CURRICULUM VITAE: GARY P. ZANK

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11 January, 2021

POSITION: Department of Space Science -and-
Center for Space Plasma and Aeronomic Research (CSPAR)
Huntsville, AL 35899 USA

EDUCATION: University of Natal (Durban), South Africa

Ph.D.	April 1987	Applied Mathematics
BSc. (Hons.)	December 1983	Applied Mathematics (cum laude)
BSc.	December 1982	Applied Mathematics, Mathematics, and Physics; Certificate of Merit for outstanding academic achievement in Applied Mathematics.

PROFESSIONAL EXPERIENCE:

September 2017 – current: Aerojet-Rocketdyne Chair in Space Science

2017 – current: University of Alabama Board of Trustees *Trustee Professor*

September 2014 – current: Distinguished Professor of Space Science, University of Alabama at Huntsville

September 2013 – current: Chair, Department of Space Science, University of Alabama at Huntsville
-and-
Director, Center for Space Physics and Aeronomic Research (CSPAR)

July 2008 – September 2013: Pei-Ling Chan Professor of Physics
University of Alabama at Huntsville
-and-
Director, Center for Space Physics and Aeronomic Research (CSPAR)

June 2010 – August 2013: Chair, Physics Department, University of Alabama at Huntsville

January 2006 – June 2008:	Chancellor's Professor of Physics and Astronomy, University of California, Riverside
September 2005 – June 2008:	System-wide Director, Institute of Geophysics and Planetary Physics (IGPP)
July 2001 – June 2008:	Director, University of California, Riverside, Institute of Geophysics and Planetary Physics (IGPP) -and- Professor (Step IX), Department of Physics and Astronomy, University of California, Riverside
July 1999 – June 2001:	Full Professor (with tenure), Bartol Research Institute, The University of Delaware.
July – August 1999:	Visiting Scholar at the Research Center for Theoretical Astrophysics at the University of Sydney
September 1994 – July 1999:	Associate Professor (with tenure), Bartol Research Institute, The University of Delaware.
July 1991 – September 1994:	Assistant Professor (tenure-track), Bartol Research Institute, The University of Delaware.
September 1989 – July 1991:	Bartol Research Institute Post-Doctoral Research Associate
March 1989 – August 1989:	Post-Doctoral fellow at the Max-Planck-Institut fuer Aeronomie, Lindau, FRG (Prof. W.I. Axford)
March 1987 – February 1989:	Post-Doctoral fellow at the Max-Planck-Institut fuer Kernphysik, Heidelberg, FRG (Prof. H.J. Voelk).
1986:	Lecturer in the Dept of Mathematics & Applied Mathematics, University of Natal (part-time).
1985 – 1986:	Tutor for Academic Support Services, University of Natal.
1981 – 1985:	Teaching assistant, Departments of Physics and Mathematics & Applied Mathematics

AWARDS and NAMED FELLOWSHIPS:

Commencement Speaker, University of Alabama in Huntsville Fall 2019 Commencement, Von Braun Center, December 16, 2019

NASA Silver Achievement Medal**,** In recognition of the Parker Solar Probe team, November 2019.

Distinguished Scientist Fellow, Chinese Academy of Science President's International Fellowship Initiative (PIFI) 2019, October 2019.

Distinguished Speaker, NSF Distinguished Lecture Series in Mathematical and Physical Sciences, September, 2019, Washington, DC

Director's Colloquium, Los Alamos National Laboratory, Los Alamos, New Mexico, January 2019.

2018 AAS Neil Armstrong Space Flight Achievement Award – Awarded to the Parker Solar Probe team, of which GPZ is a co-Investigator on the SWEAP instrument, March 2019.

Johannes Geiss Fellowship - 2017 recipient of the International Space Science Institute's Johannes Geiss Fellowship. The fellowship is awarded annually and provides one international scientist of stature with funding for a limited-duration visit to the Institute, which is located in Bern, Switzerland.

Asia, Oceania Geosciences Society (AOGS) Honorary Member – elected 2017

Aerojet/Rocketdyne Chair in Space Science, University of Alabama in Huntsville [2017]

University of Alabama Board of Trustees *Trustee Professor*, the first and only University of Alabama System faculty member on whom this position conferred [2017]

Member***, National Academy of Sciences*** – elected 2016

Axford Medal, highest honor awarded by the Asia, Oceania Geosciences Society (AOGS) [2015]. Citation: *For his seminal contributions to our understanding of evolution and properties of solar wind MHD turbulence, structures in the outer heliosphere, and particle acceleration and transport throughout the heliosphere; and for his exceptional leadership in the general space plasma community and development of space physics within Asia and Oceania.*

The equations of reduced magnetohydrodynamics, G.P. Zank and W.H. Matthaeus, Journal of Plasma Physics, 48, 85 (1992) selected by the Editorial Board of the Journal of Plasma Physics as one of the 12 "Classic JPP Papers". (June 4, 2014)

Distinguished Professor of Space Science, University of Alabama at Huntsville (April 2014)

Eminent Scholar, **University of Alabama in Huntsville** (2008 – current)

NASA Group Achievement Award, **NASA** [2011]

Fellow

American Geophysical Union [2011]

Quest for Excellence Award, 2009, **SciQuest**

Solar Terrestrial Distinguished Lecture, **Asia Oceania Geosciences Society (AOGS)** 2008 Meeting

Pei-Ling Chan Chair of Professor of Physics, **University of Alabama in Huntsville** (2008 – September 2013)

Chancellor's Professor of Physics and Astronomy, **University of California, Riverside** (2006 - 08)

Fellow

American Physical Society [2004]: Citation: *For fundamental contributions to understanding of shocks, particle acceleration, and plasma turbulence and to studies of the solar wind, corona, interplanetary shocks, and global heliospheric structure.*

Fellow

American Association for the Advancement of Science [2003]: Citation: *For pioneering studies in space plasma physics, especially for studies of particle acceleration in the heliosphere and the origin of anomalous cosmic rays.*

Zeldovich Medal

The Committee on Space Research (COSPAR) and The Russian Academy of Sciences [1996]: Citation: *For work in space plasma physics and in particular theoretical studies of mass loading shock formation in interplanetary space and of the interaction of the heliosphere with the local interstellar medium.*

Presidential Young Investigator Award

National Science Foundation (NSF) [1994].

Highlight Talk Award

25th International Cosmic Ray Conference [July 1997].

Post-Doctoral Fellowship[1]
Bartol Research Institute [September 1989 – July 1991].

Post-Doctoral Fellowship
Max-Planck Institute [March 1989 – August 1989].

Post-Doctoral Fellowship
Max-Planck Institute [March 1987--February 1989].

TEACHING ACTIVITIES:

- Undergraduate courses taught: Mathematical methods, astrophysics, plasma physics, computational physics.
- Graduate courses taught: Mathematical methods, plasma physics, astrophysics, space physics, statistical mechanics.

Current Graduate Students:
Nic Donders
Shanti Kumari Thagunna
Juan Guzman
Bishwas L. Shrestha
Ismita Tasnim

Past Graduate Students:
T.R. Story: 1993--1995: Ph.D. Thesis entitled "*Shock Waves in the Heliosphere*."
Ross Bedros: 2004 – 2008: Ph.D. Thesis entitled "*Pickup ion dynamics at quasi-perpendicular shock waves.*"
Xianzhi Ao: 2004 – 2008: Ph.D. Thesis entitled "*Interaction of Turbulence with Shock Waves.*" (Outstanding Student Paper Award, Space Physics and Aeronomy Section, AGU Fall Meeting, San Francisco, USA, 2006)
Peter Hunana: 2004 – 2008: Ph.D. Thesis entitled "*Turbulence in inhomogeneous flows: Applications to the solar wind.*" (Poe Memorial Scholarship for outstanding PhD graduate, Department of Physics, University of California, Riverside, USA, 2008; Outstanding Student Paper Award, Space Physics and Aeronomy Section, AGU Fall Meeting, San Francisco, USA, 2007)
Brian Fayock: 2008-2013: Ph.D. Thesis entitled "*Analysis of solar Lyman-alpha scattering in the heliosphere.*"
Lauren Khare: 2012-2013: MSc. Thesis entitled "*Pickup ion driven simulation of bulk properties of the outer heliosphere as compared to Voyager observations*."
Linda Neergard-Parker: 2010-2013 PhD Thesis entitled "*Particle Acceleration at Interplanetary Shock Waves*" (Fall 2013)
Laxman Adakarhi: 2010-2015 PhD Thesis entitled "*The Transport of Turbulence In Large-Scale Inhomogeneous Flows With Application To The Solar Wind"* (Summer 2015)

[1] These post-doctoral positions were awarded competitively and were not associated with specific projects.

(Awarded Outstanding College of Science Graduate Research Associate, 2016)
Phyllis Whittlesey: 2010 – 2016: Thesis entitled "*An Estimation of The Solar Probe Cup's Performance & Achievable Science On Solar Probe Plus*" (Spring 2016)
Parisa Mostafavi: 2013-2019: PhD Thesis entitled "*Shock Waves and Nonlinear Plasma Waves Mediated by Pickup Ions and Energetic Particles*," (Fall 2019) (AGU Scarf Award, 2020, for outstanding PhD thesis.)
Senbei Du: 2016-2020: PhD Thesis entitled *"Plasma Energization and Dissipation in the Heliosphere,"* (Summer 2020)
Bofeng Tang: 2014-2020: PhD Thesis entitled *"The Transport of Electrons and Electron Heat Flux in The Solar Wind,"* (Summer 2020)

PROFESSIONAL SOCIETIES:

- Member, US National Academy of Sciences
- Honorary Member, Asia, Oceania Geosciences Society (AOGS)
- Fellow of the *American Physical Society*.
- Fellow of the *American Geophysical Union*.
- Fellow of the *American Association for the Advancement of Science*.

PUBLICATIONS:

Current h-index: 78 (Google Scholar)
Approximate current number of citations: ~ 22,084 (Google Scholar)
i10-index (number of publications with at least 10 citations): 324 (Google Scholar)
Number of citations in 2020: ~1,849 (Google Scholar)

BOOKS:

1. *Particle Acceleration in Cosmic Plasmas*, Ed's Zank, G.P. and T.K. Gaisser, *AIP Conference Proceedings* 264, New York (1992).

