

CURRICULUM VITAE - MARTIN A. LEE

Date and Place of Birth

October 9, 1945, Bromley, England

Educational Background

Stanford University, September 1962 - June 1966. B.Sc. in Physics, awarded June 1966.

University of Chicago, September 1966 - January 1971. Ph.D. in Physics, conferred August 1971.

Experience

Current: Professor, University of New Hampshire, January 1990 - present.

Previous: North Atlantic Treaty Organization Postdoctoral Fellow, Max-Planck-Institut für Physik und Astrophysik, Institut für Extraterrestrische Physik, Garching, W. Germany, February 1971 - February 1972.

Research Associate, Max-Planck-Institut für Physik und Astrophysik, Institut für Extraterrestrische Physik, Garching, W. Germany, February 1972 - June 1973.

Research Associate. Laboratory for Astrophysics and Space Research, University of Chicago, October 1973 - July 1974.

Assistant Professor of Physics, Washington University, St. Louis, August 1974 - February 1979.

Research Scientist II, University of New Hampshire, February 1979 - July 1980.

Research Scientist III, University of New Hampshire, July 1980 - September 1984.

Research Associate Professor, University of New Hampshire, September 1984 - September 1988.

Research Professor, University of New Hampshire, September 1988 - January 1990.

Visits: Visiting Scientist, Max-Planck-Institut für Kernphysik, Heidelberg, W. Germany, June - August 1975, June - August 1976.

Visiting Professor, Tata Institute for Fundamental Research, Bombay, India, July - August 1978, October - November 1987.

Visiting Scientist, Max-Planck-Institut für Physik und Astrophysik, Institut für extraterrestrische Physik, Garching, W. Germany, March - August 1985.

Visiting Scientist, Max-Planck-Institut für Aeronomie, Katlenburg-Lindau, W. Germany, February - March 1986.

Visiting Professor, Indian Institute of Astrophysics, Bangalore, India
December-January 1993/1994.

Visiting Professor, Space Research Centre, Polish Academy of Sciences, Warsaw, Poland, December-January 1995/1996, September-October 1997.

Visiting Professor, CESR/CNRS, Toulouse, France, August 2006-August 2007.

Service

- NASA: NASA LWS TR&T Steering Committee, November-February 2004/2005.
- NASA LWS Definition Team for the Targeted Research and Technology Program, October 2002 - (cancelled subsequent meetings due to illness).
- NASA Sun-Earth Connections Advisory Subcommittee, February 1996 - January 2000.
- NASA Space Science Advisory Committee Task Force on M0&DA and R&A, December 1997 - May 1998.
- NASA Sun-Earth Connections Strategic Planning Integration Team, February 1996 - May 1997.
- NASA Cosmic and Heliospheric Management Operations Working Group, March 1987 - June 1990, December 1994 - January 1996.
- NASA Heliospheric Program Working Group, March 1988 - June 1990.
- NASA Cosmic and Heliospheric Physics Research and Analysis Peer Review Panel, August 1988; August 1989; September 1990; Chair, September 1991; October 1995.
- NASA Small-Class Explorer Program Peer Review Panel, January 1989.
- NASA Magnetospheric Physics Research and Analysis Peer Review Panel, Chair, November 1994.
- NASA Space Physics Guest Investigator Program Peer Review Panel, August 1990.
- NASA SOHO Guest Investigator Program Peer Review Panel, November 1997.
- NASA Heliospheric Missions Science Review Panel, Deputy Chairman, March 1995.
- NASA Solar and Heliospheric Guest Investigator Program Peer Review Panel, August 2000.
- NASA Research and Analysis Senior Review Panel, June 2001.
- NASA Solar & Heliospheric SR&T Program Peer Review Panel, Chair, May 2005.

NASA LWS TR&T Program Peer Review Panel, November 2006.

NASA LWS TR&T Focused Science Topic Team Leader for "Shock Acceleration of Solar Energetic Particles by Interplanetary CMEs", 2006-2009.

NRC: National Research Council Study on Solar and Space Physics: A Community Assessment and Strategy for the Future, Panel on Solar and Heliospheric Physics, January 2001 - February 2002.

National Research Council Committee on Solar and Space Physics (CSSP), March 1988 - March 1991; CSSP Working Group on "Solar Connections: A Universal Science," April 2000 - April 2002.

NSF: NSF Upper Atmosphere Research Section Committee of Visitors Review Panel, August 1999.

NSF Science and Technology Center Site Review, October 2001.

AGU: AGU Solar-Planetary-Relations Awards Committee: August 1988 - June 1990; Chairperson, June 1990 - June 1992; June 1992 - June 1994.

AGU John Adam Fleming Medal Selection Committee: July 1991 - July 1994; Chairperson, July 1994 - July 1996.

AGU JGR - Space Physics Directions Committee, January 1996 - December 1996.

AGU JGR - Space Physics Editor Search Committee, May 1996.

Editing: Associate Editor, Reviews of Geophysics, July 1993 - July 1997.

Associate Editor, Journal of Geophysical Research, September 1997 - September 2001.

Co-Editor of an issue of Advances in Space Research: "Particle Acceleration Processes, Shockwaves, Nucleosynthesis and Cosmic Rays," Proceedings of COSPAR Symposia 6 and 8, Graz, Austria, June 1984.

Co-Editor of "The Heliosphere in the Local Interstellar Medium," Proceedings of the First ISSI Workshop, Bern, Switzerland, November 1995.

Co-Editor of "Acceleration and Transport of Energetic Particles Observed in the Heliosphere," Proceedings of the ACE-2000 Symposium, AIP Press, Woodbury, New York, 2000.

Conferences: Co-Organizer (with T.J. Bogdan) of a session on "Energetic Particles" at the Sixth International Solar Wind Conference, Estes Park, Colorado, August 1987.

Co-Organizer (with J. Lockwood, B. McKibben, W. Webber) of the Symposium on the Outer Heliosphere, Durham, New Hampshire, May 1989.

Co-Convener (with D. Winske and G. Paschmann) of a session on "Shock Processes" at the IAGA General Assembly, Exeter, United Kingdom, July 1989.

Co-Convener (with T.E. Cravens, S. Fischer, and W.-H. Ip) of a session on "Superthermal Particle Acceleration in the Heliosphere" at the IAGA General Assembly, Vienna, Austria, 1991.

Co-Convener (with B. Bavassano and A. Mangeney) of the session on "Kinetic Physics, Waves and Turbulence" at Solar Wind Seven, Goslar, Germany, September 1991; Co-editor of conference proceedings.

Convener, Gordon Conference on Space Plasma Physics, "Active Phenomena in Solar System Plasmas," Plymouth, New Hampshire, July 1992.

Convener (with assistance from R. Lundin) of a session on "Acceleration of Mass-Loading Particles in the Solar System" at the IAGA Scientific Assembly, Buenos Aires, Argentina, August 1993.

Co-Convener (with J. Lockwood and W. Webber) of the Second Pioneer-Voyager Symposium on Energetic Particles and Fields in the Outer Heliosphere, Durham, New Hampshire, June 1994.

Convener, Gordon Conference on Space Plasma Physics, "Collisionless Dissipation in Space Plasmas," Wolfeboro, New Hampshire, June 1994.

Co-Convener (with W.S. Kurth, H.-J. Fahr, and J.R. Jokipii) of the session on "The Outer Heliosphere, Boundaries, and Interactions with the LISM," at Solar Wind - 8, Dana Point, CA, June 1995; Co-editor of conference proceedings.

Convener (with A.J. Coates) of the session on "Pickup and Seed Ions in Space Plasmas and their Acceleration Processes" at IUGG General Assembly, Boulder, Colorado, July 1995.

Co-Convener (with J.A. Lockwood and F.B. McDonald) of the Symposium on "Cosmic Rays in the Heliosphere and Galaxy" in honor of W.R. Webber, Durham, New Hampshire, October 1996.

