideas on the non-equilibrium plasma in the heliosphere”.
- 41. 12th Ann. Int. Astrophys. Conf., Myrtle Beach, SC, USA, 4/15-19, 2013.
 - *Invited Talk: Livadiotis, G.,* McComas, D. J., “Large-scale quantization in space plasmas”.
- 42. Meeting of the Americas AGU, Mexico, 5/14-17, 2013.
 - *Poster: Frisch, P. C., Ajello, J., Livadiotis, G.,* Maciek, B., McComas, D. J., Möbius, E., Mueller, H.-R., Schwadron, N. A., Vallergera, J., “Variations in the Directions of the Local Interstellar Wind”.
 - *Poster: Funsten, H.O.,* Frisch, P. C., Janzen, P. H., Livadiotis, G., McComas, D. J., Möbius, E., Reisenfeld, D.B., & Schwadron, N. A., “Spatial Uniformity of the Ribbon of enhanced ENA Flux Observed by IBEX”.
 - *Talk: Ogasawara, K.,* Dayeh, M. A., Fuselier, S. A., Livadiotis, G., McComas, D. J., “IMF dependence of the ENAs observed from the dayside magnetosheath”.
 - *Talk: Dayeh, M. A.,* Desai, M. I., Ebert, R. W., Livadiotis, G., McComas, D. J., & Schwadron, N. A., “Spectral evolution of heliospheric ENA emissions at low and high latitudes as measured by IBEX”.
- 43. 11th Int. conf. on Astronomy, Hellenic Astronomical Society, Athens, Greece, 9/9-12, 2013.
 - *Talk: Livadiotis, G., & McComas, D.J.,* “Large-scale quantization in space plasmas”.
 - *Poster: Livadiotis, G., & McComas, D.J.,* “Understanding kappa distributions in space physics”.
- 44. Explosive Transients: Lighthouses of the Universe, Santorini, Greece, 9/15-20, 2013.
 - *Poster: Livadiotis, G.,* “Large scale quantization in space and astrophysical plasmas”.
- 45. 55th Ann. meet. of Amer. Physical Society, Plasma Physics, Denver, CO, USA, 11/11-15, 2013.
 - *Talk: Livadiotis, G., & McComas, D. J.,* “Large-scale quantization in plasmas”.
- 46. Fall-Meeting AGU, San Francisco, CA, USA, 12/9-13, 2013.