2. *Editor* of The Journal of Plasma Physics, *David Montgomery 60th Birthday Special Editions*, Volume 56, Part 3 (1996) and Volume 57, Part 1 (1997).

3. *Physics of the Outer Heliosphere: Third Annual IGPP Conference*, *AIP Conference Proceedings* 719, Ed.'s V. Florinski, N.V. Pogorelov, and G.P. Zank (2004).

4. *The Physics of Collisionless Shocks: Fourth Annual IGPP Conference*, *AIP Conference Proceedings*, 781, Ed.'s Gang Li, G.P. Zank, C. Russell, and J. Gosling, (2005).

5. *Physics of the Inner Heliosheath: Fifth Annual IGPP Conference*, *AIP Conference Proceedings*, 858, Ed.'s J. Heerikhuisen, V. Florinski, G.P. Zank, and N.V. Pogorelov, New York (2006).

6. *Numerical Modeling of Space Plasma Flows: Astronum-2006* ASP Conference Series, Volume 359, Edited by N.V. Pogorelov and G.P. Zank, San Francisco: Astronomical Society of the Pacific, (2006).

7. *Turbulence and Nonlinear Processes in Astrophysical Plasmas; 6th Annual IGPP Astrophysics Conference*, *AIP Conference Proceedings*, 932, ed.'s Dastgeer Shaikh and G.P. Zank (2008)

8. *Modeling of Space Plasma Flows: Astronum-2007,* Editors: Pogorelov, Nikolai V.; Audit, Edouard; Zank, Gary P., Society of the Pacific. Conf. Ser. 858 (San Francisco: ASP) (2008).

9. *Numerical Modeling of Space Plasma Flows: ASTRONUM-2008,* Pogorelov, N. V.; Audit, E.; Colella, P.; Zank, G. P., Numerical Modeling of Space Plasma Flows: ASTRONUM-2008 ASP Conference Series, Vol. 406, proceedings of the conference held 8-13 June, 2008 at The Westin Hotel, St. John, U.S. Virgin Islands. Edited by Nikolai V. Pogorelov, Edouard Audit, Phillip Colella, and Gary P. Zank. San Francisco: Astronomical Society of the Pacific, 2009.

10. *Particle Acceleration and Transport in the Heliosphere and Beyond; 7th Annual IGPP Astrophysics Conference*, *AIP Conference Proceedings*, 1039, ed.'s Gang Li, Qiang Hu, O. Verkhoglyadova, G.P. Zank, R.P. Lin, and J. Luhmann, (2008)

11. *Shock Waves in Space and Astrophysical Environments, 8th Annual IGPP Astrophysics Conference, AIP Conference Proceedings*, editors X. Ao, R. Burrows, and G.P. Zank (2009).

12. *Interstellar Boundary Explorer (IBEX),* Ed.'s D. McComas, G.P. Zank, and N. Schwadron, Springer (2010).

13. *Pickup Ions Throughout the Heliosphere and Beyond: Proceedings of the 9th International Astrophysics Conference (AIP Conference Proceedings / Astronomy and Astrophysics),* editors Jakobus Roux , Gary Zank, Andrew J. Coates, and Vladimir Florinski (2010).

14. *Numerical Modeling of Space Plasma Flows Astronum-2009: Proceedings of the 4th International Conference Held at Chamonix, France, June 29-July 3, 2009*, Society of the Pacific Conference Series), editors Nikolai V. Pogorelov, Edouard Audit, Gary P. Zank (2010).

15. *Numerical Modeling of Space Plasma Flows Astronum-2010: Proceedings of the 5th International Conference Held at San Diego, USA,* JUNE 13-18, 2010, Society of the Pacific Conference Series), editors Nikolai V. Pogorelov, Edouard Audit, Gary P. Zank, Vol.. 444 (2011).

16. *Partially Ionized Plasmas throughout the Cosmos: Proceedings of the Huntsville Workshop Held in Nashville, Tennessee*, *USA,* October 3-8, 2010, *(AIP Conference Proceedings / Astronomy and Astrophysics),* editors Vladimir Florinski, Jacob Heerikhuisen, and Gary Zank, (2011).

17. *Physics of the Heliosphere: A 10 Year Retrospective: Proceedings of the 10th International Astrophysics Conference (AIP Conference Proceedings / 1436 /Astronomy and Astrophysics),* editors Jacob Heerikhuisen,, Gang Li, Nikolai Pogorelov, Gary Zank, (2012).

18. *Numerical Modeling of Space Plasma Flows Astronum-2011: Proceedings of the 6th International Conference Held at Valencia, SPAIN,* JUNE 13-17, 2011, Society of the Pacific Conference Series), editors Nikolai V. Pogorelov, J. Antonio Font, Edouard Audit, Gary P. Zank, Vol.. 444 (2011).

19. *Space Weather: The Space Radiation Environment: Proceedings of the 11th International Astrophysics Conference (AIP Conference Proceedings / ??? /Astronomy and Astrophysics),* editors Qiang Hu, Gang Li, Gary P. Zank, Olga Verkhoglyadova, James H. Adams, Vol.. 1500 (2012)

20. *Transport Processes in Space Physics and Astrophysics*, G.P. Zank, Lecture Notes in Physics 877, DOI 10.1007/978-1-4614-8480-6, ISBN 978-1-4614-8479-0, eBoook ISBN 978-1-4614-8480-6, Springer New York 2014

21. *SOLAR WIND 13: Proceedings of the Thirteenth International Solar Wind Conference*, AIP Conference Proceedings **1539,** Editor(s): Gary P. Zank, Joe Borovsky, Roberto Bruno, Jonathan Cirtain, Steve Cranmer, Heather Elliott, Joe Giacalone, Walter Gonzalez, Gang Li, Eckart Marsch, Ebehard Moebius, Nick Pogorelov, Jim Spann, Olga Verkhoglyadova, ISBN 978-0-7354-1163-0, (2013)

22. *Numerical Modeling of Space Plasma Flows Astronum-2012: Proceedings of the 7th International Conference Held on The Big Island, Hawaii,* JUNE 25-29, 2012, Astronomical Society of the Pacific Conference Series, editors Nikolai V. Pogorelov, J. Antonio Font, Edouard Audit, Gary P. Zank, Vol., 474 (2012).

23. *OUTSTANDING PROBLEMS IN HELIOPHYSICS: FROM CORONAL HEATING TO THE EDGE OF THE HELIOSPHERE*, Proceedings of a 12th Annual International Astrophysics Conference held at Myrtle Beach, South Carolina, USA, 14–19 April 2013, edited by Qiang Hu and G.P. Zank, ASTRONOMICAL SOCIETY OF THE PACIFIC, Vol. 484, SBN: 978-1-58381-852-7, e-Book ISBN: 978-1-58381-853-4 (2014).

24. *Numerical Modeling of Space Plasma Flows Astronum-2013: Proceedings of the 8th International Conference Held in Biaritz, France,* JUNE 22-27, 2013, Astronomical Society of the Pacific Conference Series, Volume 488, editors Nikolai V. Pogorelov, J. Antonio Font, Edouard Audit, Gary P. Zank (2013).

25. *VOYAGER, IBEX, AND THE INTERSTELLAR MEDIUM, Proceedings of the 13th Annual International Astrophysics Conference held at Myrtle Beach, South Carolina, USA, 10–14 March 2014*, **Open Access** *Journal of Physics: Conference Series (JPCS)*, Volume 577, edited by G.P. Zank (2014).

26. *Numerical Modeling of Space Plasma Flows Astronum-2014: Proceedings of the 9th International Conference Held in Long Beach, CA,* JUNE 22-27, 2014, Astronomical Society of the Pacific Conference Series, Volume 498, editors Nikolai V. Pogorelov, J. Antonio Font, Edouard Audit, Gary P. Zank (2015).

27. *LINEAR AND NONLINEAR PARTICLE ENERGIZATION THROUGHOUT THE HELIOSPHERE AND BEYOND, Proceedings of the 14th Annual International Astrophysics Conference held at Tampa, Florida, USA, 20–24 April 2015,* ***Open Access*** Journal of Physics: Conference Series (JPCS*)*, edited by G.P. Zank (2015).

28. *Transport Processes in Space Physics and Astrophysics: Problems and Solutions*, A. Dosch and G.P. Zank, Lecture Notes in Physics, 918, Springer New York, ISBN-10: 3319248782, 2016.

29. *Solar Wind 14: Proceedings of the Fourteenth International Solar Wind Conference, Weihai, China 2015*, AIP Conference Proceedings vol. 1720, editors Linghua Wang, Roberto Bruno, Eberhard Moebius, Angelos Vourlidas, an Gary Zank, 2016.

30. *15th Annual International Astrophysics Conference: "The Science of Ed Stone: Celebrating his 80th Birthday", Proceedings of the 15th Annual International Astrophysics Conference held at Cape Coral, Florida, USA, 3–8 April 2016,* ***Open Access*** Journal of Physics: Conference Series, **767** (2016) 01100, doi:10.1088/1742-6596/767/1/011001, edited by G.P. Zank (2016).

31. *Numerical Modeling of Space Plasma Flows Astronum-2015: Proceedings of the 10th International Conference Held in Avignon, France,* JUNE, 2015, ***Open Access*** Journal of Physics: Conference Series, **719**, editors Nikolai V. Pogorelov, Edouard Audit, Gary P. Zank (2016).

32. *16th Annual International Astrophysics Conference: "Turbulence, Structures, and Particle Acceleration Throughout the Heliosphere and Beyond", Proceedings of the 16th Annual International Astrophysics Conference held at Santa Fe, New Mexico, USA, 6–10 March 2017,* **Open Access** *Journal of*

Physics: Conference Series (JPCS), 900, 012023, doi:10.1088/1742-6596/900/1/012023, edited by G.P. Zank (2017).

33. *17th Annual International Astrophysics Conference: "*Dissipative and Heating Processes in Collisionless Plasma: the Solar Corona, the Solar Wind, and the Interstellar Medium"*, Proceedings of the 17th Annual International Astrophysics Conference held at Santa Fe, New Mexico, USA, 5–9 March 2018,* **Open Access** *Journal of Physics: Conference Series (JPCS),* 1100, doi:10.1088/1742-6596/1100/1, edited by G.P. Zank (2018).

34. *Numerical Modeling of Space Plasma Flows Astronum-2017: Proceedings of the 13th International Conference Held in Panama City, FL, 25-29* June, 2018, ***Open Access*** Journal of Physics: Conference Series, vol. 1225, editors Nikolai V. Pogorelov, Edouard Audit, Gary P. Zank (2019).