Co-Convener (with J.A. Lockwood and F.B. McDonald) of the Cosmic Ray Symposium, Durham, New Hampshire, October 1998.

Co-Convener (with S.R. Habbal, R. Esser, J.V. Hollweg, and P.A. Isenberg) of Solar Wind - 9, Nantucket, Massachusetts, October 1998.

Co-Convener (with J.R. Jokipii, R.A. Mewaldt, E. Möbius, and T. Zurbuchen) of the ACE-2000 Symposium on "Acceleration and Transport of Energetic Particles Observed in the Heliosphere," Indian Wells, California, January 2000.

Convener of the session "Galactic Cosmic Rays: Messengers from Outside" of the COSPAR Colloquium on "The Outer Heliosphere: The Next Frontier," Potsdam, Germany, July 2000.

Scientific Organizing Committee, NASA Living with a Star CDAW on the "Solar and Geospace Connections of Solar Energetic Particles," GSFC, Greenbelt, Maryland, July 2002.

Convener of the Arnoldy Retirement Symposium, Durham, NH October 2003.

Co-convener (with A. Bhattacharjee) of the Hollweg Retirement Symposium, Durham, NH, July 2006.

Refereeing: About 25 scientific papers or proposals per year for

The Astrophysical Journal
 Journal of Geophysical Research
 Geophysical Research Letters
 Reviews of Geophysics
 Planetary and Space Science
 Annales Geophysicae
 Astronomy and Astrophysics
 NASA (Proposals)
 NSF (Proposals)

Honors B. Sc. awarded "Magna Cum Laude" and with election to Phi Beta Kappa.

National Defense Education Act Graduate Fellowship, University of Chicago, September 1966 - June 1969.

Ranked second out of 30 on the Ph.D. qualifying exam, Department of Physics, University of Chicago, December 1967.

Marc Perry Geller Prize for the best Ph.D. thesis in the Natural Sciences at University of Chicago during 1971.

NATO Postdoctoral Fellowship, February 1971 - February 1972.

Fellow, American Geophysical Union, 1998.

Spacecraft Experiments

1. Co-Investigator on the UMd-MPE particle experiments on the International Sun Earth Explorers (ISEE), 1986 - 1992.
2. Co-Investigator on the CELIAS experiment on the Solar and Heliospheric Observatory (SOHO), 1989 - present.
3. Associate Scientist on the PLASTIC Experiment on the Solar Terrestrial Relations Observatory (STEREO), 1999 - present.
4. Co-Investigator on the Interstellar Boundary Explorer (IBEX), 2004 - present.

Publications

1. Lee, M.A., Supraluminous waves in a relativistic anisotropic plasma, *Plasma Phys.*, 12, 935, 1970.
2. Lee, M.A., Self-consistent kinetic equations and the evolution of a relativistic plasma in an ambient magnetic field, *Plasma Phys.*, 13, 1079, 1971.
3. Lee, M.A., Cosmic ray evolution due to self-excited plasma waves, *Astrophys. J.*, 178, 837, 1972.
4. Lee, M.A., and H.J. Völk, Damping and nonlinear wave-particle interactions of Alfvén waves in the solar wind, *Astrophys. Space Sci.*, 24, 31, 1973.
5. Völk, H.J., G. Morfill, W. Alpers, and M.A. Lee, Spatial dependence of the pitch-angle and associated spatial diffusion coefficients for cosmic rays in interplanetary space, *Astrophys. Space Sci.*, 26, 403, 1974.
6. Lee, M.A., On the passage of radiation through inhomogeneous, moving media. VIII. Ray paths and fluxes in a plane differentially sheared medium, *Astrophys. J.*, 194, 165, 1974.
7. Lee, M.A., and I. Lerche, Waves and irregularities in the solar wind, *Rev. Geophys. Space Phys.*, 12, 671, 1974.
8. Lee, M.A., and I. Lerche, On the passage of radiation through inhomogeneous, moving media. XI. Nonlinear effects on ray paths in the geometrical optics approximation, *Astrophys. J.*, 194, 409, 1974.
9. Lee, M.A., and I. Lerche, On the passage of radiation through inhomogeneous, moving media. XII. Polarized waves in a plane sheared medium, *Astrophys. J.*, 198, 477, 1975.
10. Lee, M.A., and H.J. Völk, Hydromagnetic waves and cosmic-ray diffusion theory, *Astrophys. J.*, 198, 485, 1975.
11. Lee, M.A., and H.J. Völk, Hydromagnetic waves and cosmic-ray diffusion theory, *Proc. 14th Inter. Conf. Cosmic Rays*, 3, 838, 1975.
12. Morfill, G.E., H.J. Völk, and M.A. Lee, The effect of stochastic averaging of the background magnetic field on the interplanetary cosmic-ray diffusion coefficient, *Proc. 14th Inter. Conf. Cosmic Rays*, 3, 872, 1975.
13. Morfill, G.E., H.J. Völk, and M.A. Lee, On the effect of directional medium scale interplanetary variations on the diffusion of galactic cosmic rays and their solar cycle variation, *J. Geophys. Res.*, 81, 5841, 1976.
14. Lee, M.A., Modulation of solar flare particles and track density profiles in gas-rich meteorite grains, *J. Geophys. Res.*, 81, 3207, 1976.
15. Cowsik, R., and M.A. Lee, Simple analytic solutions appropriate for galactic cosmic ray modulation, *Astrophys. J.*, 216, 635, 1977.
16. Gross, M., M.A. Lee, and I. Lerche, Simple analytical solutions for spherically-symmetric production and modulation of energetic solar particles, *Astrophys. J.*, 218, 552, 1977.

17. Cowsik, R., and M.A. Lee, Simple analytic solutions appropriate for galactic cosmic ray modulation, *Proc. 15th Inter. Conf. Cosmic Rays*, 3, 18, 1977.
18. Lee, M.A., and I Lerche, On the stability of self-consistent large amplitude waves in a cold plasma. I. Transverse circularly polarized waves in the absence of a large-scale magnetic field, *J. Plasma Phys.*, 20, 313, 1978.
19. Lee, M.A., and I. Lerche, On the stability of self-consistent large amplitude waves in a cold plasma. II. Longitudinal waves in the absence of a large-scale magnetic field, *J. Plasma Phys.*, 21, 27, 1979.
20. Lee, M.A., and I. Lerche, On the stability of self-consistent large amplitude waves in a cold plasma. III. Transverse circularly polarized waves in the presence of a large-scale magnetic field, *J. Plasma Phys.*, 21, 43, 1979.
21. Lee, M.A., and I. Lerche, On self-consistent waves and their stability in warm plasma. I. Construction of the self-consistent waves, *J. Plasma Phys.*, 21, 141, 1979.
22. Cowsik, R., and M.A. Lee, On the sources of cosmic ray electrons, *Astrophys. J.*, 228, 297, 1979.
23. Lee, M.A., A statistical theory of cosmic-ray propagation from discrete galactic sources, *Astrophys. J.*, 229, 424, 1979.
24. Fisk, L.A., and M.A. Lee, Shock acceleration of energetic particles in corotating interaction regions in the solar wind, *Astrophys. J.*, 237, 620, 1980.
25. Lee, M.A., Comments on the dissipation of hydromagnetic surface waves, *Astrophys. J.*, 240, 693, 1980.
26. Lee, M.A., and I. Lerche, On self-consistent waves and their stability in warm plasma. II. Instability of circularly polarized waves, both in the presence and the absence of an ambient magnetic field, *J. Plasma Phys.*, 24, 89, 1980.
27. Fisk, L.A., and M.A. Lee, Shock acceleration of energetic particles in corotating interaction regions, *Adv. Space Res.*, 1, 3, 93, 1981.
28. Lee, M.A., and L.A. Fisk, The role of particle drifts in solar modulation, *Astrophys. J.*, 248, 836, 1981.
29. Lee, M.A., G. Skadron, and L.A. Fisk, Acceleration of energetic ions at the Earth's bow shock, *Geophys. Res. Lett.*, 8, 401, 1981.
30. Lee, M.A., Solar particle propagation and modulation theory - Rapporteur paper for session SH-5, *Proc. 17th Inter. Conf. Cosmic Rays*, 13, 183, 1981.
31. Lee, M.A., and L.A. Fisk, Shock acceleration of energetic particles in the heliosphere, *Space Sci. Rev.*, 32, 205, 1982.
32. Lee, M.A., Coupled hydromagnetic wave excitation and ion acceleration upstream of the Earth's bow shock, *J. Geophys. Res.*, 87, 5063, 1982.
33. Cowsik, R., and M.A. Lee, Acceleration of cosmic rays in accretion shocks, *Proc. 17th Inter. Conf. Cosmic Rays*, 2, 318, 1981.
34. Skadron, G., and M.A. Lee, The two-dimensional structure of diffuse ions associated with the Earth's bow shock, *Astrophys. J.*, 263, 468, 1982.