- *Organizer & Convener*: Understanding Kappa Distributions in Space Science.
- *Chairman*.
- *Invited Talk*: **Livadiotis, G.**, “Large-scale quantization in space plasmas”.
- *Talk*: **Livadiotis, G.**, “Understanding kappa distributions in space science - Introduction”.
- *Talk*: **Livadiotis, G.**, McComas, D. J., “Understanding kappa distributions in space physics”.
- *Talk*: Elliott, H. A., McComas, D. J., Mukherjee, J., Valek, P. W., **Livadiotis, G.**, Delamere, P. A., Bagenal, F., Nicolaou, G., “New Horizons Solar Wind Around Pluto (SWAP) solar wind measurements”.
- *Talk*: McComas, D.J., Dayeh, M.A., Bzowski, M., Demajistre, R., Funsten, H. O., Fuselier, S., Janzen, P. H., Kubiak, M. A., **Livadiotis, G.**, Reisenfeld, D.B., Schwadron, N., Sokol, J. M., “The evolving heliosphere observed over IBEX’s first five years (2009-2013)”.
- *Talk*: Frisch, P. C., Bzowski, M., Funsten, H. O., **Livadiotis, G.**, McComas, D. J., Möbius, E., Mueller, H.-R., Schwadron, N., Sokol, J. M., “Spatial and temporal interstellar structure: what will IBEX find?”.
- *Poster*: Bzowski, M., Kubiak, M. A., Sokol, J. M., Möbius, E., Leonard, T., Kucharek, H., McComas, D. J., **Livadiotis, G.**, “New population of neutral helium in the heliosphere discovered by IBEX”.
- *Poster*: Kubiak, M. A., Bzowski, M., Sokol, J. M., **Livadiotis, G.**, “Maxwellian vs. kappa distribution functions of neutral interstellar He as they would be seen by IBEX-Lo”.
- *Poster*: Funsten, H. O., Demajistre, R., Frisch, P. C., Heerikhuisen, J., Higdon, D.M., Janzen, P.H., Larsen, B., **Livadiotis, G.**, McComas, D. J., Möbius, E., Reese, S., Reisenfeld, D. B., Schwadron, N., Zirnstein, E.J., “Mirror symmetry of the IBEX ribbon of Enhanced Neutral Atom (ENA) flux”.
- *Poster*: Ogasawara, K., Dayeh, M. A., Frisch, P. C., **Livadiotis, G.**, McComas, D. J., Slavin, J. D., “Effect of the Heliosheath hot plasmas on the interstellar grain heating”.
- 47. 13th Ann. Int. Astrophys. Conf., Myrtle Beach, SC, USA, 3/10-14, 2014.
 - *Invited Talk*: **Livadiotis, G.**, “Application of the large-scale quantization to the inner heliosheath plasma”.
- 48. 6th Int. Conf. on Statistical Physics “SigmaPhi”, Rhodes, Greece, 7/7-11, 2014.
 - *Advisory Committee Member*.
 - *Chairman*.
 - *Invited talk*: **Livadiotis, G.**, “Understanding kappa distributions in space plasmas”.
- 49. Asia Oceania Geosciences Society, 11th Ann. Meeting, Sapporo, Japan, 7/28-8/1, 2014.
 - *Poster*: Ogasawara, K; Dayeh, M A.; Slavin, J. D.; Frisch, P. C.; Livadiotis, G.; McComas, D. J., “Effect of the Inner Heliosheath Hot Plasmas on the Interstellar Grain Heating”.
- 50. 56th Ann. meet. of Amer. Physical Society, Plasma Physics, New Orleans, LA, USA, 10/27-31, 2014.
 - *Talk*: **Livadiotis, G.**, “Kappa distributions: Founding statistical mechanics in space plasmas”.
 - *Talk*: **Livadiotis, G.**, “Evidence of a new quantization constant in collisionless plasmas”.
- 51. Fall-Meeting AGU, San Francisco, CA, USA, 12/15-19, 2014.
 - *Organizer & Convener*: Implications and applications of kappa distributions in space plasma physics.
 - *Chairman*.
 - *Talk*: **Livadiotis, G.**, “Session Introduction/Discussion”.
 - *Poster*: **Livadiotis, G.**, “Foundations of Statistical Mechanics in Space Plasmas”.
 - *Talk*: Fuselier, SA, Allegrini, F, Bzowski, M, Dayeh, MA, Desai, M, Funsten, HO, Galli, A, Heirtzler, D, Janzen, P, Kubiak, MA., Kucharek, H., Lewis, W., **Livadiotis, G.**, McComas, D.J., Möbius, E., Petriner, S.M., Quinn, M., Schwadron, N, Sokol JM, Trattner KJ, “Low energy neutral atoms and kappa ion distributions in the heliosheath”.
 - *Talk*: Elliott, H., McComas, D.J., Valek, P., Nicolaou, G., Bagenal, F., Delamere, P., **Livadiotis, G.**, “Solar wind observations from 10 to 30 AU measured with the New Horizons SWAP Instrument”.
 - *Poster*: Frisch, P., Dayeh, M., Desai, M., Funsten, H., Heerikhuisen, J., Janzen, P., McComas, DJ, **Livadiotis, G.**, Ogasawara, K., Pogorelov, N., Reisenfeld, D., Schwadron, N., Slavin, J., Zank, G., “Charging of Interstellar Dust Grains in the Out-of-Equilibrium Plasma of the Inner and Outer Heliosheath Regions”.
 - *Poster*: Funsten H, Demajistre R, Frisch P, Fuselier S, Janzen P, **Livadiotis G**, McComas DJ, Pittman K, Reisenfeld D, Schwadron N, “Profiles of the Ribbon: Systematic ENA flux features within & beyond the central Ribbon”.
- 52. Joint Mathematics Meeting AMS, San Antonio, TX, USA, 1/10-13, 2015.
 - *Invited talk*: **Livadiotis, G.**, “Host-Parasitoid Discrete Models with strong Allee Effect”.
 - *Talk*: Elaydi, S., Assas, L., Dennis, B., Kwessi, E., **Livadiotis, G.**, “A nonautonomous hierarchical model with the strong Allee effect”.
 - *Talk*: Kwessi, E., Assas, L., Dennis, B., Elaydi, S., **Livadiotis, G.**, “Multispecies hierarchical competition models with the Allee effect”.
 - *Talk*: Assas, L., Dennis, B., Elaydi, S., Kwessi, E., **Livadiotis, G.**, “Stochasticity on a modified Beverton-Holt model with Allee effects”.
- 53. March Meet. of Amer. Phys. Soc., Statistical & Nonlinear Physics, San Antonio, TX, USA, 3/2-6, 2015.
 - *Talk*: **Livadiotis, G.**: “Large-Scale Quantization and consequences in statistical mechanics”.
 - *Poster*: **Livadiotis, G.**: “Anti-Equilibrium”: The limiting frozen state of kappa distributions”.
- 54. 14th Ann. Int. Astrophys. Conf., Tampa, FL, USA, 4/20-24, 2015.
 - *Invited Talk*: **Livadiotis G.**, “Rankine Hugoniot conditions for shocks in plasmas described by κ -distributions”.
- 55. Frontiers of Plasma Science 1st Workshop, Washington, DC, USA, 6/30-7/1, 2015.
 - *Poster & White Paper*: **Livadiotis, G.**, “Why is the kappa distribution of fundamental importance in astrophysical and space plasmas?”
- 56. Annual Meeting of Lunar Exploration Analysis Group, Columbia, MD, USA, 10/20-22, 2015.
 - *Talk*: Schwadron, N.A., Wilson, J.K., Looper, M.D., Jordan, A., Spence, H.E., Blake, J.B., Case, A.W., Iwata, Y., Kasper, J.C., Farrell, W.M., Lawrence, D.J., **Livadiotis, G.**, Mazur, J., Petro, N., Pieters, C., Robinson, M.S., Smith, S., Townsend, L.W., Zeitlin, C., “Possible albedo proton signature of hydrated lunar surface layer”.
- 57. Int. Workshop on Foundations of Complexity–Nonadditive Entropies & Nonextensive Statistical Mechanics, Rio de Janeiro, Brazil, 10/19-23, 2015.