35. *18th Annual International Astrophysics Conference: "*The Physics of Energetic Particles: Universal Processes from the Solar Corona to the Very Local Interstellar Medium and the Physics they Enable," *Proceedings of the 18th Annual International Astrophysics Conference held in Pasadena, California, USA, 18–22 February 2019,* **Open Access** *Journal of Physics: Conference Series (JPCS),* 1100, doi:10.1088/1742-6596/1332/1, edited by G.P. Zank (2019).

36. *19th Annual International Astrophysics Conference: "*From the Sun's Atmosphere to the Edge of the Galaxy: A Story of Connections**,**" *Proceedings of the 19th Annual International Astrophysics Conference held in Santa Fe, New Mexico, USA,* 9 – 13 March, *2020,* **Open Access** *Journal of Physics: Conference Series (JPCS),* doi:10.1088/1742-6596/1620/1/, edited by G.P. Zank (2020).

37. *The Physics of the Outer Heliosphere,* G.P. Zank, Monograph, in press, Springer-Verlag, 2020.

DISSERTATION:

Zank, G.P. (1987) *Linear and Non-Linear Waves in Plasmas*, Ph.D. thesis, Department of Mathematics and Applied Mathematics, University of Natal, Durban.

SCIENCE POLICY PUBLICATIONS:

1. *Report of the Panel on Theory, Modeling, and Data Exploration*, in National Research Council, The Sun to the Earth – and Beyond: Panel Reports, National Academy Press, Washington, D.C. (Chair of Panel and lead author), 2003.

2. *Plasmas in the Solar System: Cosmic Science in a Local Laboratory,* National Academy Press, Washington, D.C., (G. Siscoe, lead author), 2004.

3. *Exploration of the outer heliosphere and the local interstellar medium*, National Academy Press, Washington, D.C. (Chair of Panel and lead author), 2004.

4. *Distributed Arrays of Small Instruments for Research and Monitoring in Solar-Terrestrial Physics: A Workshop*, National Academy Press, Washington, D.C. (J. Foster, lead author), 2006.

5. *Leaving the Heliosphere: A Nuclear-Powered Interstellar Probe,* by T.H. Zurbuchen, P. Patel, L. Fisk, G.P. Zank, R. Malhotra, H.O. Funsten, and R.A. Mewaldt, in NASA SPACE SCIENCE VISION MISSIONS, edited by Marc S. Allen, Vol. 224, PROGRESS IN ASTRONAUTICS AND AERONAUTICS, 2008.

6. *Science and Enabling Technologies to Explore the Interstellar Medium*, by Alkalai L, Arora N, Arya M, Barnes N, Brashears T, Brown M, Cauley P W, Cesarone R J, Dyson F, Friedman L, Garber D, Goldsmith P, Jemison M, Johnson L, Liewer P, Lubin P, Maccone C, Males J, McDonough K, McNutt R L J, Mewaldt R, Michael A, Montgomery E, Opher M, Provornikova E, Rankin J, Redfield S, Shao M, Shotwell R, Strange N, Stone E, Svitek T, Swain M, Turyshev S, Werner M and Zank G P 2015 Rep. Keck Institute for Space Studies, 30 Sept. 2015.

7. *Consensus Study Report – Powering Science: NASA's Large Strategic Science Missions*, National Academy Press, Washington, D.C. (R.L. McNutt and K.C. Thornton, Co-Chairs), 2017.

8. *PLASMA SCIENCE: Enabling Technology, Sustainability. Security, and Exploration*, the Plasma 2020 Decadal Review, National Academy Press, Washington, D.C. (M. Kushner and G.P. Zank, Co-Chairs), 2020.

BOOK REVIEWS:

1. *MHD Structures, Waves and Turbulence in the Solar Wind: Observations and Theories by C.-Y. Tu and E. Marsch,* in *Physics Today,* July, 1996, 64-67.

INVITED BOOK CHAPTERS (Reviewed):

1. *Solar Wind: Interaction with the Local Interstellar Medium* by G.P. Zank, in Encyclopedia of Astronomy and Astrophysics, Institute of Physics Publishing and MacMillan Publishing, Editor E. Priest (1998). [Publication not available - page numbers not known.]

2. *Galactic environment of the sun and stars: interstellar and interplanetary material*, by P.C. Frisch, H.-R. Mueller, G.P. Zank, and C. Lopate, Astrophysics of Life, 21-34, ed.'s M. Livio, N. Reid, and W. Sparks (2005).

3. *Variations in the galactic cosmic ray intensity in the heliosphere in response to variable interstellar environments* by V. Florinski and G.P. Zank, chapter in *Solar*

Journey: Significance of our Galactic Environment for the Heliosphere and Earth, editor P.C. Frisch, Springer, pp. 23-52, 2006.

4. *Influence of the interstellar magnetic field on the heliospheric interface* by N.V. Pogorelov and G.P. Zank, chapter 3 in *Solar Journey: Significance of our Galactic Environment for the Heliosphere and Earth* editor P.C. Frisch, Springer, pp. 53-86, 2006.

5. *Heliospheric Variation in Response to Changing Interstellar Environments* by G.P. Zank, H.-R. Mueller, V. Florinski,, and P.C. Frisch, chapter 2 in *Solar Journey: Significance of our Galactic Environment for the Heliosphere and Earth*, editor P.C. Frisch, Springer, pp. 281-316, 2006.

6. *From Micro- to Macro-scales in the Heliosphere and Magnetospheres*, by Dastgeer Shaikh, I. S. Veselovsky, Q. M. Lu, G.P. Zank, in "The Sun, the Solar Wind, and the Heliosphere," ed.'s Mari Paz Miralles and Jorge Sanchez Almeida, Springer, pp. 177 - 197 (2010).

7. *Formation of Kappa Distributions at Quasi-Perpendicular Shock Waves*, by G.P. Zank, In: Kappa Distributions: Theory and Applications in Plasmas. Elsevier, pp. 609–632 (2017)

JOURNAL ARTICLES:

1. *Relativistic oblique magnetohydrodynamic shocks* by G.M. Webb, G.P. Zank & J.F. McKenzie, J. Plasma Physics, **37**, 117-141 (1987).

2. *Short-wavelength compressive instabilities in cosmic ray shocks and heat conduction flows* by G.P. Zank & J.F. McKenzie, J. Plasma Physics, **37**, 347-361 (1987).

3. *The interaction of long-wavelength compressive waves with a cosmic ray shock* by G.P. Zank & J.F. McKenzie, J. Plasma Physics, **37**, 363-372 (1987).

4. *Radiation characteristics of Ion Acoustic Waves in a supersonic Ion beam* by R.G. Greaves, G.P. Zank, P.J. Barrett & J.F. McKenzie, Plasma Physics and Controlled Fusion, **30**, 1339-1343 (1988) (also published as an internal report of the Plasma Physics Research Institute, University of Natal, RSA, R187).

5. *Solitons in an ion-beam plasma* by G.P. Zank & J.F. McKenzie, J. Plasma Physics, **39**, 183-191 (1988).

6. *Properties of waves in an ion-beam plasma system* by G.P. Zank & J.F. McKenzie, J. Plasma Physics, **39**, 193-213 (1988).

7. *Modified non-linear Burgers' equations and cosmic ray shocks* by G.P. Zank, G.M. Webb & J.F. McKenzie, Astronomy and Astrophysics, **189**, 338-348 (1988).

8. *Oscillatory cosmic-ray shock structures* by G.P. Zank, Astrophysics and Space Science, **140**, 301-324 (1988).

9. *Cosmic-ray spectrum produced by supernova remnants with an upper limit on wave dissipation* by H.J. Völk, L.A. Zank & G.P. Zank, Astronomy and Astrophysics, **198**, 274-282 (1988).

10. *The time-asymptotic stability of shocks in cosmic-ray hydrodynamics* by G.P. Zank, J. Plasma Physics, **39**, 539-548 (1988).

11. *A cosmic ray driven instability* by G.P. Zank, J. Plasma Physics, **41**, 89-95 (1989).

12. *Wave properties of an ion-beam system with a strong magnetic field* by K. Naidu, G.P. Zank, J.F. McKenzie, J. Plasma Physics, **43**, 385-396 (1990).

13. *Structure of the Halley bow shock* by G.P. Zank, Planetary and Space Science, **38**, 11, 1355-1360 (1989).

14. *Solution topologies for cosmic ray modified galactic winds I. spherical symmetry* by G.P. Zank, Astronomy and Astrophysics, **225**, 37-47 (1989).

15. *Application of the Sine-Poisson equation in Solar Magnetostatics* by G.M. Webb and G.P. Zank, Solar Physics, **127**, 229-252 (1990).

16. *Instabilities in energetic particle modified shocks* by G.P. Zank, W.I. Axford, J.F. McKenzie, Astronomy and Astrophysics, **233**, 275-284 (1990).

17. *Nearly Incompressible Hydrodynamics and Heat Conduction* by G.P. Zank and W.H. Matthaeus, Physical Review Letters, **64**, 1243-1246 (1990).

18. *Weakly Multi-dimensional Cosmic Ray Modified MHD Shocks* by G.P. Zank and G.M. Webb, Journal of Plasma Physics, **44**, 91-101 (1990).

19. *Painlevé Analysis of the Two-Dimensional Burgers Equation* by G.M. Webb and G.P. Zank, Journal of Physics A: Mathematical and General, **23**, 5465-5477 (1990).

20. *Temperature and Density Anti-correlations in Solar Wind Fluctuations* by G.P. Zank, W.H. Matthaeus and L.W. Klein, Geophysical Research Letters, **17**, 1239-1242 (1990).

21. *The equations of nearly incompressible fluids: I. Hydrodynamics, turbulence and waves* by G.P. Zank and W.H. Matthaeus, Physics of Fluids A, **3**, 69-82 (1991).

22. *The effect of viscosity on steady transonic flow with a nodal solution topology* by S.P. Owocki and G.P. Zank, The Astrophysical Journal, **368**, 491-503 (1991).

23. *Painlevé Analysis of the Three Dimensional Burgers Equation* by G.M Webb and G.P. Zank, Physics Letters A, **150**, 14-22 (1990).