35. Cowsik, R., and M.A. Lee, Transport of neutrinos, radiation and energetic particles in accretion flows, *Proc. R. Soc. Lond. A.*, 383, 409, 1982.
36. Lee, M.A., Coupled hydromagnetic wave excitation and ion acceleration at interplanetary traveling shocks, *J. Geophys. Res.*, 88, 6109, 1983.
37. Lee, M.A., The association of energetic particles and shocks in the heliosphere, *Rev. Geophys. Space Phys.*, 21, 324, 1983.
38. Skadron, G., and M.A. Lee, Temporal development of diffuse ion events upstream of the Earth's bow shock: The October 31, 1977 event, *J. Geophys. Res.*, 88, 9975, 1983.
39. Gary, S.P., C.W. Smith, M.A. Lee, M.L. Goldstein, and D.W. Forslund, Electromagnetic ion beam instabilities, *Phys. Fluids*, 27, 1852, 1984.
40. Greenstadt, E.W., et al., Collisionless shock waves in the solar-terrestrial environment, in *Solar Terrestrial Physics: Present and Future*, ed. D.M. Butler and K. Papadopoulos, *NASA Reference Publ.*, 1120, 1984.
41. Lee, M.A., Particle acceleration and MHD wave excitation upstream of interplanetary shocks, *Adv. Space Res.*, 4, 2-3, 295, 1984.
42. Lee, M.A., and G. Skadron, A simple model for the formation of "reflected, intermediate and diffuse" ion distributions upstream of Earth's bow shock, *J. Geophys. Res.*, 90, 39, 1985.
43. Webb, G.M., T.J. Bogdan, M.A. Lee, and I. Lerche, Momentum-dependent diffusive particle acceleration in modified shock fronts, *M.N.R.A.S.*, 215, 341, 1985.
44. Bogdan, T.J., M.A. Lee, I. Lerche, and G.M. Webb, Diffusive electron acceleration at SNR shock fronts and the observed SNR radio spectral indices, *Proc. 19th Int. Conf. Cosmic Rays*, 9, 543, 1985.
45. Potgieter, M.S., L.A. Fisk, and M.A. Lee, On the anomalous component, *Proc. 19th Int. Conf. Cosmic Rays*, 5, 180, 1985.
46. Lee, M.A., and J.M. Ryan, Time-dependent coronal shock acceleration of energetic solar flare particles, *Astrophys. J.*, 303, 829, 1986.
47. Lee, M.A., and B. Roberts, On the behavior of hydromagnetic surface waves, *Astrophys. J.*, 301, 430, 1986.
48. Lee, M.A., Acceleration of energetic particles at solar wind shocks, in *Proceedings of the 19th ESLAB Symposium on the Sun and the Heliosphere in Three Dimensions*, ed. R.G. Marsden and D. Reidel, p. 305, 1986.
49. Smith, C.W., and M.A. Lee, Coupled hydromagnetic wave excitation and ion acceleration upstream of the Jovian bow shock, *J. Geophys. Res.*, 91, 81, 1986.
50. Chih, P.P., and M.A. Lee, A perturbation approach to cosmic ray transients in interplanetary space, *J. Geophys. Res.*, 91, 2903, 1986.
51. Lee, M.A., and W.-H. Ip, Hydromagnetic wave excitation by ionized interstellar hydrogen and helium in the solar wind, *J. Geophys. Res.*, 92, 11041, 1987.

52. Lee, M.A., L.A. Fisk, and W.I. Axford, Model structure of a cosmic ray mediated stellar or solar wind, *Proc. Inter. Cosmic Ray Conf. 20th*, 2, 187, 1987.
53. Lee, M.A., MHD waves at interplanetary shocks, in *Proceedings of the International Conference on Collisionless Shocks*, ed. K. Szegö, Hungarian Academy of Sciences, Budapest, p. 194, 1987.
54. Lee, M.A., and W.I. Axford, Model structure of a cosmic ray mediated stellar or solar wind, *Astron. Astrophys.*, 194, 297, 1988.
55. Lee, M.A., The solar wind termination shock and the heliosphere beyond, *Proceedings of Solar Wind VI, NCAR/TN-306*, 2, 635, 1988.
56. Lee, M.A., Particles accelerated by shocks in the heliosphere, in *Proceedings of the JPL Workshop on the Interplanetary Particle Environment*, ed. J. Feynman and S. Gabriel, JPL Publ., pp. 88-28, 1988.
57. Skadron, G., R.D. Holdaway, and M.A. Lee, Formation of the wave compressional boundary in the Earth's foreshock, *J. Geophys. Res.*, 93, 11354, 1988.
58. Hovestadt, D., et al., CELIAS - Charge, element and isotope analysis system for SOHO, The SOHO mission: Scientific and technical aspects of the instruments, *ESA SP-1104*, p. 69, 1988.
59. Lee, M.A., ULF waves at comets, in plasma waves and instabilities at comets and in magnetospheres, ed. B.T. Tsurutani and H. Oya, *AGU Geophysical Monograph*, 53, Washington, p. 13, 1989.
60. Hollweg, J.V., and M.A. Lee, Slow twists of solar magnetic flux tubes and the polar magnetic field of the sun, *Geophys. Res. Lett.*, 16, 919, 1989.
61. Lee, M.A., T.J. Bogdan, and P. Schneider, Coupled stochastic fermi acceleration and wave damping in space plasmas, *Proc. Inter. Conf. Cosmic Rays 21st*, 5, 348, 1990.
62. Kanbach, G., S.D. Hunter, and M.A. Lee, Giant molecular clouds as gamma-ray sources: Perspectives of future observations, *Proc. Inter. Conf. Cosmic Rays 21st*, 1, 109, 1990.
63. Gupta, M., M.A. Lee, and W.R. Webber, Cosmic ray nuclei and electron propagation in a static diffusing galaxy with a thin matter disk, *Proc. Inter. Conf. Cosmic Rays 21st*, 3, 341, 1990.
64. Lee, M.A., Ion acceleration to cosmic ray energies, in *Physics of the Outer Heliosphere*, ed. S. Grzedzielski and D.E. Page, COSPAR, Pergamon Press, Oxford, p.157, 1990.
65. Ryan, J.M., and M.A. Lee, On the transport and acceleration of solar flare particles in a coronal loop, *Astrophys. J.*, 368, 316, 1991.
66. Bogdan, T.J., M.A. Lee, and P. Schneider, Coupled quasilinear wave damping and stochastic acceleration of pickup ions in the solar wind, *J. Geophys. Res.*, 96, 161, 1991.
67. Lee, M.A., and S.P. Gary, Quasilinear evolution of ULF waves excited by cometary ion pickup, *J. Geophys. Res.*, 96, 21319, 1991.
68. Kwiatkowski, B., and M.A. Lee, Forbush decreases and cosmic ray modulation at high energies, *Proc. Inter. Conf. Cosmic Rays 22nd*, 3, 601, 1991.