- *Invited Talk: Livadiotis, G.*, “Kappa distributions: Connection with non-extensive statistical mechanics”.
- 58. Polar Regolith Workshop (virtual) by NASA Solar System Exploration Research Virtual Institute 12/3, 2015.
 - *Talk: Schwadron NA, Wilson, J.K., Looper, M.D., Jordan, A., Spence, H.E., Blake, J.B., Case, A.W., Iwata, Y., Kasper, J.C., Farrell, W.M., Lawrence, D.J., Livadiotis, G., Mazur, J., Petro, N., Pieters, C., Robinson, M.S., Smith, S., Townsend, L.W., Zeitlin, C.*, “Signatures of Volatiles in the Lunar Proton Albedo”.
- 59. Fall-Meeting AGU, San Francisco, CA, USA, 12/14-18, 2015.
 - *Organizer & Convener: Approaching kappa distributions: Statistical background, theoretical developments, and applications in space plasma physics.*
 - *Chairman.*
 - *Talk: Livadiotis, G.*, “Session Introduction/Discussion”.
 - *Poster: Livadiotis, G.*, “Rankine–Hugoniot jump conditions incorporating kappa distributions”.
 - *Talk: Schwadron, NA., Wilson, JK, Looper, MD., Jordan, A., Spence, HE., Blake, J.B., Case, A.W., Iwata, Y, Kasper, J., Farrell, W, Lawrence, DJ., Livadiotis, G., Mazur, J., Petro, N., Pieters, C., Robinson, MS., Smith, S., Townsend, LW., Zeitlin, C.*, “Possible albedo proton signature of hydrated lunar surface layer”.
 - *Poster: Zirnstein, E., Funsten, H., Heerikhuisen, J., Livadiotis, G., McComas, D.J., Pogorelov, N.*, “The Local Interstellar Magnetic Field Determined from the IBEX Ribbon”.
 - *Poster: Nicolaou, G., Livadiotis, G.*, “Misestimation of plasma temperature when applying a Maxwellian distribution to space plasmas described by kappa distributions”.
 - *Poster: Broiles, T.W., Burch, J.L., Chae, K., Clark, G., Cravens, T.E., Eriksson, A., Fuselier, S., Goldstein, R., Henri, P., Livadiotis, G., Mandt, K., Mokashi, P., Pollock, C., Samara, M., Webster, J.* “Characterizing Observations of Cometary Electrons with Kappa Distributions”.
- 60. ISSI Team 347, Particle acceleration in solar flares & terrestrial substorm, 1st meeting, Bern, 2/15-19, 2016.
 - *Invited Talk: Livadiotis, G.*, “Theory of kappa and flat-top distributions”.
- 61. Science Expo, San Antonio, 3/5, 2016.
 - *Poster: Livadiotis, G.*, “The large quantum: Evidence from space plasmas”.
- 62. 50th ESLAB Symposium, From Giotto to Rosetta, 3/14-18, 2016.
 - *Talk: Broiles, T.W., Burch, J.L., Cravens, T.E., Fuselier, S.A., Goldstein, R., Livadiotis, G., Madanian, H., Mandt, K.E., Mokashi, P., Samara, M.*, “Characterizing Cometary Electrons with Kappa Distributions”.
- 63. EGU General Assembly 2016, Vienna, Austria, 4/17–22, 2016.
 - *Poster: Ogasawara, K., Livadiotis, G., et al.*, “In-situ observation of electron kappa distributions associated with discrete auroral arcs”.
 - *Poster: Nicolaou, G., Livadiotis, G.*, “Modeling the plasma flow in the inner heliosheath with a spatially varying compression ratio”.
- 64. 18th Int. Congress on Plasma Physics 2016, Kaohsiung, Taiwan, on 6/27-7/1, 2016.
 - *Nominated Invited Talk: Livadiotis, G.*, “Kappa distributions: Connection with statistical mechanics, theoretical developments, and applications in plasmas”.
- 65. Asia Oceania Geosciences Society, 13th Ann Meeting, Beijing, 7/31-8/5, 2016.
 - *Talk: Ogasawara, K., Grubbs, G., Jahn, J.-M., Michell, R., Samara, M., Livadiotis, G.*, “Properties Of Suprathermal Electron Distributions Associated With Discrete Auroral Arcs”.
- 66. 41st COSPAR Scientific Assembly, Istanbul, Turkey, 7/30-8/7, 2016 (Cancelled). Special Session D3.6: Role of nonthermal distributions in wave generation, particle heating and acceleration in space plasmas.
 - *Solicited Plenary Talk: Livadiotis, G.*, “Origins and properties of kappa distributions in space plasmas”.
 - *Talk: Livadiotis, G.*, “Is Planck’s quantization constant unique?”
- 67. ISSI Team 347, Particle acceleration in solar flares & terrestrial substorm, 2nd meeting, Bern, 11/7-11, 2016.
 - *Talk: Livadiotis, G.*, “Basic meanings and properties of kappa distributions”.
- 68. 58th Ann. meet. of Amer. Physical Society, Plasma Physics, San Jose, CA, USA, 10/31-11/4, 2016.
 - *Talk: Livadiotis, G.*, “Kappa distributions in the presence of a potential energy”.
- 69. Fall-Meeting AGU, San Francisco, CA, USA, 12/12-16, 2016.
 - *Organizer & Convener: Kappa Distributions: Theory and Applications in Space Plasmas.*
 - *Organizer & Convener: Kappa Distributions: Origin and Effects on Planetary Magnetospheres.*
 - *Chairman.*
 - *Talk: Livadiotis, G.*, “Session Introduction/Discussion”.
 - *Talk: Livadiotis, G.*, “Kappa distribution in the presence of a potential energy”.
 - *Talk: Schwadron, N.A., Möbius, E., McComas, D.J., Bochsler, P., Bzowski, M., Fuselier, S.A., Livadiotis, G., Frisch, P., Müller, H.-R., Heirtzler, D., Kucharek, H., Lee, M. A., & Park, J.*, “Interstellar O, He and Magnetic Field from IBEX and IMAP Predictions”.
 - *Poster: Broiles, T.W., Burch, J.L., Chae, K., Cravens, T.E., Frahm, R.A., Fuselier, S.A., Galand, M.F., Goldstein, R., Henri, P., Livadiotis, G., Mandt, K.E., Samara, M., Eriksson, A.I., & Odelstad, E.*, “Cometary electron heating driven by solar wind interaction with the coma”.
 - *Poster: Jahn, J.M., Denton, R.E., Nose, M., Bonnell, J.W., Kurth, W.S., Livadiotis, G., Larsen, B., Goldstein, J.*, “Determining plasma parameters in cold, multi-species plasmas using Maxwell and Kappa distribution functions”.
- 70. 16th Ann. Int. Astrophys. Conf., Santa Fe, NM, USA, 3/6-10, 2017.
 - *Invited Talk: Livadiotis, G.*, “Statistical origin and properties of kappa distributions”.
- 71. 10th International Nonlinear Wave & Chaos Workshop, San Diego, CA, USA, 3/20-24, 2017.
 - *Invited Talk: Livadiotis, G.*, “Kappa Distributions: Theory and Applications in space plasmas”.
- 72. 7th Int. Conf. on Statistical Physics “SigmaPhi”, Corfu, Greece, 7/10-14, 2017.
 - *Advisory Committee Member.*
 - *Program Committee Member.*
 - *Organizer & Convener: Workshop on Kappa Distributions and Statistical Mechanics.*
 - *Chairman.*