24. *Properties of Mass Loading Shocks. I: Hydrodynamic considerations* by G.P. Zank and S. *Oughton*, Journal of Geophysical Research (Space Physics), **96**, 9439-9453 (1991).

25. *Weyl's Theorem for MHD* by G.P. Zank, Journal of Plasma Physics, **46**, 11-14 (1991).

26. *On the Painlevé Analysis of the two-dimensional Burgers Equation* by G.M. Webb and G.P. Zank, Nonlinear Analysis, Theory, Methods and Applications, **19**, 2, 167-176 (1991).

27. *Mass-Loading and Parallel Magnetized Shocks* by G.P. Zank, S. Oughton, F.M. Neubauer and G.M. Webb, Geophysical Research Letters, **18**, 1809-1812 (1991).

28. *Wave Diffraction in Weak Cosmic Ray Modified Shocks* by G.M. Webb and G.P. Zank, The Astrophysical Journal, **396**, 549-574 (1992).

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29. *The interaction of solar wind structures with the termination shock and anomalous comic ray enhancements at low energies* by V. Florinski, G.P. Zank, and N.V. Pogorelov, Proceedings of the 29th International Cosmic Ray Conference (Pune, India), in press (2005). 4 pages.

30. *Galactic cosmic ray response to heliospheric environment changes and implications for cosmogenic isotope records,* by V. Florinski and G.P. Zank, Proceedings of the 29th International Cosmic Ray Conference (Pune, India), in press (2005). 4 pages.

31. *Multiple CMEs and large gradual SEP events* by Gang Li and G.P. Zank, Proceedings of the 29th International Cosmic Ray Conference (Pune, India) (2005). 4 pages.

OTHER PUBLICATIONS

1. *Preface and J.F. McKenzie and M. Intirilgator Obituaries,* Proc. 14th Annual Int. Astrophysics Conf., Tampa, **Open Access** *Journal of Physics: Conference Series (JPCS),* ed. G.P. Zank, 642, 011001 doi:10.1088/1742-6596/642/1/011001 (2015)

INVITED CONFERENCE PRESENTATIONS:

1. *The Theory of Nearly Incompressible Fluids*, invited paper at *Solar Wind 7*, Goslar, Germany, September 1991.
2. *Mass-Loading at Interplanetary Shocks*, invited paper at the APS-Division of Plasma Physics meeting, Tampa, Florida, USA, November 1991.
3. *Particle Injection and the Structure of Energetic Particle Modified Shocks*, invited paper at the *Particle Acceleration in Cosmic Plasmas* meeting, Clayton Hall, University of Delaware, USA, December 1991

4. *The Theory of Nearly Incompressible Magneto fluid-Dynamics*, invited paper at the "International Sherwood Fusion Theory Conference", Santa Fe, New Mexico, USA, April 1992.
5. *Shocks in Mass-Loading Plasmas*, invited paper at the "Gordon Research Conference, Active Phenomena in Solar System Plasmas", Plymouth, New Hampshire, July 1992.
6. *Physics of the Cometary Shock*, invited paper at the World Space Congress 4th COSPAR Colloquium "Critical Problems of the Plasma Environments of Comets and other Weakly Magnetized Bodies", Ann Arbor, Michigan, USA, August 1992.
7. *The Theory of Nearly Incompressible MHD*, invited tutorial at the1993 Cambridge Workshop on the Physics of Space Plasmas, Massachusetts Institute of Technology, Cambridge, Massachusetts, July 1993.
8. *The Fluid Dynamical Description of Mass-Loading Flows*, invited paper at the 7th Scientific Assembly of IAGA, Buenos Aires, August 1993.
9. *Structure and Properties of Cometary Shocks*, invited paper at the 7th Scientific Assembly of IAGA, Buenos Aires, August 1993.
10. *Shock Structure Modified by Energetic Particles*, invited paper at the 7th Scientific Assembly of IAGA, Buenos Aires, August 1993.
11. *The Heliospheric Termination Shock*, invited paper at the International Topical Conference on Research Trends in Plasma Astrophysics, La Jolla, November 1993.
12. *Nonlinear Theory of the Heliospheric Termination Region (Waves and Shock Modification)*, invited paper at the Second Pioneer-Voyager Symposium on Energetic Particles and Fields in the Outer Heliosphere 1994, University of New Hampshire, Durham, USA, June 1994.
13. *The Termination Shock: Physical Processes*, invited paper at COSPAR Symposium D2.1 "The Physics of the Collisionless Shock", Hamburg, Germany, July 1994.
14. *Modeling the Outer Heliosphere*, invited paper at Solar Wind 8,session on "Outer Heliosphere, Boundaries and Interactions with the Local Interstellar Medium", Dana Point, CA USA, June 1995.
15. *Interaction of Interplanetary Disturbances with the Termination Shock and the Generation of 2-3kHz Radiation*, invited paper at the IAGA Scientific Assembly, session on "Local Interstellar Cloud and the Boundary of the Heliosphere", Boulder, CO, USA, July 1995.
16. *Cosmic Ray Mediated Shock Waves*, invited report at the IAGA Scientific Assembly, session in "Reporter Reviews", Boulder, CO, USA, July 1995.
17. *MHD Modeling of the Heliosphere*, invited talk at the ISSI workshop "The Heliosphere in the local interstellar medium", Bern, Switzerland, November 1995.
18. *The Physics of the Outer Heliosphere*, invited paper at the "Gordon Research Conference, "Connections: energy transport in solar system and astrophysical plasmas", Henniker, New Hampshire, June 1996.
19. *The Interaction of the Solar Wind with the LISM*, invited talk at the ISSI Working Group Meeting `` Dust in the Heliosphere and LISM", Bern, Switzerland, January 1997.
20. *The Structure of the Heliospheric Boundaries*, invited talk at the ISSI Working Group Meeting `` Dust in the Heliosphere and LISM", Bern, Switzerland, January 1997.

21. *Pressure-Balanced-Structures, Compressible Turbulence and the Dimensionality of Solar Wind Turbulence*, invited talk at ``Turbulence and Nonlinear Waves in the Solar Wind'' meeting, Köln, Germany, February 1997.
22. *The Physics and Global Structure of the Outer Heliosphere*, invited Highlight Talk at ``The 25th International Cosmic Ray Conference'', Durban, South Africa, August, 1997.
23. *Interaction of the Solar and Stellar Wind(s) with the Interstellar Medium*, invited talk at "Plasma Astrophysics and Space Physics International Conference," Lindau, Germany, May 1998.
24. *Shock Waves in Mass-Loaded Plasmas*, invited talk at "ISSI Workshop on Mass-Loaded Plasmas", Bern, Switzerland, September 1998.
25. *The Large-Scale Structure of the Heliosphere*, invited talk at "Solar Wind 9", Nantucket, MA, USA, October 1998.
26. *Interaction of the solar wind with the very local interstellar medium*, Interstellar Probe meeting, Pasadena, CA, USA, May 1999.
27. *75 Years of Space and Astrophysics at the Bartol Research Institute*, Bartol 75th Anniversary Symposium, Newark, DE, USA, October 1999.
28. *The Injection Problem for Anomalous Cosmic Rays*, ACE-2000 Meeting, Indian Wells, CA, USA, January 2000.
29. *Interplanetary physics: Implications for understanding plasma processes throughout the galaxy*, National Academy of Sciences Symposium, Woods Hole, MA, USA, June 2000.
30. *Physics of the outer heliosphere and the role of the interstellar medium*, COSPAR Colloquium ``The Outer Heliosphere: The Next Frontier'', Potsdam, Germany, July 2000.
31. *The transport of energetic particles*, invited paper for an issue of The Journal of Plasma Physics honoring the 65th birthday of John Dougherty (2000).
32. *Interaction of the solar and stellar wind(s) with the partially interstellar medium*, 42nd Annual Meeting of the Division of Plasma Physics, Quebec City, Canada, October 2000.
33. *The Physics of the Outer Heliosphere*, Fall AGU Meeting, San Francisco, USA, December 2000.
34. *Pickup Ions and Interplanetary Shocks*, IAGA-2001 Meeting, Hanoi, Vietnam, August 2001.
35. *The Outer Heliosphere*, Reporter Review, IAGA-2001 Meeting, Hanoi, Vietnam, August 2001.
36. *The Global Heliosphere: Implications of recent observations*, Voyager, Ulysses & ACE Joint Science Workshop, Oxnard, CA, USA, October 2001.
37. *Nearly Incompressible MHD: Theory and observations,* APS Division of Plasma Physics Annual Meeting, Long Beach CA, USA, November 2001.
38. *Pickup ions, Interplanetary Shocks, and the Termination Shock,* ICR-IGPP "Particle Transport and Acceleration in Cosmic Plasmas" meeting, Riverside and Lake Arrowhead, CA, February 2002.
39. *The Global Heliosphere*, XXVII General Assembly of the European Geophysical Society, Nice, France, April 2002.

40. *Particle acceleration at CME-driven shocks,* ACE Team Meeting, Caltech, Pasadena, California, April 2002.
41. *Particle acceleration at CME-driven shocks*, Huntsville Workshop 2002: "Astrophysical Particle Acceleration in Geospace and Beyond," Chattanooga, Tennessee, October 2002.
42. *Particle acceleration at interplanetary shocks,* Fall AGU, San Francisco, December 2002.
43. *Nearly-incompressible magnetohydrodynamics,* 2nd Annual IGPP Conference: "Turbulence in the Interplanetary and Interstellar Medium: Theory, Observations, and Ramifications," February 2003.
44. *The interaction of turbulence with shock waves,* 2nd Annual IGPP Conference: "Turbulence in the Interplanetary and Interstellar Medium: Theory, Observations, and Ramifications," February 2003.
45. *Particle acceleration at interplanetary shocks: a quasi-numerical approach (the UCR model),* MURI Workshop on the "Coupling of CME's and SEP events", Tucson, AZ, March 2003.
46. *Coupling complexity in the heliosphere,* European Geophysical Society meeting, Nice, France, April 2003.
47. *The large scale structure and dynamics of the heliosphere. Processes on the time scale of the Gleissberg cycle, and the Maunder and other minima*, International Space Science Institute Workshop on 10Be, 14C, the Sun and the Heliosphere, Bern, Switzerland, April, 2003.
48. *Understanding heliospheric structure: an introduction,* National Research Council Meeting on Exploring the Outer Heliosphere, Irvine, CA, May 2003.
49. *Coupling Complexity and the interaction of the solar wind with the ISM*, IAGA, Sapporo, Japan, July 2003.
50. *Exploring the global heliosphere: future prospects,* National Research Council Meeting, Woods Hole, MA, July 2003.
51. *Particle acceleration, space weather, and interplanetary shocks: the UCR model,* ACE, RHESSI, WIND Workshop, Taos, NM, October 2003.
52. *The heliospheric termination shock,* UCR-IGPP 3rd Annual Conference, Physics of the Outer Heliosphere, Riverside, CA, February 2004.
53. *Structure of the quasi-perpendicular shock,* International Space Science Institute Workshop on Linear and Nonlinear Waves in Space Plasmas, Bern, Switzerland, March, 2004.
54. *Density spectra, waves, and structure formation in the interplanetary and interstellar medium,* International Space Science Institute Workshop on Linear and Nonlinear Waves in Space Plasmas, Bern, Switzerland, March, 2004.
55. *Turbulence in the interstellar medium,* Alfven Workshop, Nice, France, April 2004.
56. *The interaction of the interstellar medium with the sun,* 1st Asia Oceania Geosciences Society Annual Meeting, Singapore, July 2004.
57. *Structure and properties of the heliospheric termination shock,* 1st Asia Oceania Geosciences Society Annual Meeting, Singapore, July 2004.
58. *The injection problem at shock waves,* COSPAR 2004 Meeting, Paris, France, July 2004.