69. Lee, M.A., Solar particle production, *Proc. Inter. Conf. Cosmic Rays 22nd*, 5, 293, 1991.
70. Webber, W.R., M.A. Lee, and M. Gupta, Propagation of cosmic ray nuclei in a diffusing galaxy with convective halo and thin matter disk, *Astrophys. J.*, 390, 96, 1992.
71. Tan, L.C., G.M. Mason, M.A. Lee, B. Klecker, and F.M. Ipavich, Focused transport of energetic particles along magnetic field lines draped around a coronal mass ejection, *J. Geophys. Res.*, 97, 1597, 1992.
72. Lee, M.A., Collisionless shocks and particle acceleration, *The Reference Encyclopedia of Astronomy and Astrophysics*, Van Nostrand Reinhold, New York, p. 627, 1992.
73. Lee, M.A., Particle acceleration in the heliosphere, in *Particle Acceleration in Cosmic Plasmas*, ed. G. Zank and T. Gaisser, AIP Press, New York, p. 27, 1992.
74. Lee, M.A., How to bet on the location of the termination shock: A summary overview of the symposium, *Adv. Space Res.*, 13, 6, 283, 1993.
75. Lee, M.A., Comparison of the Halley and Giacobini-Zinner plasma environments, in *Plasma Environments of Non-Magnetic Planets*, ed. T.I. Gombosi, COSPAR Colloquium Series, 4, Pergamon Press, New York, p. 9, 1993.
76. Webber, W.R., J.A. Lockwood, and M.A. Lee, A simple response function simulation that reproduces in detail the heliospheric 11-year intensity time variations of >70 MeV particles observed at IMP, V2 and P10, *Proc. Int. Conf. Cosmic Rays XXIII*, 3, 485, 1993.
77. Lee, M.A., Stochastic fermi acceleration and solar cosmic rays, in *AIP Conf. Proceedings 294, High-Energy Solar Phenomena-A New Era of Spacecraft Measurements*, ed. J.M. Ryan and W.T. Veststrand, AIP Press, New York, p.134-142, 1993.
78. Bennett, E., M.A. Lee, and J.M. Ryan, Numerical modeling of particle transport and acceleration of solar flare particles in a coronal loop, in *AIP Conf. Proceedings 294, High-Energy Solar Phenomena-A New Era of Spacecraft Measurements*, ed. J.M. Ryan and W.T. Veststrand, AIP Press, New York, p.118, 1993.
79. Gary, S.P., and M.A. Lee, The ion cyclotron anisotropy instability and the inverse correlation between proton anisotropy and proton beta, *J. Geophys. Res.*, 99, 11297-11301, 1994.
80. Ryan, J.M., E. Bennett, and M.A. Lee, Proton acceleration in long duration flares, in *Advances in Solar Physics*, ed. G. Belvedere, M. Rodonò, and G.M. Simnett, Springer-Verlag, Berlin, p. 273-278, 1994.
81. Burlaga, L.F., N.F. Ness, J.W. Belcher, A. Szabo, P.A. Isenberg, and M.A. Lee, Pickup protons and pressure balanced structures: Voyager 2 observations in MIRs near 35 AU, *J. Geophys. Res.*, 99, 21511-21524, 1994.
82. Lee, M.A., Ulysses' race to the pole: Symposium summary, *Space Sci. Rev.*, 72, 485-494, 1995.
83. Isenberg, P.A., and M.A. Lee, Effects of time-dependent photoionization on interstellar pickup ions, *J. Geophys. Res.*, 100, 17053-17058, 1995.
84. Bennett, E., and M.A. Lee, Modulation of high energy cosmic rays throughout the solar activity and magnetic cycles, *Proc. Int. Conf. Cosmic Rays 24th*, 4, 676-679, 1995.

85. Hovestadt, D., et al., CELIAS - Charge, element and isotope analysis system for SOHO, *Solar Phys.*, *162*, 441-481, 1995.
86. Lee, M.A., A perturbation calculation of the dynamical effects of cosmic rays and interstellar gas on the solar wind, in *Solar Wind Eight*, ed. D. Winterhalter, J.T. Gosling, S.R. Habbal, W.S. Kurth, and M. Neugebauer, p. 658, AIP, Woodbury, NY, 1996.
87. Lee, M.A., V.D. Shapiro, and R.Z. Sagdeev, Pickup ion energization by shock surfing, *J. Geophys. Res.*, *101*, 4777-4789, 1996.
88. Möbius, E., D. Rucinski, P.A. Isenberg, and M.A. Lee, Determination of interstellar pickup ion distributions in the solar wind with SOHO and cluster, *Ann. Geophys.*, *14*, 492-496, 1996.
89. Isenberg, P.A., and M.A. Lee, A dispersive analysis of bispherical pickup ion distributions, *J. Geophys. Res.*, *101*, 11055-11066, 1996.
90. Lee, M.A., The termination shock of the solar wind, in *The Heliosphere in The Local Interstellar Medium*, ed. R. von Steiger, R. Lallement, and M.A. Lee, p. 109, Kluwer, Dordrecht, 1996.
91. Lee, M.A., Effects of cosmic rays and interstellar gas on the dynamics of a wind, in *Cosmic Winds and the Heliosphere*, ed. J.R. Jokipii, C. Sonett, and M.S. Giampapa, University of Arizona Press, Tucson, pp. 857-886, 1997.
92. Lee, M.A., Particle acceleration and transport at CME-driven shocks, in *Coronal Mass Ejections*, ed. N. Crooker, J. A. Joselyn, and J. Feynman, AGU, Washington, pp. 227-234, 1997.
93. Grünwaldt, H., et al., Venus tail ray observation near Earth, *Geophys. Res. Lett.*, *24*, 1163, 1997.
94. Kallenbach, R., et al., Isotopic composition of solar wind neon measured by CELIAS/MTOF on board SOHO, *J. Geophys. Res.*, *102*, 26, 895 - 26, 904, 1997.
95. Ipavich, F.M., et al., Solar wind measurements with SOHO: The CELIAS/MTOF proton monitor, *J. Geophys. Res.*, *103*, 17,205-17, 213, 1998.
96. Aellig, M.R., et al., Iron freeze-in temperatures measured by SOHO/CELIAS/CTOF, *J. Geophys. Res.*, *103*, 17, 215-17, 222,1998.
97. Kucharek, H., et al., Magnesium isotopic composition as observed with the CELIAS/MTOF experiment on the SOHO spacecraft, *J. Geophys. Res.*, *103*, 26, 805-26, 812, 1998.
98. Möbius, E., D. Rucinski, M.A. Lee, and P.A. Isenberg, Decreases in the antisunward flux of interstellar pickup He⁺ associated with radial IMF, *J. Geophys. Res.*, *103*, 257, 1998.
99. Isenberg, P.A., and M.A. Lee, Transport of anisotropic interstellar pickup ions on bent flux tubes, *J. Geophys. Res.*, *103*, 12037, 1998.
100. Klecker, B., et al., Anomalous cosmic rays: Report of working group 3, *Space Sci. Rev.*, *83*, 259, 1998.

101. Isenberg, P.A., and M.A. Lee, Solar wind speed dependence of pickup ion fluxes by cross-field diffusion, in *Solar Wind Nine*, ed. S.R. Habbal, R. Esser, J.V. Hollweg, and P.A. Isenberg, p. 815, AIP Press, Woodbury, New York, 1999.
102. Gordon, B.E., M.A. Lee, E. Möbius, and K.H. Trattner, Coupled hydromagnetic wave excitation and ion acceleration at interplanetary traveling shocks and Earth's bow shock revisited, *J. Geophys. Res.*, *104*, 28,263-28, 277, 1999.
103. Lee, M.A., The injection, acceleration, and dynamical influence of interstellar pickup ions at the solar wind termination shock, *Astrophys. Space Sci.*, *264*, 497-508, 1999.
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142. Liu, Y.C.-M., M.A. Lee, H. Kucharek, and B. Miao, Ion thermalization and wave excitation downstream of Earth's bow shock: A theory for Cluster observations of He²⁺ acceleration, *J. Geophys. Res.*, in press, 2007.