- *Plenary Talk: Livadiotis, G.*, “Kappa distributions: Theory and applications in plasmas”.
- *Talk: Ogasawara, K., Livadiotis, G., Jahn, J.-M., Sharber, J. R.; Winningham, J. D.; Grubbs, G., Michell, R., Samara, M.*, “Properties of suprathermal electrons associated with discrete auroral arcs”.
- *Talk: Nicolaou, G., Livadiotis, G.*, “Plasma temperature misestimation when the Maxwell distribution is assumed for the analysis of plasma that follows the kappa distribution”.
- *Talk: Frisch, P.C., Livadiotis, G., Ogasawara, K., Slavin, J.D., McComas, D.J., Funsten, H.O.*, “Charging of interstellar dust grains in the non-equilibrium inner heliosheath plasma”.
- *Poster: Ogasawara, K., Jahn, J.-M., Elliot, H.A., Livadiotis, G., Desai, M.I., & Goldstein, J.*, “Challenges to measure kappa distributions in the terrestrial ionosphere”.
- *Poster: Nicolaou, G., Livadiotis, G.*, “Determining kappa of space plasma distributions from observations in a limited energy range”.
- 73. 59th Ann. meet. of Amer. Physical Society, Plasma Physics, Milwaukee, WI, USA, 10/23-27, 2017.
 - *Poster: Livadiotis, G.*, “Mechanisms generating kappa distributions in plasmas”.
- 74. Solar Orbiter: Synergy between Observations and Theory, RAS Meetings, London, UK, 11/10, 2017.
 - *Poster: Nicolaou, G., Livadiotis, G., Owen, C. J., Verscharen, D., Wicks, R. T.*, “Determining the kappa distributions of Solar Wind plasmas from observations in a limited energy range”.
- 75. Fall-Meeting AGU, New Orleans, LA, USA, 12/11-15, 2017.
 - *Organizer & Convener: Statistical Mechanics and Distributions in Space Plasmas.*
 - *Chairman.*
 - *Talk: Livadiotis, G.*, “Session Discussion: The concept of temperature”.
 - *Poster: Livadiotis, G.*, “The concept of temperature in space plasmas”.
 - *Poster: Pavlos, G.P., et al. (including Livadiotis, G.)*, “Non-Extensive Statistical Analysis of Solar Wind Electric, Magnetic Fields and Solar Energetic Particle time series”.
 - *Poster: Nicolaou, G., Livadiotis, G.*, “Determining the kappa index of space plasma distributions from observations in a limited energy range”.
 - *Talk: Frisch, P.C., et al. (including Livadiotis, G.)*, “Charging of interstellar dust grains in the out-of-equilibrium heliosheath plasma traced by IBEX ENAs”.
 - *Talk: Oka, M., Battaglia, M., Birn, J., Chaston, C. C., Effenberger, F., Eriksson, E., Fletcher, L., Hatch, S., Imada, S., Khotyaintsev, Y. V., Kuhar, M., Livadiotis, G., Miyoshi, Y., Retino, A.*, “Non-thermal Power-Law Distributions in Solar and Space Plasmas”.
- 76. 17th Ann. Int. Astrophys. Conf., Santa Fe, NM, USA, 3/5-9, 2018.
 - *Invited Talk: Livadiotis, G.*, “The concept of temperature and thermal distributions in astrophysical plasmas”.
- 77. 41st Texas Differential Equations Conference 2018, San Antonio, UTSA, 3/23-24, 2018.
 - *Chairman.*
 - *Talk: Livadiotis, G.*, “Derivation of the general entropic function”.
- 78. EGU General Assembly 2018, Vienna, Austria, 4/8–13, 2018,
 - *Poster: Ogasawara, K., Livadiotis, G., Jahn, J.-M., Grubbs, G., Michell, R., Samara, M., Sharber, J., Winningham, D.*, “*Properties of suprathermal electrons associated with discrete auroral arcs*”.
 - *Poster: Nicolaou, G., Livadiotis, G., Owen, C. J., Verscharen, D., Wicks, R. T.*, “Determining the kappa distributions of space plasmas from observations in a limited energy range”.
- 79. Space Science Directorate Presentation Meeting – 2018, SwRI, San Antonio, TX, USA, 5/7, 2018.
 - *Talk: Livadiotis, G.*, “Kappa distributions in space plasma physics”.
- 80. Solar Wind 15, Int. Conf., Brussels, Belgium, 6/18–22, 2018,
 - *Poster: Nicolaou, G., Livadiotis, G., Owen, C. J., Verscharen, D., Wicks, R. T.*, “Determining the space plasma properties from observations in a limited energy range”.
- 81. 7th Int. Conf. on New Frontiers in Physics (ICNFP 2018), Crete, Greece, 7/4-12, 2018.
 - *Talk: Livadiotis, G.*, “Statistical physics and thermodynamics of astrophysical plasmas”.
 - *Talk: Livadiotis, G.*, “Evidence of large-scale quantization constant in plasmas”.
- 82. Magnetospheres of the Outer Planets Conference, Boulder, Colorado, 7/9-13, 2018.
 - *Talk: Kim, T. K., Valek, P. W., McComas, D. J., Allegrini, F., Bagenal, F., Clark, G., Connerney, J. E. P., Ebert, R. W., Kollman, P., Livadiotis, G., Mauk, B. H., Thomsen, M. F., Wilson, R. J.*, “Ion Properties of Jupiter's Plasma Sheet: Juno JADE-I Observations”.
- 83. 42th COSPAR Scientific Assembly, Pasadena, USA, 7/14-22, 2018. Special Session D3.3: Role of nonthermal distributions in wave generation, particle heating and acceleration in space plasmas
 - *Scientific Organizing Committee.*
- 84. UTSA College of Science Research Conference, San Antonio, TX, USA, 5/10/2018.
 - *Poster: Kim, T. K., Ebert, R. W., Valek, P. W., Allegrini, F., McComas, D. J., Bagenal, F., Livadiotis, G., Pollock, C., Thomsen, M. F., Wilson, R. J., Clark, G., Connerney, J. E. P., Kollman, P., Mauk, B. H., Bolton, S. J., Levin, S.* (2018), “*Ion Composition in Jupiter's Plasma Sheet: Juno JADE-I Observations*”.
- 85. Fall-Meeting AGU, Washington, DC, USA, 12/10-14, 2018.
 - *Organizer & Convener: The Forefront of Kappa Distributions: Understanding Plasma Processes in the Heliosphere and Kolmogorov in Space: Application and Extension of Turbulence Theory in Space Plasmas.*
 - *Chairman.*
 - *Talk: Livadiotis, G.*, “Session Discussion: The concept of temperature”.
 - *Talk: Yamauchi, M., Nicolaou, G., Owen, C. J., and Livadiotis, G.*, “Methods to Determine the Bulk Properties of Space Plasmas and Potential Applications”.
 - *Poster: Livadiotis, G.*, “Kappa Distributions: The myth of "non-thermal" plasmas”.
 - *Poster: Pavlos, E. G., Malandraki, O., Pavlos, G. P., Khabarova, O., Karakatsanis, L. P., and Livadiotis, G.*, “Non-Extensive Statistical Analysis of Energetic Particle intensity time series in the solar wind”.
- 86. 18th Ann. Int. Astrophys. Conf., Pasadena, Ca, USA, 2/18-22, 2019.