59. *Particle acceleration at CME-driven shocks,* 2004 Huntsville Workshop on Challenges to Modeling the Sun-Earth System, Huntsville, Al, October 2004.
60. *Interaction of the solar wind and the interstellar medium: global structure*, 2004 AGU Meeting, San Francisco, December 2004.
61. *Particle acceleration at heliospheric shock waves: outstanding problems,* UCR-IGPP 4th Annual Conference, Physics of Collisionless Shocks, Palm Springs, CA, February 2005.
62. *Why and where is the heliopause unstable?* Future Perspectives in Heliospheric Research: Unsolved Problems, New Missions-New Science, Bonn, Germany April 2005.
63. *The Interaction of the Interstellar Medium with the Sun: The Newest Frontier*, IAGA, Toulouse, France, July 2005
64. *Space Physics: the next decade,* Presentation to the National Research Council 2005-1015 Plasma Physics Decadal Review Panel, Washington, D.C., October 2005.
65. *Outer Heliospheric Modeling,* CCMC Workshop, Clearwater, FL, October 2005.
66. *Modeling the large-scale heliosphere*, invited talk at the Symposium in Honor of Edward Stone On the Occasion of his 70th Birthday, Pasadena, CA, February 10–11, 2006.
67. *Physics of the inner heliosheath,* invited talk at the International Conference "The Physics of the Inner Heliosheath: Voyager Observations, Theory, and Future Prospects", Honolulu, HI, March 3–9, 2006.
68. *Modeling complexity and coupling in space physics problems,* invited talk at the international conference "Numerical modeling of Space Plasma Flows," Palm Springs, March 2006.
69. *HELIOSPHERIC MODELING: A template for understanding astrospheres and planetary nebulae*, invited talk at Spring AGU, Baltimore, MD, May 2006.
70. *Particle Acceleration at Interplanetary Shocks,* invited overview talk at SHINE 2006 meeting Zermatt, Utah, July 2006.
71. *Shock geometry and particle acceleration timescales in gradual SEP events*, invited talk at SHINE 2006 meeting Zermatt, Utah, July 2006.
72. *Implications of shock geometry from various in-situ observations in gradual SEP events*, invited talk at SHINE 2006 meeting Zermatt, Utah, July 2006.
73. *Particle Acceleration at Interplanetary Shocks: Fractionation of SEP events,* invited talk at invited talk at Johannes Geiss' 80th Birthday Celebration, September 2006.
74. *Interaction of the solar wind with the local interstellar medium,* invited talk, ISROSES Physics of the Sun-Earth Connection Workshop, Varna, Bulgaria, September 2006.
75. *Particle Acceleration at Shock Waves,* invited talk at Fall AGU, San Francisco, December 2006.
76. *Particle Acceleration at Interplanetary Shock Waves,* invited talk, Challenges for Solar Cycle-24 Workshop, Ahmedabad, India, January 2007.
77. *Interaction of turbulence with shock waves,* invited talk at the "Turbulence and nonlinear processes in astrophysical plasmas, Honolulu, HI, March 16–22, 2007.
78. *Advances in Magnetic Turbulence and Particle Acceleration in the Corona and Solar Wind,* Reporter Review IAGA, Perugia, July 2007.
79. *Particle Acceleration at Interplanetary Shocks,* IAGA, Perugia, July 2007.

80. *Magnetic Turbulence and Particle Acceleration in the Corona and Solar Wind*, St Holmbury, UK, September 2007.
81. *Paris talks ...* Paris, November, 2007
82. *Interaction of turbulence with shock waves,* invited talk at Fall AGU, San Francisco, December 2007.
83. *Particle Acceleration at CME and Interplanetary Shocks,* invited survey talk at "Particle Acceleration and Transport throughout the Heliosphere and Beyond," Kauai, March 2008.
84. *Modeling multi-scale processes in astrophysical plasmas,* ASTRONUM-08, St Johns, US Virgin Islands, June 2008.
85. *The interaction of the solar wind with the local interstellar medium,* AOGS, Busan, Korea, (Distinguished Lecturer award talk), June 2008.
86. *The heliospheric termination shock,* International Heliospheric Meeting, Ioannina, Greece, September 2008.
87. *The large-scale structure of the heliosphere,* APS Topical Meeting, Dallas, November 2008.
88. *Nonlinear processes in the heliosheath,* Fall AGU meeting, San Francisco, December 2008.
89. *Microstructure of the heliospheric termination shock observed by Voyager 2*, Voyagers in the Heliosheath, Kauai 2009.
90. *The Heliospheric Termination shock Structure,* 8th International Astrophysics Conference, Shock Waves in Space and Astrophysical Environments, Kona, May 2009
91. *Pickup ion heating and the structure of the termination shock: implications for ENAs,* Spring AGU, Toronto, Canada, May 2009
92. *Interaction of turbulence with shock waves,* ASTONUM09, Chamonix, France, July 2009
93. *Structure of the heliospheric termination shock,* ISSS9, Paris, July 2009
94. *Shocks and particle acceleration in the heliosphere,* Particle Acceleration Workshop, Kavli Institute, Santa Barbara, CA, September 2009
95. *The dynamical heliosphere,* Jokipii 70th Birthday Celebration Workshop, Tucson, AL, November 2009
96. *Turbulence in the outer heliosheath,* Joint IBEX-Voyager meeting, San Antonio, TX, March 2010.
97. *Transport of turbulence in the heliosphere,* 9th International Astrophysics Conference, Pickup ions in cosmic plasmas, Maui, March 2010.
98. *Transport of MHD turbulence in inhomogeneous flows*, 5th ASTROMUN International Meeting, San Diego, June 2010.
99. *Interaction of the solar wind and stellar winds with the interstellar medium,* International Plasma Physics Symposium, Trieste, Italy. June 2010.
100. *Microphysics of the termination shock,* COSPAR, Bremen, Germany, July 2010.
101. *New directions in computational space physics,* ACCEHS 2010, Boulder, CO August 2010
102. *Survey of effectiveness of past Space Physics Decadal Survey: Computation and modeling,* Boulder, CO August 2010

103. *Transport of low frequency turbulence*, Huntsville Workshop, Nashville, TN, October 2010.
104. *Particle acceleration and transport of solar energetic particles: theory, modeling, and observational constraints*, Fall AGU, San Francisco, CA, December 2010.
105. *Microphysical processes at shocks and in the inner and outer heliosheaths*, Fall AGU, San Francisco, CA, December 2010.
106. *The Transport of Turbulence in Inhomogeneous Flows*, 10th International Astrophysics Conference, Maui, HI March 2011
107. *Termination Shock Physics, Proton Distributions, and ENA Physics*, IBEX SWT Meeting, Durham, New Hampshire, April, 2011
108. *The transport of turbulence in the inhomogeneous flows,* ASTRONUM 5, Valencia, June 2011
109. *Turbulence modeling in the solar corona*, Community Workshop on Solar Physics, Boulder CO, May 2011
110. *Space Weather modeling: a radiation perspective*, US-UK Joint Workshop on Space Weather, Boulder CO, September 2011
111. *The large-scale heliosphere and implications for cosmic ray modulation*, Physics of TeV Cosmic Rays Workshop, Madison, WI, October 2011
112. *The heliopause: structure, stability, and temporal response to disturbances*, Fall 2011 AGU meeting, San Francisco, December 2011
113. *Modeling the radiation environment*, APS Meeting, Boston, MA, March 2012
114. *RISCS: A tool for Space Weather modeling*, 11th Annual Astrophysics Meeting, Palm Springs, CA, March 2012
115. *Shock waves in a partially ionized plasma*, 11th Annual Astrophysics Meeting, Palm Springs, CA, March 2012
116. *Shock waves in a partially ionized plasma: Implications for the heliospheric bow shock*, IBEX Science Meeting, Bad Honnef, Germany, April 2012.
117. *The structure of shock waves in a partially ionized plasma with application to the heliosphere-LISM interaction,* ASTRONUM-12, Big Island, HI, June 2012.
118. *Heliospheric Structure: The Bow Wave and the Hydrogen Wall,* IBEX 2012, Santa Fe, NM, November 2012
119. *The transport of density fluctuations throughout the heliosphere,* ARCETRI Workshop, Florence, Italy, November 2012
120. *Heliospheric Structure: Overview of two sets of MHD Global Simulations*, Voyager Working Group Meeting, San Francisco, CA, December 2012
121. *Heliospheric Structure: The Bow Wave and the Hydrogen Wall,* 12th Annual Astrophysics Meeting, Myrtle Beach, SC, March 2013
122. *The Transport of Turbulence throughout the Heliosphere,* 1st Solar Probe Plus Workshop, Pasadena, CA, May 2013
123. *Review of Turbulence Transport and Sources at the Large Scale,* Turbulence in the Solar Wind Workshop, Kennebunkport, Maine, May 2013
124. *Heliospheric Structure: The Bow Wave and the Hydrogen Wall,* AOGS, Brisbane, Australia, June 2013
125. *The Transport of Turbulence throughout the Heliosphere,* AOGS, Brisbane, Australia, June 2013