Grants

1. Co-Investigator on NSF Grant ATM-8109545, "The Interactions of Energetic Particles with the Solar Wind - A Theoretical Study," 06/01/81 - 05/31/83, \$72,900.
2. Co-Investigator on NASA Solar-Terrestrial Theory Program Grant NAGW-76, "Physics of the Solar Atmosphere and the Solar Wind," 06/01/80 - 11/01/83, ~ \$640,000 for first 3-year period.
3. Co-Investigator on NASA Solar-Terrestrial Theory Program Grant NAGW-76, "Theoretical Studies on the Solar Wind and its Coronal Origin," 11/01/83 - 10/31/86, ~ \$1,000,000 for a 3-year period.
4. Co-Principal Investigator on NSF Grant ATM-8311241, "The Interaction of Energetic Particles with the Solar Wind - A Theoretical Study," 07/01/83 - 06/30/85, \$93,500.
5. Co-Principal Investigator on NASA Solar Terrestrial Theory Program Grant NAGW-76, "Theoretical Studies on the Chromosphere, Corona and Solar Wind," 11/1/86 - 10/31/89, ~ \$1,000,000 for 3-year period.
6. Co-Principal Investigator on NSF Grant ATM - 8513363, "The Interaction of Energetic Particles with the Solar Wind - A Theoretical Study," 11/1/85 - 10/31/88, \$156,000.
7. Co-Investigator on NASA Grant NAG5-728 to the University of Maryland (subcontract to UNH) for the UMd-MPE particle experiment on ISEE, 02/01/86 - 12/31/92, \$2500/year.
8. Co-Investigator of the CELIAS particle detector system on the SOHO spacecraft (subcontract through the University of Maryland), \$4,500 in 1989, ~ \$3,000 per year prior to launch ~ \$50,000/year for 2 years after launch.
9. Co-Investigator on NASA Grant NAGW-1531 "Studies of Interstellar Pickup Ions in the Distant Solar Wind," 11/01/88 - 10/31/90, \$82,000.
10. Principal Investigator on NSF Grant ATM-8903703, "The Interactions of Energetic Particles with the Solar Wind - A Theoretical Study," 05/15/89 - 05/14/92, \$210,000.
11. Co-Principal Investigator on NASA Space Physics Theory Program Grant NAGW-76, "Theoretical Studies on the Chromosphere, Corona, and Solar Wind," 11/01/89 - 10/31/92, ~ \$940,000 for 3-year period.
12. Co-Investigator on NASA Space Physics Guest Investigator Grant, "Particle Acceleration and Transport in the Tail and at the Front Side of the Magnetosphere," 04/91 - 04/94, \$335,000.
13. Co-Investigator on NASA Space Physics SR&T Grant, "Studies of Interstellar Pickup Ions in the Solar Wind," 10/90 - 10/93, \$200,000.
14. Co-Investigator of NSF Eastern European Cooperative Science Program Grant, "Study of the Distribution of Interstellar Neutrals and Pickup Ions in Interplanetary Space," 07/92 - 12/95, \$29,000.
15. Principal Investigator on NSF Grant, "The Interactions of Energetic Particles with the Solar Wind - A Theoretical Study," 03/93 - 03/96, \$198,000.

16. Co-Principal Investigator on NASA Space Physics Theory Program Grant, "Theoretical Studies on the Solar Atmosphere and the Solar Wind," 03/93 - 03/96, \$979,000.
17. Co-Investigator on NASA Space Physics SR&T Grant, "Studies Using IMP, Voyager and Pioneer Cosmic Ray Data to Determine the Size of the Heliosphere," 03/93 - 30/95, \$77,000.
18. Co-Investigator on NASA Space Physics SR&T Grant, "Wave Excitation by Interstellar Pickup Hydrogen in the Solar Wind," 10/92 - 10/94, \$28,000.
19. Principal Investigator on NASA/NSF Grant to provide partial support for the 1992 Gordon Conference on "Active Phenomena in the Solar System Plasmas," 07/92, \$12,000.
20. Co-Investigator on NASA Space Physics SR&T Grant "Studies of Interstellar Pickup Ions in the Solar Wind," 11/93 - 11/94, \$60,000.
21. Principal Investigator on NASA/NSF Grant to provide partial support for the 1994 Gordon Research Conference on "Collisionless Dissipation in Space Plasmas," 06/94, \$8,600.
22. Co-Investigator on NASA Space Physics SR&T Grant "Studies of Interstellar Pickup Ions in the Solar Wind," 11/94 - 11/97, \$210,000.
23. Co-Principal Investigator on NASA Space Physics Theory Program Grant, "Theoretical Studies on the Solar Atmosphere and the Solar Wind," 03/96 - 03/99, \$1,002,000.
24. Principal Investigator on NSF Grant, "The Interactions of Energetic Particles with the Solar Wind - A Theoretical Study," 07/96 - 07/99, \$233,000.
25. Co-Investigator on NSF Grant in the Cooperative Science Program between the US and Poland, "Study of the Distribution of Interstellar Neutrals and Pickup Ions in Interplanetary Space," 01/98 - 12/01, \$30,000.
26. Co-Investigator on NASA Space Physics SR&T Grant, "Studies of Interstellar Pickup Ions in the Solar Wind," 11/97 - 10/00, \$210,000.
27. Co-Investigator on NASA SOHO Guest Investigator Program Grant, "Study of Interstellar Pickup Ions Distributions with the SOHO/CELIAS Sensors and the Solar EUV Monitor," 01/98 - 12/98, \$40,000.
28. Principal Investigator on NSF Grant, "Particle Acceleration in Magnetic Reconnection Regions in the Solar Corona," 03/99 - 03/02, \$211, 000.
29. Principal Investigator on NASA ACE Guest Investigator Program Grant, "Ion Acceleration and Transport in Impulsive and Gradual Solar Flares," 01/99 - 01/02, \$167,000.
30. Co-Investigator on NASA SOHO Guest Investigator Program Grant, "Study of Interstellar Pickup Ions and the 3-Dimensional Distribution of Interstellar Gas in the Heliosphere with the SOHO CELIAS Sensors and the Solar EUV Monitor," \$287,000, submitted, April 1998 (not funded).
31. Co-Investigator on NASA Sun-Earth Connections Theory Program Grant, "Theoretical Studies on the Solar Atmosphere and the Solar Wind," 03/99 - 03/02, \$1,095, 000.