- *Invited Talk: Livadiotis, G.*, “On the origin of polytropes”.
- 87. 4th Coastal Bend Mathematics & Statistics, Univ. Texas Rio Grande, 3/23-24, 2019.
 - *Talk: Livadiotis, G.*, “Kappa distributions: Statistical mechanics and thermodynamics in space”.
- 88. 42nd Texas Differential Equations Conference 2019, Corpus Christi, A&M Univ, 3/30-31, 2019.
 - *Talk: Livadiotis, G.*, “Sunspot evolution as a nonlinear dynamical system”.
- 89. EGU General Assembly 2019, Vienna, Austria, 4/7–12, 2019,
 - *Talk: Nicolaou, G., & Livadiotis, G.*, “*The Kappa Index of Solar Wind Protons: Correlation with the Polytrropic Index and the Solar Activity*”.
 - *Poster: Pavlos, E. G., Malandraki, O. E., Khabarova, O. V., Karakatsanis, L. P., Pavlos, G. P., & Livadiotis, G.*, “*Non-extensive statistical analysis of energetic particle flux enhancements caused by the interplanetary coronal mass ejection - heliospheric current sheet interaction*”.
- 90. Nonextensive Statistical Mechanics, Superstatistics and Beyond: Theory and Applications in Astrophysical and other Complex Systems, International School on Complexity, Erice, Italy, 7/2-8, 2019.
 - *Co-Organizer & Director.*
 - *Chairman.*
 - *Plenary Talk: Livadiotis, G.*, “Kappa distributions and nonextensive statistical mechanics: Theory and applications in astrophysical plasmas”.
- 91. 6th Ph.D. School/Conference on Mathematical Modeling of Complex Systems, Pescara, Italy, 7/3-11, 2019.
 - *Plenary Lecture Talk: Livadiotis, G.*, “Theory of kappa distributions and Nonextensive statistical mechanics”.
- 92. 14th Int. conf. on Astronomy, Hellenic Astronomical Society, Volos, Greece, 7/8-11, 2019.
 - *Invited Talk: Livadiotis, G.*, “Space Thermodynamics”.
 - *Chairman.*
- 93. 61st Ann Meeting & Exhibition American Assoc. Physicists in Medicine, San Antonio, USA, 7/14-18, 2019.
 - *Poster: Livadiotis, G., Papanikolaou, N., Rasmussen, K., Kirby, N., Saenz, D., Myers, P., Mavroidis, P., & Stathakis, S.*, “PO-GePV-T-180 GEUD Based Optimization Prevails Over Dose-Volume. Optimizations: a dosimetric evaluation study on NPC VMAT cases”.
- 94. 26th Summer School “Dynamical Systems & Complexity”, Nat. technical univ. of Athens, 7/14-20, 2019.
 - *Talk: Livadiotis, G.*, “Kappa distributions and Nonextensive statistical mechanics”.
- 95. Fall-Meeting AGU, San Francisco, USA, 12/9-13, 2019.
 - *Organizer & Convener: Kappa Distributions and Turbulence: Theory and Applications in Space Plasmas.*
 - *Chairman.*
 - *Talk: Frisch, P., Piirola, V., Berdyugin, A.B., Magalhaes, A. M., Berdyugin, S., Harlinton, C., Hill, K., Cole, A., Wiktorowicz, S.J., Cotton, D., Bailey, J., Kedziora-Chudczer, L., Marshall, J. P., Bott, K., McComas, D.J., Schwadron, N.A., Funsten, H.O., Seriacopi, D. B., Redfield, S., Heiles, C., & Livadiotis, G.*, “Configuration of the interstellar magnetic field near the heliosphere from polarized starlight”.
 - *Talk: Kim, T. K., Ebert, R. W., Valek, P. W., Allegrini, F., McComas, D. J., Bagenal, F., Connerney, J. E. P., Kurth, W.S., Livadiotis, G., Munoz, J.R., Szalay, J.R., Thomsen, M. F., Wilson, R. J.*, “Mass-Dependent Ion Parameters in Jupiter’s Plasma Sheet Observed by Juno JADE”.
 - *Poster: Livadiotis, G.*, “On the origin of polytropes in plasmas”.
 - *Poster: Nicolaou, G., & Livadiotis, G.*, “Long term correlations between polytropic indices and kappa distributions in solar wind protons at 1 au”.
 - *Poster: Pavlos, E.G., et al. (including Livadiotis, G.)* “Non-Extensive Statistical Analysis of Energetic Particle Flux Enhancements Caused by the Interplanetary Coronal Mass Ejection-Heliospheric Current Sheet Interaction”.
- 96. 19th Ann. Int. Astrophys. Conf., Santa Fe, NM, USA, 3/9-13, 2020.
 - *Invited Talk: Livadiotis, G.*, “H-theorem and Entropy associated with kappa distributions; Application in solar wind plasma”.
 - *Talk: Elliott, H. A., McComas, D. J., Zirnstein, E. J., Randol, B. M., Delamere, P. A., Livadiotis, G., Bagenal, F., Barnes, N.P., Stern, S.A., Young, L. A., Olkin, C. B., Spencer, J., Weaver, H. A., Ennico, K., Gladstone, R., & Smith, C.W.*, “Slowing of the solar wind in the outer heliosphere”.
- 97. EGU General Assembly 2020, Vienna, Austria, 4/2020,
 - *Talk: Pavlos, E.G., et al. (including Livadiotis, G.)*, “*Non-extensive statistical analysis of energetic particle flux enhancements caused by the interplanetary coronal mass ejection - heliospheric current sheet interaction*”.
- 98. Fall-Meeting AGU, San Francisco, USA, 12/1-17, 2020.
 - *Talk: Elliott, H.A., Arge, C.N., Henney, C.J., Dayeh, M.A., Livadiotis, G., Jahn, J.-M., & DeForest, C.*, “*Improving Multiday Solar Wind Forecasts*”.
- 99. 43rd COSPAR Scientific Assembly. 28 January-4 February 2021.
 - *Talk: Elliott, H.A., et al., (incl. Livadiotis, G.)* (), “Slowing of the Solar Wind in the Outer Heliosphere”.
- 100. 5th Asia-Pacific Conference on Plasma Physics (AAPPS-DPP), 26 Sept-1Oct, 2021.
 - *Nominated Invited Talk: Livadiotis, G.*, “Origin and Role of kappa distributions in space and astrophysical plasmas”.
- 101. EGU General Assembly 2022, Vienna, 5/2022. ST1.7 EDI: Illuminating the Outer Heliosphere: ENA imaging from IBEX to IMAP.
 - *Solicited Talk: Livadiotis, G.*, “*Thermodynamics of the proton plasma in the inner heliosheath during the 24th solar cycle*”.
- 102. IBEX Meeting, JHU-APL, Washington, DC, USA, 6/14-16, 2022.
 - *Talk: Livadiotis, G.*, “*Thermodynamics of the inner heliosheath and solar activity*”.
- 103. SHINE 2022, 6/2022.
 - *Talk: Elliott, H., et al. (with Livadiotis, G.)* “Radial evolution of solar wind and Interstellar PUI properties”.
- 104. 44th COSPAR Scientific Assembly, Athens, Greece, 7/2022. All-Day Event, D5.1: Theory and Applications of Kappa Distributions in Space Science.