126. *Heliospheric Structure: The Bow Wave and the Hydrogen Wall,* ASTRONUM-13, Biarritz, France, July 2013
127. *Structure of the Heliosphere,* COSPAR, Merida, Mexico, August 2013
128. *Modeling the Lyman-alpha backscatter observed by Voyager 1 and 2 in the outer heliosphere and the structure of the heliospheric bow shock*, Cosmic Ray Anisotropy Workshop, Madison, WI, September 2013.
129. *The structure of the heliospheric bow shock,* ARCETRI Workshop, Florence, Italy, October 2013.
130. *Modeling the Heliosphere,* "Wind Bubbles, Astrospheres and the Heliosphere: Environments and Cosmic Rays" Conference, Bochum, Germany, November 2013.
131. *High-Performance Computational Science: Plasma Physics*, Workshop for "Institute for High-Performance Computational Science with Structured Meshes and Particles" (HPCS-SMP)," Keynote talk, Denver, CO, November 2013
132. *Structure and modelling of the heliosphere*, "Astrospheres: From the Sun to Red Super Giants" Conference, Leiden, Holland, December 2013.
133. *Workshop Summary*, "Astrospheres: From the Sun to Red Super Giants" Conference, Leiden, Holland, December 2013
134. *Revised study of the linear stability of the heliopause,* Physics of the Heliopause, ISSI Workshop, Bern, Switzerland, January 2014.
135. *Particle acceleration by reconnection events,* Physics of the Heliopause, ISSI Workshop, Bern, Switzerland, January 2014.
136. *Plasma physics of the very local interstellar medium,* 13th AIAC, Voyager, IBEX, and the Interstellar Medium, Myrtle Beach, SC, March 2014.
137. *Particle acceleration via reconnection processes in the supersonic solar wind,* Huntsville Workshop 2014, Solar and Stellar Processes from the Chromosphere to the Outer Corona, Orlando, FL, March 2014.
138. *Particle Acceleration via reconnection processes in the supersonic solar wind,* ASTRONUM 2014, Long Beach, CA June 2014
139. *Particle Acceleration via reconnection processes in the supersonic solar wind,* ARCETRI Workshop, Florence, Italy, October 2014.
140. *Magnetic field structure at the heliopause*, Physics of the Heliopause, ISSI Workshop, Bern, Switzerland, November 2014.
141. *Plasma physics of the very local interstellar medium,* Physics of the Heliopause, ISSI Workshop, Bern, Switzerland, November 2014.
142. *Plasma physics, waves and turbulence in the very local interstellar medium*, Fall AGU, San Francisco, December 2014
143. *Kappa Distributions: The Injection Problem At Perpendicular Shocks And The Transmission Problem At The Heliospheric Termination Shock*, Fall AGU, San Francisco, December 2014
144. *Workshop Summary and Overview: Future Prospects,* Lorentz Center Workshop: Shock Acceleration: From the Solar System to Cosmology, Leiden, The Netherlands, January 2015.
145. *Particle Acceleration by Reconnection Processes,* Accelerating Cosmic Ray Comprehension Conference, Princeton, Princeton, New Jersey, April 2015
146. *Particle Acceleration by Shocks and related Reconnection Processes*, 14th Annual International Astrophysics Conference, Tampa, Florida, April 2015

147. *Pickup ion mediated plasmas. 1) Basic model for the local interstellar medium,* ASTRONUM 2015, Avignon, France, June 2015
148. *Faltering Steps into the Galaxy: Pushing the Boundaries,* Axford Medal Lecture, AOGS, Singapore, August 2015
149. *Particle Acceleration in the Solar Wind,* Solar Energetic Particles Workshop, Honolulu, HI, October 2015
150. *Particle acceleration via reconnection processes,* ARCETRI Workshop, Florence, Italy, October 2015.
151. *The generation of kappa distributions At Perpendicular Shocks And The Heliospheric Termination Shock,* Fall AGU, December 2015
152. *Particle Acceleration At Small-Scale Flux Ropes In The Heliosphere,* Fall AGU, December 2015
153. *Diffusive Shock Acceleration and Reconnection Acceleration Processes,* From IMP to Solar Orbiter Glenn M. Mason Commemorative Conference, Laurel, MD, March 2016
154. *Particle Acceleration at Shock Waves and Downstream Small-Scale Flux Ropes,* 15th Annual International Astrophysics Conference, Cape Coral, FL, April 2016
155. *Particle Energization throughout the Heliosphere: Opportunities with IMAP,* EGU Meeting, Vienna, Austria, April 2016
156. *The theory of nearly incompressible turbulence,* ASTRONUM-2016, Monterrey, CA, June 2016
157. *Particle Acceleration at Shock Waves and Downstream Small-Scale Flux Ropes*, AOGS, Beiing, China, August 2016
158. *Multi-component Plasma Modeling and Dynamics in the Presence of a Suprathermal Non-equilibrated Ion Population,* 2nd International Conference, *Partially Ionized Plasma in Astrophysics* in Tenerife, Spain, September 2016.
159. *The Theory and transport of nearly incompressible MHD turbulence,* ARCETRI Workshop, Florence, Italy, October 2016.
160. *Solar energetic particle events: diffusive shock acceleration, quiet time processes, and the young Sun,* International Workshop Without Walls: Exoplanetary Space Weather, Climate and Habitability, New Orleans, La, November 2016
161. *The Theory and transport of nearly incompressible MHD turbulence,* Fall AGU, December 2016
162. *A Nearly Incompressible Description of Turbulence in the Solar Wind,* 16th Annual International Astrophysics Conference, Sante Fe, New Mexico, March 2017.
163. *Review of Diffusive Shock Acceleration modeling of Solar Energetic Particle Events, "Solar Energetic Particles, Solar Modulation and Space Radiation: New Opportunities in AMS-02 Era #2,* Washington, DC, April 2017
164. *The Origin of Compressible Magnetic Turbulence in the Very Local Interstellar Medium*, ASTRONUM-2017, France, June 2017
165. *PLENARY TALK: Faltering Steps into the Galaxy,* South African Institute of Physics Annual Meeting, Stellenbosch, South Africa, July 2017
166. *Pickup Ions, Shock Waves, and the Very Local Interstellar Medium: consequences of Lee & Ip, 1987,* "Serendipities in the Solar System and Beyond – celebrating Prof. Wing Ip's 70th birthday", Taiwan, July 2017

167. *The Outer Heliosphere and the VLISM: An Overiew,* APL Joint New Horizons-Voyager Meeting, APL-Johns Hopkins, Baltimore, MD, January 2018
168. *Theory and Transport of Nearly Incompressible Magnetohydrodynamic Turbulence in the Solar Corona,* 17th Annual International Astrophysics Conference, Sante Fe, New Mexico, March 2018.
169. *Particle Acceleration Associated with Magnetic Islands,* AOGS, Hawaii, June 2018
170. *Time-varying processes in the outer heliosphere,* 42nd COSPAR Scientific Assembly, Pasadena, CA, July 2018
171. *Turbulence in the Outer Heliosphere and Very Local Intersellar Medium,* 42nd COSPAR Scientific Assembly, Pasadena, CA, July 2018
172. *Heliospheric Shock Waves,* 13th International School for Space Simulations (ISSS-13), UCLA, Los Angeles, CA, September 2018
173. *Modeling the Outer Heliosphere,* 18th Annual International Astrophysics Conference, Pasadena, CA, February 2019.
174. *The Origin of Magnetic Turbulence in the Very Local Interstellar Medium,* 19th Annual International Astrophysics Conference, Santa Fe, NM, March 2020.
175. *Turbulence Transport in the Solar Corona: Theory, Modeling, and Parker Solar Probe,* APS Division of Plasma Physics Meeting, Virtual, November, 2020
176. The Genesis of Humanity's Galactic Adventure, Keynote Talk, Texas Section of American Physical Society, Virtual, November, 2020

BRIEFINGS:

Plasma2020, past and future briefings
5/22, (pre-release) Sponsor briefing (e.g., NSF/DOE/NNSA/ONR/AFOSR)
5/26, (pre-release) NSF-centric briefing
5/27, (pre-release) Congressional staff briefing
5/28, Public release
5/29, APS-Division of Plasma Physics-ExComm
6/18, WH OSTP & OMB
6/23, DOE FESAC (fusion energy science AC)
9/22, NSF AAAC (astronomy & astrophysics AC)
9/23, DEPSCOM
(deferred to the below) NSF director
(pending) NSF DD's for MPS & EngD

COLLOQUIA:

1. *MHD Models for Particle Acceleration at Astrophysical Shock Waves*, presented at the Max-Planck-Institut für Aeronomie, Katlenburg-Lindau, Fed. Rep. Germany, July 1987.
2. *The Structure and Properties of Energetic Particle Modified Shocks*, presented at the Max-Planck-Institut für Radioastronomie, Bonn, Fed. Rep.Germany, July 1988.

3. *Non-linear Waves in Astrophysics,* presented at The University of Cambridge, England, November 1988.
4. *Galactic Winds modified by Cosmic Rays*, presented at the Max-Planck-Institut für Astrophysik, Garching, Fed. Rep. Germany, May 1989.
5. *Cosmic Rays: from Heliosphere to Galaxy*, presented at the Bartol Research Institute, Delaware, USA, 1990.
6. *Structure and Properties of the Heliospheric Termination Shock*, presented at the University of Maryland, Maryland, USA, February 1993.
7. *The interaction of the solar wind with the local interstellar medium*, presented at the Goddard Space Flight Center, Maryland, USA, June1996.
8. *Physics of the Outer Heliosphere*, presented at the University of Maryland, Maryland, USA, November, 1996.
9. *Interaction of the solar wind with the local interstellar medium*, presented at the University of Arizona, Tucson AZ, USA, April, 1997.
10. *Cosmic ray mean free paths throughout the heliosphere*, presented at the University of Arizona, Tucson AZ, USA, April, 1997.
11. *The Outer Heliosphere and the Local Interstellar Medium*, presented at the High Altitude Observatory, Boulder, CO., USA, September 1997.
12. *The interaction of the solar wind with the local interstellar medium*, presented at The University of Chicago, Chicago, IL, October 1997.
13. *Physics of the outer heliosphere*, presented at The University of Sydney, Australia, July 1999.
14. *Turbulence in the interplanetary medium*, presented at The University of Sydney, Australia, July 1999.
15. *Interaction of the solar and stellar wind(s) with the interplanetary medium*, University of California, Riverside, June 2000.
16. *Interaction of the solar and stellar wind(s) with the interplanetary medium*, University of Maryland, College Park, February 2001.
17. *The Heliosphere*, University of California, Los Angeles, August 2001.
18. *The Journey of the Sun through the Galaxy,* NASA Headquarters, Washington, DC, November 2001.
19. *The Sun and the Galaxy*, presented at The University of California, Riverside, Department of Earth Sciences, November 2001.
20. *Solving the Boltzmann Transport Equation,* IGPP Special Seminar Series, Modeling and Computation in the Physical and Biological Sciences, UCR-IGPP, January 2002.
21. *The Interaction of the Sun and the Galaxy,* presented at The University of California, San Diego, March 2002.
22. *The Journey of the Sun through the Galaxy*, University of California, Berkeley, May 2002.
23. *The Interaction of the Sun and the Interstellar Medium*, Los Alamos National Lab., Los Alamos, November 2002.
24. *Particle acceleration at CME-driven and interplanetary shock waves,* Caltech, Pasadena, February 2003.
25. *The Journey of the Sun through the Galaxy,* keynote address, Academic Spotlight, University of California, Riverside, March 2003.
26. *Space Physics and Astrophysics at the IGPP,* Honors Class, UCR, May 2003.