32. Co-Investigator on NASA MIDEX proposal, "Interstellar Pathfinder," submitted, July 1998 (not funded).
33. Associate Scientist on the PLASTIC Experiment on the NASA STEREO Mission, February 2000 - present.
34. Principal Investigator of NSF Grant, "The Interactions of Energetic Particles with the Solar Wind - A Theoretical Study," 04/01/01 - 03/31/04, \$293,000.
35. Co-Investigator on NASA Solar and Heliospheric Sciences Grant "A New Kinetic Model for Coronal Heating and Generation of the Fast Solar Wind by Ion-Cyclotron Resonance," 05/01/01 - 04/30/04, \$292,780.
36. Co-Investigator on NASA Sun-Earth Connections Theory Program Grant, "Theoretical Studies on the Solar Atmosphere and the Solar Wind," 03/01/02 - 02/28/05, \$388,000 in first year.
37. Co-Investigator on DOD Multidisciplinary University Research Initiative Grant, "Solar Eruptions and Energetic Particles" (subcontract through U. Michigan), 05/01/01 - 04/30/06, \$250,000.
38. Co-Investigator on DOD Multidisciplinary University Research Initiative Grant, "Understanding Magnetic Eruptions on the Sun and Their Interplanetary Consequences" (subcontract through UC Berkeley), 05/01/01 - 04/30/06, \$250,000.
39. Co-Investigator on NASA SMEX Mission, "Interstellar Boundary Explorer (IBEX)," November 2003 - present.
40. Co-Investigator on NASA SMEX proposal, "Particle Acceleration and Transport in the Heliosphere (PATH)," submitted, April 2003 (not funded).
41. Co-Investigator on DOE Fusion Science Centers proposal, "Center for Magnetic Reconnection Studies," submitted, March 2004 (not funded).
42. Principal Investigator of NASA Sun-Earth Connections Theory Program Grant, "Theoretical Studies on the Solar Atmosphere and the Solar Wind," submitted, April 2004 (not funded); wind down grant, 06/15/05 - 06/14/06, \$199,500.
43. Co-Investigator on NASA Living With a Star Grant, "Acceleration and Transport of Solar Energetic Particles Produced by CME-Driven Shocks" (subcontract through Naval Research Laboratory), 04/07/06 - 04/06/09, \$72,800.
44. Co-Investigator on NASA Interdisciplinary Space Exploration proposal, "Enabling Radiation Predictions at the Moon, Mars, and in the Heliosphere," submitted, June 2005 (not funded).
45. Principal Investigator on NASA Living With a Star Grant, "An Analytical Theory of Diffusive Shock Acceleration for Gradual SEP Events," 08/17/06 - 08/16/09, \$527,580.
46. Principal Investigator on NASA SR&T Solar and Heliospheric Physics proposal, "The Interaction of Energetic Particles with Shocks and the Solar Wind," submitted, February 2006 (not funded).
47. Principal Investigator on NASA Heliospheric Guest Investigator Program proposal, "Upstream Waves at Interplanetary Traveling Shocks: Comparison of Observations and Theory," submitted, May 2006 (not funded).

48. Principal Investigator on NASA SR&T Solar and Heliospheric Physics proposal, "The Interaction of Energetic Particles with Shocks and the Solar Wind," submitted, February 2007.
49. Principal Investigator on NASA Heliospheric Guest Investigator Program proposal, "Upstream Waves at Interplanetary Traveling Shocks: Comparison of Observations and Theory," submitted, May 2007.
50. Co-Investigator on NASA Heliophysics Theory Program proposal, "The Origin of the Solar Wind: Theory and Modeling from Microphysics to Macrophysics," submitted, June 2007.

Invited Talks (Since June 1980)

1. "Shock Acceleration of Energetic Particles in the Heliosphere," STIP Workshop, Bratislava, Czechoslovakia, June 1980.
2. "Ion Acceleration at Earth's Bow Shock and at Coronal Shocks," Space Sciences Laboratory, University of California, Berkeley, California, December 1980.
3. "Acceleration of Energetic Ions at the Earth's Bow Shock," University of Maryland/Goddard Joint Seminar, College Park, Maryland, March 1981.
4. "Behavior and Dissipation of Hydromagnetic Surface Waves," Goddard Theory Group Seminar, Greenbelt, Maryland, March 1981.
5. "Behavior and Dissipation of Hydromagnetic Surface Waves," Solar Physics Seminar, Center for Astrophysics, Cambridge, Massachusetts, May 1981.
6. "Coupled Wave Generation and Ion Acceleration Upstream of the Earth's Bow Shock," Gordon Conference on Collisionless Shock Structure, Wolfeboro, New Hampshire, June 1981.
7. "Behavior and Dissipation of Hydromagnetic Surface Waves," MHD Group Seminar, Center for Astrophysics, Cambridge, Massachusetts, July 1981.
8. "Solar Particle Propagation and Modulation Theory," Rapporteur Paper for Session SH5 of 17th International Conference on Cosmic Rays, Paris, France, July 1981.
9. "Suprathermal Energization at the Earth's Bow Shock," ISEE SWT Shock Workshop, Goddard, Greenbelt, Maryland, February 1982.
10. "Coupled Hydromagnetic Wave Excitation and Ion Acceleration Upstream of the Earth's Bow Shock," LASR, University of Chicago, Chicago, Illinois, March 1982.
11. "Coupled Hydromagnetic Wave Excitation and Ion Acceleration Upstream of the Earth's Bow Shock," Solar Physics Seminar, Center for Astrophysics, Cambridge, Massachusetts, March 1982.
12. "Coupled Hydromagnetic Wave Excitation and Ion Acceleration Upstream of the Earth's Bow Shock," Colloquium, Bartol Research Foundation, University of Delaware, Newark, Delaware, March 1982.
13. "Coupled Hydromagnetic Wave Excitation and Ion Acceleration Upstream of Astrophysical Shocks," MPAE Workshop on Cosmic Ray Acceleration, Lindau, Germany, April 1982.
14. "Cosmic Ray Modulation and Shock Acceleration in the Heliosphere," IAU General Assembly, Patras, Greece, August 1982.
15. "Coupled Hydromagnetic Wave Excitation and Ion Acceleration at Interplanetary Travelling Shocks," Theory Institute in Solar-Terrestrial Physics, Boston College, Chestnut Hill, Massachusetts, August 1982.
16. "The Behavior and Dissipation of Hydromagnetic Surface Waves," Seminar, Drake University, Des Moines, Iowa, December 1982.
17. "Shock Acceleration of Cosmic Rays," Winter AAS Meeting, Boston, Massachusetts, January 1983.

18. "Particle Acceleration by Shocks in the Heliosphere," Seminar, Boston University, Boston, Massachusetts, March 1983.
19. "Shock Acceleration of Energetic Particles in the Heliosphere," ESTEC Seminar, Noordwijk, Holland, May 1983.
20. "Hydromagnetic Wave Excitation and Ion Acceleration at Interplanetary Traveling Shocks," Spring College on Radiation in Plasmas, International Center for Theoretical Physics, Trieste, Italy, June 1983.
21. "Diffusive Shock Acceleration Theory: Application to Heliospheric Shocks," Seminar, LANL, Los Alamos, New Mexico, February 1984.
22. "Shock Acceleration of Energetic Particles in the Cosmos," Colloquium, University of Maryland, March 1984.
23. "The Theory of Solar Flare Energetic Particle Acceleration," AGU Spring Meeting, Cincinnati, Ohio, May 1984.
24. "Wave Excitation and Ion Acceleration at Earth's Bow Shock and Interplanetary Traveling Shocks," COSPAR Symposium, Graz, Austria, June 1984.
25. "A Perturbation Approach to Cosmic Ray Transients in Interplanetary Space," Astrophysics Seminar, MIT, Cambridge, Massachusetts, February 1985.
26. "Acceleration of Energetic Particles at Solar Wind Shocks," 19th ESLAB Symposium on the Sun and the Heliosphere in Three Dimensions, Les Diablerets, Switzerland, June 1985.
27. "Particle Acceleration and Wave Excitation at Shocks," Seminar, MPI Radioastronomy, Bonn, W. Germany, June 1985.
28. "Particle Acceleration and Wave Excitation at Shocks," Seminar, MPI Aeronomy, Lindau, W. Germany, July 1985.
29. "Particle Acceleration and Wave Excitation at Shocks" Seminar, University of Kiel, Kiel, W. Germany, July 1985.
30. "Forbush Variations of the Cosmic Rays," Seminar, MPI for Nuclear Physics, Heidelberg, W. Germany, 1985.
31. "Particle Acceleration and Wave Excitation at Interplanetary Shocks," Seminar, MPI for Extraterrestrial Physics, Garching, W. Germany, July 1985.
32. "Particle Acceleration and Wave Excitation at Shocks," Astrophysics Seminar, University of Arizona, Tucson, Arizona, January 1986.
33. "Particle Acceleration and Wave Excitation at Shocks," Seminar, High Altitude Observatory, Boulder, Colorado, January 1986.
34. "Cometary Pick-up Ions and Their Instability," Seminar, MPI for Nuclear Physics, Heidelberg, W. Germany, March 1986.
35. "Cometary Pick-up Ions and Their Instability," Seminar, MPI for Extraterrestrial Physics, Garching, W. Germany, March 1986.