- *Organizer & Convener.*
- *Plenary Talk: Livadiotis, G.,* “Thermodynamic definitions of temperature and kappa and introduction of the entropy defect”.
- *Talk: Livadiotis, G.,* “Thermodynamic definitions of temperature and kappa and introduction of the entropy defect”.
- *Poster: Livadiotis, G.,* “Origin and Role of kappa distributions in space plasmas”.
- *Poster: Livadiotis, G., & McComas, D.J.,* “Black-body radiation in space plasmas”.
- *Talk: Elliott, H., Livadiotis, G., & Ebert, R.,* “Angular distribution and width of Maxwellian space plasmas - Implications for solar wind sensors near 1AU”.
- *Talk: Elliott, H., et al. (with Livadiotis, G.),* “Radial variation of the solar wind temperature-density relationship”.
- *Talk: Dayeh, M.A., & Livadiotis, G.,* “Polytropic behavior in the structures of Interplanetary Coronal Mass Ejections - a statistical perspective”.
- *Talk: Ogasawara, K., Frisch, P., Livadiotis, G., McComas, D.J., & Slavin, J.* “Effects of Kappa-distribution plasmas on the interstellar grain heating”.
- *Talk: Nicolaou, G., & Livadiotis, G.,* “ Overview of recent applications of kappa distributions in space and laboratory plasmas”.
- 105. Third Triennial Earth-Sun Summit Conference (TESS), 2022.
 - *Talk: Elliott, H., et al. (with Livadiotis, G.)* “Improving and Extending Multiday Solar Wind and IMF Forecasts”.
- 106. Magnetospheres of Outer Planets, Liège, Belgium, 7/11-15, 2022
 - *Talk: Szalay, J.R., et al. (with Livadiotis, G.)* “Closed Fluxtubes and Proton Conics in Jupiter’s Polar Cap”.
- 107. 1st Space Physics Meeting in Princeton Athens Center, Athens, Greece, 7/25-26, 2022.
 - *Organizer & Convener.*
 - *Plenary Talk: Livadiotis, G.,* “The Space Physics Group in Princeton University”.
 - *Talk: Livadiotis, G.,* “Kappa distributions: Theory and applications in plasmas”.
- 108. Europlanet Science Congress 2022-741, Granada, Spain, 9/18–23, 2022
 - *Talk: Szalay, J.R., et al. (with Livadiotis, G.)* “Closed Fluxtubes and Proton Conics in Jupiter’s Polar Cap”.
- 109. IBEX Meeting, Santa Fe, NM, USA, 1/14-16, 2023.
 - *Talk: Livadiotis, G.,* “Triple vs. Double coincidence measurements in IBEX instrumentation”.
- 110. 2nd Space Physics Meeting in Princeton Athens Center, Athens, Greece, 7/6-7, 2023.
 - *Organizer & Convener.*
 - *Plenary Talk: Livadiotis, G.,* “Entropy Defect”.
- 111. 8th Int. Conf. on Statistical Physics “SigmaPhi”, Crete, Greece, 7/10-14, 2023.
 - *Advisory Committee Member.*
 - *Program Committee Member.*
 - *Organizer & Convener:* Workshop on Kappa Distributions and Statistical Mechanics.
 - *Chairman.*
 - *Plenary Talk: Livadiotis, G.,* “Kappa distributions: Theory and applications in plasmas”.
 - *Talk: Livadiotis, G., & McComas, D.J.,* “Entropy Defect”.
 - *Talk: McComas, D.J., & Livadiotis, G.,* “The outer heliosphere: a zoo of non-equilibrium plasma's”.
 - *Talk: Dayeh, M., & Livadiotis, G.,* “Polytropic behavior in the substructure of interplanetary CMEs”.
 - *Talk: Nicolaou, G., & Livadiotis, G.,* “Kappa distributions in space plasmas: review of methods and applications”.
- 112. 26th Summer School “Dynamical Systems & Complexity”, Nat. technical univ. of Athens, 7/17-26, 2023.
 - *Plenary Talk: Livadiotis, G.,* “Bringing nonextensive statistical mechanics in space science”, 7/24, 2023.
- 113. Joint NUST-NCP Int. College on Space & Astrophysical Plasmas, 10/30–11/3, 2023, Islamabad, Pakistan
 - *Plenary Talk: Livadiotis, G.,* “Kappa distributions and Nonextensive statistical mechanics”, 10/31/2023.
- 114. Europlanet Science Congress, 2023, San Antonio, Texas
 - *Talk: Szalay, J.R., et al., (including Livadiotis, G.)* “Water-group pickup ions from Europa”.
- 115. AGU Fall Meeting, San Francisco, CA, 10/11-15/2023.
 - *Talk: Szalay, J.R., et al., (including Livadiotis, G.)* “Pickup ions from Europa”.