27. *The Interaction of the solar and stellar winds with the interstellar medium*, University of California, Irvine, May 2003.
28. *The Interaction of the solar and stellar winds with the interstellar medium*, Shinshu University, Matsamoto, Japan, July 2003.
29. *Theory of nonlinear perpendicular diffusion of charged particles,* University of California, Riverside, September 2003.
30. *Particle acceleration and coronal mass ejection-driven shocks,* University of Bern, Switzerland, March 2004.
31. *Physics of the Outer Heliosphere,* University of Maryland, May 2005.
32. *The Interaction of the Solar (and Stellar) Winds with the Interstellar Medium,* University of Kwazulu-Natal, South Africa, August 2006.
33. *Particle Acceleration in Cosmic Plasmas,* University of Southern California, September 2006.
34. *The Interaction of the Solar (and Stellar) Winds with the Interstellar Medium,* Los Alamos National Lab, October 2006.
35. *The Interaction of the Solar (and Stellar) Winds with the Interstellar Medium,* Meudon Observatory, CNRS, France, November 2006.
36. *Particle Acceleration at Shock Waves,* IFSI, Frascatti, Rome, Italy, November 2006.
37. *The Interaction of the Solar (and Stellar) Winds with the Interstellar Medium,* Institute for Plasma Research, Ahmedabad, India, January 2007.
38. *The Interaction of the Solar (and Stellar) Winds with the Interstellar Medium,* University if Delhi, Ahmedabad, India, January 2007.
39. *The Interaction of the Solar Wind with the Interstellar Medium,* The University of Alabama at Huntsville, May 2007.
40. *The Interaction of the Solar Wind with the Interstellar Medium,* The University of Texas, San Antonio, April 2007.
41. *The Structure of the heliosphere,* Academy of Sciences, Athens, Greece, September 2008.
42. *The Heliosphere and the local interstellar medium,* The University of Alabama, Tuscaloosa, AL 2008
43. *The structure and properties of the heliospheric termination shock,* The University of Alabama in Huntsville, Huntsville, AL, 2008
44. *Structure of the heliospheric termination shock: Implications for the heliosheath proton distribution function and ENAs,* The University of Alabama in Huntsville, Huntsville, AL, 2009
45. *Particle Acceleration at Interplanetary Shocks,* NOAA Space Weather Prediction Center, Boulder, CO, March 2010.
46. *Turbulence throughout the heliosphere*, Peking University, Beijing, China, June 2010
47. *Particle acceleration in the inner heliosphere,* University of Science and Technology, Hefei, China, June 2010.
48. *The structure of the large-scale heliosphere,* University of Science and Technology, Hefei, China, June 2010.
49. *Particle acceleration: implications for predictive space weather*, Center for Space Weather Studies, Beijing, China, June 2010

50. *Physics of the solar and stellar wind interaction with the interstellar medium*, Summer Colloquium Series, University of Heidelberg, Heidelberg, Germany, July 2010
51. *The large-scale structure of the heliosphere,* CRES, Toulouse, France, July 2010
52. *The interaction of the solar wind and stellar winds with the interstellar medium,* Observatory of Nice, Nice, July 2011
53. *Particle acceleration in the heliosphere,* CRES, Toulouse, France, June 2011
54. *The structure of our heliosphere and astrospheres in a partially ionized environment,* University of Georgia, Athens, Georgia, January 2012
55. *The Space Radiation Environment at Earth: Underlying Physics and the Role of the Sun*, NASA Goddard Space Flight Center, Greenbelt, MD, December 2012
56. *The Interaction of the Solar (and Stellar) Winds with the Interstellar Medium*, University of New Hampshire, NH, February 2013
57. *The Interaction of the Solar Wind with the Interstellar Medium*, University of Sydney, Australia, June 2013
58. *Modeling the Lyman-alpha backscatter observed by Voyager 1 and 2 in the outer heliosphere and the structure of the heliospheric bow shock, the Voyager 1 crossing of the heliopause, and sundry other topics TBD,* Institute of Interplanetary Space Physics, INAF-IAPS, Italy, October, 2013
59. *Particle acceleration at Interplanetary Shocks*, Universita degli Studi di Urbino "Carlo Bo", Urbino, Italy, October 2013.
60. *Stepping into The Galaxy, Plunging into the Sun: Past, Present, and Future Epic Journeys of Space Exploration*, University of Cincinnati, OH, USA, November 2013
61. *Faltering Steps into the Galaxy*, Princeton University, NJ, USA, February 2014
62. *Interaction of Solar and Stellar Winds with the Interstellar Medium*, South African Astronomical Observatory, Cape Town, South Africa, May 2014
63. *Particle Acceleration at Interplanetary Shocks and Space Weather*, SANSA, Hermanus, South Africa, May 2014
64. *Structure of the Global Heliosphere,* University of Natal, Durban, South Africa, May 2014
65. *Faltering Steps in the Galaxy,* Harvard-Smithsonian Center for Astrophysics, August 2014
66. *The Transport of Turbulence throughout the Heliosphere,* AstroFit Colloquium SFB 963, Georg-August-University of Göttingen, September 2014
67. *Particle Acceleration via reconnection processes in the supersonic solar wind,* Institute of Interplanetary Space Physics, INAF-IAPS, Italy, November, 2014
68. *The Transport of Turbulence throughout the Heliosphere,* Institute of Interplanetary Space Physics, INAF-IAPS, Italy, November, 2014
69. *Faltering Steps into the Galaxy,* Auburn University, December 2014
70. *Faltering Steps in the Galaxy,* Clemson University, January 2015
71. *Physics of the Very Local Interstellar Medium (VLISM),* California Institute of Technology, March 2015
72. *Interaction of the Solar Wind with the Local Interstellar Medium,* University of Chicago, March 2015
73. *Faltering Steps into the Galaxy,* Space Telescope Science Institute, Baltimore, Maryland, April 2015.

74. *Particle Acceleration and Reconnection Processes at Shocks,* Institute of Interplanetary Space Physics, INAF-IAPS, Italy, September, 2015
75. *The Interaction of Stellar Winds with the Interstellar Medium (ISM) – of Use to Exoplanet Studies?* Jet Propulsion Laboratory, Pasadena, California, January 2016
76. *The interaction of the solar wind with the interstellar medium,* SANSA, Hermanus, South Africa, July 2016
77. *Faltering Steps into the Galaxy,* University of Texas in Arlington, Texas, September 2016.
78. *Faltering Steps into the Galaxy,* Delhi Technological Univeristy, Delhi, India, February 2017.
79. *Faltering Steps into the Galaxy,* Delhi Univeristy, Delhi, India, February 2017.
80. *The Theory and Transport of Nearly Incompressible Turbulence*, Institute for Plasma Research, Ahmadabad, India, February 2017.
81. *Faltering Steps into the Galaxy,* University of Alabama in Birmingham, February 2017
82. *Faltering Steps Into The Galaxy: The Physics Behind The Discovery Of The Heliopause And The Physics And First Measurements Of The Very Local Interstellar Medium*, Univerity of Versailles, Paris, France, June 2017
83. *Turbulence in the Solar Wind and Implications for Coronal Turbulence,* Institute of Interplanetary Space Physics, INAF-IAPS, Italy, September, 2017
84. Taught two classes on *Transport Theory* at the International School of Space Science, **Complexity and Turbulence in Space Plasmas (18 – 22 September, 2017),** Gran Sasso Science Institute, L'Aqilla, Italy.
85. Faltering Steps into the Galaxy, Pro-ISSI talk, ISSI, Bern, Switzerland, April 2018.
86. Faltering Steps into the Galaxy*, Director's Colloquium,* Los Alamos National Laboratory, Los Alamos, NM, January 2019
87. *Faltering Steps into the Galaxy: Journeying into the Interstellar Medium*, University of Toronto, CITA (Canadian Institute for Theoretical Astrophysics), Toronto, Canada, July 2019
88. *Faltering Steps into the Galaxy: Journeying into the Interstellar Medium*, Dublin Institute for Advanced Studies (DIAS), Dublin, Irelend, September 2019
89. *From the Sun's Atmosphere to the Edge of the Galaxy: A Story of Connections*, NSF Distinguished Lecture, Washington DC, September 2019
90. *The Theory and Transport of Turbulence throughout the Solar Wind using a Nearly Incompressible Description*, Peking University, Beijing, China, October 2019
91. *Turbulence in the Very Local Interstellar Medium: Observations and Theory*, Peking University, Beijing, China, October 2019
92. *Faltering Steps into the Galaxy: Journeying into the Interstellar Medium*, Chinese Academy of Sciences, Hefei, China, October 2019
93. *Particle Acceleration via Reconnection Processes,* National Space Center, Chinese Academy of Sciences, Hefei, China, October 2019

POPULAR LECTURES:

1. *The Collision of Comet Shoemaker-Levy with Jupiter*, presented to the MIT Club of the Delaware Valley, November 1994.
2. *The Solar Wind and the Local Interstellar Medium*, presented to The Academy of Lifelong Learning, University of Delaware, September 1997.
3. *Voyager at 90 Astronomical Units,* commemorative lecture given at the Smithsonian Air and Space Museum, Washington, D.C., November 2003.
4. *Voyager: the science behind the mission,* talk given at the Riverside Astronomy Association, February 2008.
5. *Solar and space physics: connecting the heliosphere to the galaxy,* talk given at the Huntsville Astronomy Club, May 2009.
6. *Solar and Space Physics in Huntsville,* talk given to the Huntsville Rotary Club, 2011.
7. *Solar and Space Physics*, talk given at TEDXHuntsville, September 2012
8. *From the fiery depths of the Sun to the cold vastness of the interstellar medium: solar physics unveiled*, Quest for Excellence: Lecture Series, SciQuest, Huntsville, AL, September 2012.