36. "The Location and Structure of the Solar Wind Termination Shock," Theory Seminar, MPI for Extraterrestrial Physics, Garching, W. Germany, November 1986.
37. "Particles Accelerated by Shocks in the Heliosphere," Workshop on the Interplanetary Charged Particle Environment, Pasadena, California, March 1987.
38. "Shock Acceleration of Energetic Particles in the Heliosphere," Seminar, Washington University, St. Louis, Missouri, April 1987.
39. "Shock Acceleration of Energetic Particles in the Heliosphere," Astrophysics Seminar, University of Chicago, Chicago, Illinois, May 1987.
40. "MHD Waves at Interplanetary Shocks," International Symposium on Collisionless Shocks, Balatonfüred, Hungary, June 1987.
41. "The Solar Wind Termination Shock and the Heliosphere Beyond," Solar Wind VI Conference, Estes Park, Colorado, August 1987.
42. "ULF Waves at Comets," Chapman Conference on Plasma Waves and Instabilities in Magnetospheres and at Comets, Sendai, Japan, October 1987.
43. "The Acceleration of Energetic Particles at Shocks," Astrophysics Seminar, Tata Institute for Fundamental Research, Bombay, India, November 1987.
44. "Shock Acceleration of Energetic Particles in the Heliosphere," Astrophysics Seminar, Radio Astronomy Center, Ooty, India, November 1987.
45. "Shock Acceleration of Energetic Particles in the Heliosphere," Astrophysics Seminar, Institute for Astrophysics Bangalore, India, December 1987.
46. "Particle Acceleration in the Solar Wind," Conference on Outstanding Problems in Solar System Plasma Physics: Theory and Instrumentation, Yosemite, California, February 1988.
47. "Outstanding Problems in Particle Acceleration at Quasiparallel Shocks," Workshop on Quasiparallel Shock Structure, Los Alamos, New Mexico, June 1988.
48. "Interplanetary and Interstellar Shocks," Symposium on Plasma Astrophysics, IAU General Assembly, Baltimore, Maryland, August 1988.
49. "The Interaction of Pickup Ions with the Solar Wind," Colloquium, Bartol Research Institute, Newark, Delaware, October 1988.
50. "Interstellar Pickup Ions in the Solar Wind," MIT Symposium on the Physics of Space Plasmas, Cambridge, Massachusetts, January 1989.
51. "The Interaction of Pickup Ions with the Solar Wind," University of Alabama at Huntsville and NASA-MSFC, Huntsville, Alabama, February 1989.
52. "The Interaction of Pickup Ions with the Solar Wind," High Altitude Observatory, Boulder, Colorado, March 1989.
53. "The Interaction of Pickup Ions with the Solar Wind," Illinois State University, Normal, Illinois, March 1989.

54. "Ion Acceleration to Cosmic Ray Energies," COSPAR Colloquium on the Physics of the Outer Heliosphere, Warsaw, Poland, September 1989.
55. "Pickup Ions," Max-Planck-Institut für Physik und Astrophysik, Garching, W. Germany, September 1989.
56. "Scattering and Acceleration of Pickup Ions in the Solar Wind," University of Maryland, College Park, Maryland, November 1989.
57. "Shocks in the Solar System," International Conference on Plasma Physics, New Delhi, India, November 1989 (not presented due to illness).
58. "Particle Acceleration at Shocks," Yosemite 1990 Conference on Transition Regions in Solar System Plasmas, Yosemite, California, February 1990.
59. "Waves at Comets: A Theoretical Perspective," AGU Spring Meeting, Baltimore, Maryland, May 1990.
60. "The Structure of the Outer Heliosphere," Goddard Space Flight Center, Greenbelt, Maryland, June 1990.
61. "Solar Wind - Galactic Cosmic Ray Interaction," European Geophysical Society Meeting, Wiesbaden, Germany, April 1991.
62. "Coupled Wave Damping and Stochastic Acceleration of Pickup Ions in the Solar Wind," Max-Planck-Institut für Aeronomie, Lindau, Germany, May 1991.
63. "Second Order Stochastic Fermi Acceleration in the Heliosphere," Dartmouth College, Hanover, New Hampshire, May 1991.
64. "Applications of Quasilinear Theory in the Heliosphere," Workshop on the Road from Quasilinear Theory to Turbulence, Balatonfüred, Hungary, June 1991 (meeting cancelled).
65. "Solar Particle Production," Rapporteur talk, 22nd International Cosmic Ray Conference, Dublin, Ireland, August 1991.
66. "Coronal Solar Energetic Particle Acceleration Processes," CELIAS Co-Investigator Meeting, Spitzingsee, Germany, September 1991.
67. "Particle Acceleration in the Heliosphere: Observations and Theory," Workshop on Particle Acceleration in Cosmic Plasmas, Newark, DE, December 1991.
68. "The Solar Wind in the Distant Heliosphere and the Role of Pickup Ions," AGU Fall Meeting, San Francisco, California, December 1991.
69. "The Termination Shock of the Solar Wind," MIT Symposium on the Physics of Space Plasmas, Cambridge, Massachusetts, January 1992.
70. "The Interaction of the Sun with the Local Interstellar Medium," MIT Astrophysics Seminar, Cambridge, Massachusetts, April 1992.
71. "Interplanetary Shocks," 26th ESLAB Symposium, Study of the Solar-Terrestrial System, Killarney, Ireland, June 1992.
72. "How to Bet on the Location of the Termination Shock: A Summary Overview of the Symposium," World Space Congress, Symposium on Observations of the Outer Heliosphere, Washington, District of Columbia, August 1992.

73. "Comparison of the Halley and Giacobini-Zinner Plasma Environments," 4th COSPAR Colloquium on "Critical Problems of the Plasma Environments of Comets and Other Weakly Magnetized Bodies," Ann Arbor, Michigan, August 1992.
74. "Acceleration of Energetic Particles in the Heliosphere," IAU Symposium on Astrophysical Acceleration Processes, College Park, Maryland, January 1993.
75. "Stochastic Fermi Acceleration and Solar Cosmic Rays," High Energy Physics of Solar Flares, Waterville Valley, New Hampshire, March 1993.
76. "The Termination Shock of the Heliosphere," IAGA Scientific Assembly, Buenos Aires, Argentina, August 1993.
77. "Ion Thermalization Downstream of Quasiperpendicular Shocks" and "Pickup Ions in the Inner Heliosphere," CELIAS Data Workshop, Tramelan, Switzerland, September 1993.
78. "Ion Thermalization and Wave Excitation Downstream of the Quasiperpendicular Bow Shock," Seminar, MPI für Aeronomie, Lindau, Germany, October 1993.
79. "Effects of Cosmic Rays and Interstellar Gas on the Dynamics of a Wind," Conference on Cosmic Winds and the Heliosphere, Tucson, Arizona, October 1993.
80. "Ion Thermalization and Wave Excitation Downstream of the Quasiperpendicular Bow Shock" and "Effects of Cosmic Rays and Interstellar Gas on the Dynamics of a Wind," Seminars, University of California-San Diego, La Jolla, California, March 1994.
81. "Symposium Summary," 28th ESLAB Symposium on the High Latitude Heliosphere, Friedrichshafen, Germany, April 1994.
82. "Transport Theory: Brief Rapporteur," Second Pioneer/Voyager Symposium on Energetic Particles and Fields in the Outer Heliosphere", UNH, Durham, New Hampshire, June 1994.
83. "Ion Thermalization and Wave Excitation Downstream of a Quasiperpendicular Collisionless Shock," COSPAR General Assembly, Hamburg, Germany, July 1994.
84. "The Influence of Cosmic Rays and Interstellar Gas on the Termination Shock of the Solar Wind", Seminar, MPI für Aeronomie, Lindau, Germany, July 1994.
85. "Do Cometary Shocks Tell Us Anything About the Heliospheric Termination Shock?," AGU Fall Meeting, San Francisco, California, December 1994.
86. "Ion Thermalization and Wave Excitation Downstream of the Quasiperpendicular Bow Shock," 1995 Cambridge Symposium on Multiscale Phenomena in Space Plasmas, Bermuda, February 1995.
87. "From Interstellar Pickup Ions to the Cosmic Ray Anomalous Component," Seminar, University of Maryland, College Park, Maryland, March 1995.
88. "From Interstellar Pickup Ions to the Cosmic Ray Anomalous Component," Seminar, Bartol Research Institute, Newark, Delaware, April 1995.
89. "The Structure of the Heliosphere Interface with the Interstellar Medium," IUGG General Assembly, Boulder, Colorado, July 1995.