19. List of Plenary & Invited Conference Talks (37)

1. 15th Conf. “Nonlinear Dynamics: Chaos & Complexity”, Patra, Greece, 8/19-30, 2002, “Symmetries of the multi-dimensional symplectic maps. Application on the N -coupled Standard maps”.
2. 7th Int. Conf. on Physics, Balkan Physical Union, Alexandroupolis, Greece, 9/9-13, 2009, “Understanding kappa distributions in space plasmas using Tsallis Statistical Mechanics”.
3. 7th Int. Conf. on Physics, Balkan Physical Union, Alexandroupolis, Greece, 9/9-13, 2009, “Dynamics of stationary states out of equilibrium in space plasmas”.
4. 10th IBEX–Voyager Conf, Southwest Research Institute; San Antonio, TX, USA, 3/9-11, 2010, “The dominance of far-equilibrium stationary states in the outer heliosphere as detected by IBEX”.
5. 9th Ann. Int. Astr. Conf., “Pickup Ions Throughout the Heliosphere & Beyond”, Maui, HI, USA, 3/14-19, 2010, “Nonequilibrium stationary states in the heliosphere: The influence of pickup ions”.
6. 52nd Ann. Meet. of Amer. Physical Society, Plasma Physics, Chicago, IL, USA, 11/8-12, 2010. “Transitions of solar wind in non-equilibrium states”.
7. Int. Astrophys. Forum Alpbach, IAFA 2011, Tyrol, Austria, 6/20-24, 2011, “Thermostatistics of non-equilibrium stationary states”.
8. 5th Int. Conf. on Statistical Mechanics “SigmaPhi”, Larnaca, Cyprus, 7/11-15, 2011, “Thermostatistics of plasmas in nonequilibrium stationary states”.
9. 3rd Int. Conf. on Math Modeling & Analysis, San Antonio, TX, USA, 10/7-9, 2011, “General Allee effect in planar dynamical systems”.

10. 12th Ann. Int. Astr. Conf., Myrtle Beach, SC, USA, 4/15-19, 2013, “Large-scale quantization in space plasmas”.
11. AGU Fall-Meeting 2013, San Francisco, 12/9, 2013, “Large-scale quantization in space plasmas”.
12. 13th Ann. Int. Astrophys. Conf., Myrtle Beach, SC, USA, 3/10-14, 2014, “Application of the large-scale quantization to the inner heliosheath plasma”.
13. 6th Int. Conf. on Statistical Physics “SigmaPhi”, Rhodes, Greece, 7/7-11, 2014, “Understanding kappa distributions in space plasmas”.
14. Joint Mathematics Meeting AMS, San Antonio, TX, USA, 1/10-13, 2015, “Host-Parasitoid Discrete Models with strong Allee Effect”.
15. 14th Ann. Int. Astrophys. Conf., Tampa, FL, USA, 4/20-24, 2015, “Rankine-Hugoniot conditions for shocks in space plasmas described by kappa distributions”.
16. Int. Workshop on Foundations of Complexity–Nonadditive Entropies & Nonextensive Statistical Mechanics, Rio de Janeiro, Brazil, 19-23/10/2015, “Theory and applications of kappa distributions in space plasmas”.
17. ISSI Team 347, Particle acceleration in solar flares & terrestrial substorm, 1st meeting in Bern, 2/15-19, 2016, “Theory of kappa and flat-top distributions”.
18. 18th Int. Congress on Plasma Physics, 2016, Kaohsiung, Taiwan, 6/27-7/1, 2016. Nominated Invited talk: “Kappa distributions: Connection with statistical mechanics, theoretical developments, and applications in plasmas”.
19. 41st COSPAR Scientific Assembly, Istanbul, Turkey, 7/30-8/7, 2016, Solicited Talk: “Origins and Properties of Kappa Distributions in Space Plasmas” in: Special Session D3.6: Role of nonthermal distributions in wave generation, particle heating and acceleration in space plasmas.
20. 16th Ann. Int. Astrophys. Conf., Santa Fe, NM, USA, 3/6-10, 2017, “Statistical origin and properties of kappa distributions”.
21. 10th International Nonlinear Wave & Chaos Workshop, San Diego, CA, USA, 3/20-24, 2017, “Kappa Distributions: Theory and Applications in space plasmas”.
22. 7th Int. Conf. on Statistical Physics “SigmaPhi”, Corfu, Greece, 7/10-14, 2017, “Kappa distributions: Theory and applications in plasmas”.
23. 17th Ann. Int. Astrophys. Conf., Santa Fe, NM, USA, 3/5-9, 2018, “The concept of temperature and thermal distributions in astrophysical plasmas”.
24. 18th Ann. Int. Astrophys. Conf., Pasadena, Ca, USA, 2/18-22, 2019, “On the origin of polytropes”.
25. Nonextensive Statistical Mechanics, Superstatistics and Beyond: Theory and Applications in Astrophysical and other Complex Systems, International School on Complexity, Erice, Italy, 7/2-8, 2019, “Connection of kappa distributions with nonextensive statistical mechanics”.
26. 6th Ph.D. School/Conference on Mathematical Modeling of Complex Systems, Pescara, Italy, 7/3-11, 2019, “Theory of kappa distributions and Nonextensive statistical mechanics”.
27. 14th Int. conf. Astronomy, Hellenic Astronomical Society, Volos, 7/8-11, 2019. “Space Thermodynamics”.
28. 26th Summer School “Dynamical Systems & Complexity”, National technical university of Athens, 7/14-20, 2019, “Kappa distributions and Nonextensive statistical mechanics”.
29. 19th Ann. Int. Astrophys. Conf., Santa Fe, NM, USA, 3/9-13, 2020, “H-theorem and Entropy associated with kappa distributions; Application in solar wind plasma”.
30. 5th Asia-Pacific Conference on Plasma Physics, 26 Sept-1Oct, 2021, “Origin and Role of kappa distributions in space and astrophysical plasmas”.
31. EGU General Assembly 2022, Vienna, 5/2022. ST1.7 EDI: Illuminating the Outer Heliosphere: ENA imaging from IBEX to IMAP.
- Solicited Talk: **Livadiotis, G.**, “*Thermodynamics of the proton plasma in the inner heliosheath during the 24th solar cycle*”.
32. 44th COSPAR Scientific Assembly, Athens, Greece, 7/2022, “Thermodynamic definitions of temperature and kappa and introduction of the entropy defect”.
33. 1st Space Physics Meeting in Athens Princeton Center, Athens, Greece, 7/25-26, 2022, “The Space Physics Group in Princeton University”.
34. 2nd Space Physics Meeting in Princeton Athens Center, Athens, Greece, 7/6-7, 2023, “Entropy Defect”.
35. 8th Int. Conf. on Statistical Physics “SigmaPhi”, Crete, Greece, 7/10-14, 2023, “Kappa distributions: Theory and applications in plasmas”.
36. 26th Summer School “Dynamical Systems & Complexity”, Nat. technical univ. of Athens, 7/17-26, 2023, “Bringing nonextensive statistical mechanics in space science”.
37. Joint NUST-NCP Int. College on Space & Astrophysical Plasmas, 10/30–11/3, 2023, Islamabad, Pakistan, “Kappa distributions and Nonextensive statistical mechanics”.