CONFERENCES ORGANIZED:

1. *Particle Acceleration in Cosmic Plasmas* (with T.K. Gaisser), Clayton Hall, The University of Delaware, 4-6 December 1991.
2. Global Structure of the Heliosphere: Observations and Theory, IAGA Symposium 4.10, 14 August 1997.
3. Solar Wind 9, co-convenor (with P.A. Isenberg) of Session 4 October 1998.
4. Bartol 75th Anniversary Symposium and Topical Conference on Magnetic Fields in the Cosmos October 1999.
5. Convenor for COSPAR Colloquium The Outer Heliosphere: The Next Frontier, Large Scale Structure Session [July 2000].
6. Co-convenor for 2 Fall AGU special sessions: (i) The Outer Heliosphere, (ii) Origins of Solar Energetic Particle Events [December 2000]
7. Particle Transport and Acceleration in Cosmic Plasmas, UCR-IGPP Conference [Riverside and Lake Arrowhead, February, 2002]
8. 2nd Annual International IGPP Conference: Turbulence in the Interplanetary and Interstellar Medium: Theory, Observations, and Ramifications [Palm Springs, February, 2003]
9. National Research Council "Workshop on the Outer Heliosphere", [Irvine, May 2003]
10. Convener for "The Heliosphere: From Microphysical to Global Processes," GAIV-02, IAGA 2003 Japan [July, 2003].
11. 3rd Annual IGPP Astrophysics Conference: "Physics of the Outer Heliosphere" [Riverside, February, 2004]
12. Co-organizer, International Space Sciences Institute conference on *Non-linear processes in the solar wind* (Bern, Switzerland, 2004)
13. 4th Annual International IGPP Conference: "The Physics of Collisionless Shocks" [Palm Springs, February/March 2005]

14. Physics of the Interplanetary Medium: From micro- to mesoscales, IAGA Symposium GAIV02, Toulouse, France, July, 2005.
15. Co-organizer, Solar Wind 11, Whistler, Canada, June 2005.
16. 5th Annual International IGPP Astrophysics Conference: "The Physics of the Inner Heliosheath" [Ohahu, Hawaii, March 2006]
17. 1st Annual ASTRONUM-2006 conference "The Numerical modeling of Space Plasma Flows" [Palm Springs, March 2006]
18. 6th Annual International IGPP Astrophysics Conference: "Turbulence and Nonlinear Processes in Astrophysical Plasmas" [Ohahu, Hawaii, March 2007]
19. 2nd Annual ASTRONUM-2007 conference "The Numerical modeling of Space Plasma Flows" [Paris, France, June 2007]
20. Physics of the Interplanetary Medium, IAGA Symposium GAIV02, Perugia, Italy, July, 2007.
21. 7th Annual International Astrophysics Conference: "Particle acceleration and transport in the heliosphere and beyond," March 7-13, 2008 in Kauai, Hawaii.
22. Voyagers in the Heliosheath: Observations, models, and plasma physics. January 9-14, 2009, Kauai, Hawaii.
23. 8th Annual International Astrophysics Conference: Shock Waves in Space and Astrophysical Environments, May 1-7, 2009, Big Island (Kona), Hawaii.
24. ASTRONUM-09, July 2009, Chamonix, France.
25. Session IV.2, COSPAR, August 2009, Hungary.
26. Special Session, Turbulence and nonlinear processes in the solar wind, Fall AGU, December 2009, San Francisco
27. 9th Annual International Astrophysics Conference: Pickup Ions in Space and Astrophysical Environments, March, 2010, Maui, Hawaii.
28. ASTRONUM-10, June 2010, San Diego.
29. Huntsville Workshop, October 2010, Nashville, TN
30. 10th Annual International Astrophysics Conference: Pickup Ions in Space and Astrophysical Environments, March, 2011, Maui, Hawaii.
31. ASTRONUM-11, June 2011, Valencia, Spain.
32. 11th Annual International Astrophysics Conference: Pickup Ions in Space and Astrophysical Environments, March, 2012, Palm Springs, CA.
33. Solar Wind 13, June 2012, Big Island, Hawaii.
34. ASTRONUM-12, June 2011, Big Island, Hawaii.
35. 12th Annual International Astrophysics Conference: Outstanding Problems in Heliophysics: from coronal heating to the edge of the heliosphere, April, 2013, Myrtle Beach, SC.
36. 13th Annual International Astrophysics Conference: Voyager, IBEX, and the Interstellar Medium, March, 2014, Myrtle Beach, SC.
37. ASTRONUM-2014, June 2014, Long Beach, CA.
38. 14th Annual International Astrophysics Conference: *LINEAR AND NONLINEAR PARTICLE ENERGIZATION THROUGHOUT THE HELIOSPHERE AND BEYOND*, April, 2015, Tampa, FL.
39. ASTRONUM-2015, June 2015, Avignon, France.
40. 15th Annual International Astrophysics Conference: The Science of Ed Stone: Celebrating his 80th Birthday, Cape Coral, FL, April 2016

41. ASTRONUM-2016, 11th International Conference on Numerical Modeling of Space Plasma Flows, June 2016, Monterey, CA
42. AOGS Special session, Beijing, China, August 2016.
43. 16th Annual International Astrophysics Conference: Turbulence, Structures, and Particle Acceleration Throughout the Heliosphere and Beyond, March 2017, Santa Fe, New Mexico.
44. 17th Annual International Astrophysics Conference: Dissipative and Heating Processes in Collisionless Plasma: the Solar Corona, the Solar Wind, and the Interstellar Medium. March 2018, Santa Fe, New Mexico.
45. ASTRONUM-2018, 13th International Conference on Numerical Modeling of Space Plasma Flows, June 2018, Panama City, FL
46. 18th Annual International Astrophysics Conference: "The Physics of Energetic Particles: Universal Processes from the Solar Corona to the Very Local Interstellar Medium and the Physics they Enable". February 2019, Pasadena, CA
47. 19th Annual International Astrophysics Conference: "From the Sun's Atmosphere to the Edge of the Galaxy: A Story of Connections," March 2020, Santa Fe, NM

OUTREACH AND CAMPS:

1. *Joint Space Weather Summer Camp*, July – August 2011 (A joint Space Weather Camp organized jointly by UAHuntsville and the DLR (Germany) that had 10 UAHuntsville undergraduate and graduate students and 10 similar students from Germany spend two weeks in the US and two weeks in Germany collectively to learn about solar and space physics, space weather, and its practical applications and implications).
2. Second *Joint Space Weather Summer Camp*, July – August 2012
3. Third *Joint Space Weather Summer Camp*, July – August 2013
4. Fourth *Joint Space Weather Summer Camp*, July – August 2014
5. Fifth *Joint Space Weather Summer Camp*, July – August 2015
6. Sixth *Joint Space Weather Summer Camp*, July – August 2016
7. Seventh *Joint Space Weather Summer Camp*, July – August 2017
8. Eighth *Joint Space Weather Summer Camp*, July – August 2018

PROFESSIONAL OFFICES:

- Associate Editor of the *Journal of Plasma Physics* (published by Cambridge University Press), June 1992 – 2007.
- Chair, Division IV Working Group, International Association for Geophysics and Aeronomy (IAGA), ``Physical Processes in the Outer Heliosphere".
- Member NASA MIDEX Science Review Panel, 1998.
- Member NASA INTERSTELLAR PROBE SCIENCE WORKING TEAM, 1999.

- Member of the COMMITTEE ON SOLAR AND SPACE PHYSICS (CSSP), National Research Council (2000-4)
- Chair of the *Theory, Modeling and Data Exploration Panel,* National Research Council (2001-2).
- Member of NASA Solar and Heliospheric *Management and Organization Working Group (MOWG)* (2001-3);
- Secretary of Solar and Heliospheric Physics, Space Physics and Aeronomy Section of the American Geophysical Union (AGU) (2002-4)
- Member, NSF Committee of Visitors (July 2002) to review Upper Atmospheric Research Section.
- Member, Nonproliferation and International Security (NIS) Division Review Committee, Los Alamos National Laboratory (2002-03).
- Chair, International, Space, and Response (ISR) Division Review Committee, Los Alamos National Laboratory (2003-07). (Security Clearance level: Q)
- Member, Threat Reduction Program Review Committee (TR-PRC), Los Alamos National Laboratory (2003-07).
- Member, Ad Hoc Committee on *Distributed Arrays of Small Instruments for Research and Monitoring in Solar-Terrestrial Physics: A Workshop*, National Research Council, 6/04 – 6/05
- Member, *SPACE STUDIES BOARD*, National Research Council (2005-9)
- Associate Editor of the *Journal of Geophysical Research (Space)* (2006-December 2010) (published by the American Geophysical Union).
- Various advisory committees with UC system (e.g., CalSpace Advisory Board) and UCR senate, ad hoc and search committees, etc.
- Member of NSF Space Weather Review Panel 2009
- Member of NASA Senior Review Committee 2008
- Various advisory committees with AL system
- Science Editor, The Astrophysical Journal (2012 - current)
- Member, High Altitude Observatory External Committee (2012 – 2014)
- Series Editor, Lecture Notes in Physics Series, Springer-Verlag (2015 – current)
- Member, NAS Committee on NASA's Large Strategic Science Missions (2016-2017)
- Member, NAS Committee of Solar and Space Physics (CSSP) (2017-2019)
- Member, NAS Air Force Studies Board (10/2017)
- Co-Chair, NAS Committee "A Decadal Assessment of Plasma Science 2020"
- Chair, External Advisory Board, NJIT Institute for Space Weather Sciences, (2020-current)