C. ANALYTICAL PUBLICATION RECORD

GEORGE LIVADIOTIS, Ph.D., Research Scientist

1. Publications: Papers/Books (177); Articles in Greek (25); Conf. Announcements (196)

- Refereed publications in journals & books: **177** (1 book; **163** papers; **13** book chapters):
 - Sole Author: **56** / - Leading 1st Author (with other co-authors): **46** / - Co-Author: **75**.
 - (a) *Refereed Books*: **1** (by G. Livadiotis)
 - (b) *Refereed papers in international Journals*: **163**.
 - Sole Author: **49** / - Leading 1st Author (with other co-authors): **41** / - Co-Author: **73**.
 - (c) *Refereed Book chapters*: **13**
 - Sole Author: **6** / - Leading 1st Author (with other co-authors): **5** / - Co-Author: **2**.
- Refereed publications in Greek: **25**
 - (d) *Refereed articles of popularized science* (Greek): **17**
 - (e) *Dissertations in National & Kapodistrian Univ. of Athens* (Greek): **8**
- Non-Refereed publications:
 - (f) *Announcements in international conferences, published*: **196**

Analytical Publications shown in (b):

<i>Journal</i>	<i>I.F.</i>	<i>N_P</i>	<i>Total I.F.</i>
Science	63.714	3	191.142
Astrophysical Journal Supplement Series	9.2	9	82.8
Space Science Reviews	8.943	2	17.886
Monthly Notices of the Royal Astronomical Society	8.938	1	8.938
Astrophysical Journal Letters	8.811	2	17.622
Astronomy & Astrophysics	6.24	1	6.24
International Journal of Molecular Sciences	6.208	1	6.208
Astrophysical Journal	5.745	42	241.29
Research Notes of AAS	5.5*	2	11
Scientific Reports	4.996	2	9.992
Geophysical Research Letters	4.58	4	18.32
Space Weather	4.288	1	4.288
Plos-One	3.752	3	11.256
Icarus	3.513	1	3.513
Journal of Physics D	3.169	1	3.169
Journal of Geophysical Research – Space Physics	3.111	13	40.443
Physica Scripta	3.081	3	9.243
Physica A	2.924	5	14.62
European Physics Journal Special Topics	2.891	1	2.891
Applied Sciences	2.838	2	5.676
Plasma Physics and Controlled Fusion	2.829	1	2.829
Universe	2.813	1	2.813
Entropy	2.738	17	46.546
Mathematics	2.592	1	2.592
Solar Physics	2.503	1	2.503
International Journal of Bifurcation and Chaos	2.469	2	4.938
Journal of Plasma Physics	2.312	1	2.312
Advances in Space Research	2.177	1	2.177
Journal of Physics A – Mathematical & General	2.11	1	2.11
Theoretical Ecology	1.986	1	1.986
Europhysics Letters	1.958	4	7.832
Physics of Plasmas	1.913	1	1.913
Journal of Biological Dynamics	1.856	6	11.136
Review of Scientific Instruments	1.843	1	1.843
Journal of Mathematical Chemistry	1.81	1	1.81
Nonlinear Processes in Geophysics	1.699	1	1.699
Astrophysics and Space Science	1.681	1	1.681
American Institute of Physics (AIP) Advances	1.627	1	1.627
Annales Geophysicae	1.585	1	1.585
Review of Scientific Instruments Geophysicae	1.523	1	1.523
Contributions to Plasma Physics	1.234	1	1.234
Advances in Alzheimer's Disease	1.19	1	1.19
Journal of Difference Equations & Applications	1.162	3	3.486
Stats	~ 1*	3	3
Journal Statistical Distributions & Applications	0.96	1	0.96
Advances in Complex Systems	0.94	1	0.94
Journal of Physics: Conference Series	**	4	-
Hipparchos	**	1	-
AIP Conference Proceedings & ASP Conference Series	**	3	-
Cyprus Mathematical Society Bulletin	**	1	-
Total Number of Papers and Impact Factor		163	~821
			Mean: ~5.1

I.F.: Impact Factor; *N_P*: Number of Papers; * Expected Impact Factor; ** No Impact Factor

2. Citations

- Citations: ~**6600** (<http://scholar.google.com/citations?user=5qdbypQAAAAJ>)
- *h-index*: **45** / *m-index* (*h-index* per years since Ph.D.): **3.0** / *i10-index* (*papers with ≥10 citations*): ~**105**

3. Analytical List of Publications

Books (1); Papers (163); Book Chs (13); Papers Popularized (25); Conf. Announcements (196)

3.a. Refereed Books (1)

1. Livadiotis, G. (2017), "Kappa distributions: Theory and applications in plasmas", (Ed: Livadiotis, G., Elsevier, Netherlands, UK, USA).

3.b. Refereed Papers in International Journals (163)

---- (color-coded by year) ----

1. Livadiotis, G. (1989), "New types of ordinary differential equations and their solutions", Cyprus Mathematical Society Bulletin, Vol. 6., 14-19 (6pp), (ISSN 0256-8381) (in Greek).
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