90. "The Termination Shock of the Solar Wind," First ISSI Workshop on the Heliosphere in the Local Interstellar Medium, Bern, Switzerland, November 1995.
91. "Ion Thermalization and Wave Excitation Downstream of the Quasiperpendicular Bow Shock," Seminar, Space Research Centre, Warsaw, Poland, January 1996.
92. "Workshop Summary," Ulysses Workshop on CIRs, Elmau Castle, Germany, March 1996.
93. "Towards a Strategic Plan for Heliospheric Physics," AGU Spring Meeting, Baltimore, Maryland, May 1996.
94. "Acceleration of the Corotating Ion Events," AGU Spring Meeting, Baltimore, Maryland, May 1996.
95. "Ion Acceleration at Corotating Interaction Regions in the Solar Wind," Seminar, MPI Aeronomie, Lindau, Germany, July 1996.
96. "Particle Acceleration and Transport at CME-Driven Shocks," AGU Chapman Conference on Coronal Mass Ejections: Causes and Consequences, Bozeman, Montana, August 1996.
97. "CIRs and Acceleration of Energetic Ions," CELIAS Scientific Workshop and Co-I Meeting, Kloster Seon, Germany, September 1996.
98. "Energetic Ions and the Solar Wind Termination Shock," AGU Fall Meeting, San Francisco, CA, December 1996 (cancelled due to illness).
99. "Particle Acceleration in Interplanetary Space," ACE Science Workshop, Caltech, Pasadena, California, January 1997 (cancelled due to illness).
100. "Theory of the Foreshock Wave-Particle Interaction Region," International Workshop on Nonlinear Waves and Turbulence in Space Plasmas, Köln, Germany, February 1997.
101. "From Interstellar Pickup Ions to the Anomalous Cosmic Ray Component," Plasma Seminar, Dartmouth College, New Hampshire, April 1997.
102. "Theory Working Group Report," CIR Workshop 1997, Elmau Castle, Germany, April 1997.
103. "Injection of Pickup Ions at the Solar Wind Termination Shock," IAGA General Assembly, Uppsala, Sweden, August 1997.
104. "From Interstellar Pickup Ions to the Anomalous Cosmic Ray Component," Seminar, University of Oslo, Oslo, Norway, August 1997.
105. "Shock Acceleration of Energetic Ions in the Heliosphere," Seminar, Institute for Applied Mechanics, Warsaw, Poland, September 1997.
106. "The Structure of Corotating Interaction Regions in the Solar Wind", Seminar, Centre for Space Research, Warsaw, Poland, October 1997.
107. "The Structure of Corotating Interaction Regions in the Solar Wind," CELIAS Scientific Workshop and Co-I Meeting, Solomons Island, MD, October 1997.

108. "Wave Excitation at Heliospheric Shocks," CELIAS Scientific Workshop and Co-I Meeting, Northeim, Germany, March 1998.
109. "The Injection, Acceleration, and Dynamical Influence of Interstellar Pickup Ions at the Solar Wind Termination Shock," International Plasma Astrophysics and Space Physics Conference, Lindau, Germany, May 1998.
110. "Quasilinear Theory of Wave-Particle Interaction," ISSI Workshop on Mass-Loaded Plasmas, Bern, Switzerland, September 1998.
111. "Rapporteur and Summary," Symposium on Anomalous and Galactic Cosmic Rays in the Heliosphere, Durham, New Hampshire, October 1998.
112. "The Effects of CIRs Observed at High Latitudes and Their Interpretation," EGS Spring Meeting, The Hague, Netherlands, April 1999.
113. "A Simple Model for Ion Acceleration and Transport at an Evolving Coronal/ Interplanetary Shock," AGU Spring Meeting, Boston, Massachusetts, June 1999.
114. "A Simple Model for Ion Acceleration and Transport at an Evolving Coronal/ Interplanetary Shock," SHINE 99, Boulder, Colorado, June 1999.
115. "Energetic Particle Acceleration on the Sun, in the Heliosphere, and in the Galaxy," ACE-2000 Symposium on the Acceleration and Transport of Energetic Particles Observed in the Heliosphere, Indian Wells, California, January 2000.
116. "Transit-Time Damping," CELIAS/SoHO Workshop and Co-I Meeting, Charleston, South Carolina, March 2000.
117. "A Simple Model for Ion Acceleration and Transport at an Evolving Coronal/ Interplanetary Shock", Space Science Seminar, University of Michigan, Ann Arbor, Michigan, November, 2000.
118. "A Simple Model for Ion Acceleration and Transport at an Evolving Coronal/ Interplanetary Shock," Physics Colloquium, Dartmouth College, Hanover, New Hampshire, January 2001.
119. "The Acceleration and Transport of Solar Energetic Particles," SHINE 01, Snowmass, Colorado, June 2001.
120. "The Theory of Particle Acceleration at Coronal/Interplanetary Shocks," Space Science Seminar, University of Maryland, College Park, Maryland, November 2001.
121. "The Theory of Particle Acceleration at Coronal/Interplanetary Shocks," AGU Fall Meeting, San Francisco, California, December 2001.
122. "The Role of MHD Waves in Particle Transport and Acceleration," International Conference on Particle Transport and Acceleration in Cosmic Plasmas, IGPP, Riverside, California, February 2002.
123. "The Incredible Journey of Cosmic Rays," Hot Topic Lecture, Christa McAuliffe Planetarium, Concord, New Hampshire, March 2002.
124. "The Role of MHD Waves in Particle Transport and Acceleration at Shocks," Huntsville Workshop 2002, Astrophysical Particle Acceleration in Geospace and Beyond, Chattanooga, TN, October 2002.

125. "The Interaction of the Solar Wind with the Interstellar Neutral Gas," Mini Symposium on Blending of Plasma and Neutral Gas in the Sun, the Heliosphere, and the Interstellar Medium, Division of Plasma Physics Meeting, APS, Orlando, Florida, November 2002.
126. "Coupled Ion Acceleration and Wave Excitation at Earth's Bow Shock," AGU Fall Meeting, San Francisco, California, December 2002 (cancelled due to illness).
127. "Quasianalytical Approach to Modeling SEP Events," Berkeley/Michigan MURI Workshop on Solar Energetic Particles, Tucson, Arizona, March 2003.
128. "Outstanding Issues in Particle Acceleration Close to the Sun," SHINE 2003, Maui, Hawaii, July 2003.
129. "Cosmic-Ray Plasma Coupling in the Outer Heliosphere," IGPP Conference on the Physics of the Outer Heliosphere, Riverside, California, February 2004.
130. "Theory and Models of CME Initiation, Evolution and Effects" (with Z. Mikic), ISSI Workshop on Coronal Mass Ejections, Bern, Switzerland, March 2004.
131. "Ion Injection and Transport at the Shocks Bounding CIRs," 35th COSPAR Scientific Assembly, Paris, France, July 2004.
132. "Ion Acceleration by Shocks," Chapman Conference on Solar Energetic Plasmas and Particles, Turku, Finland, August, 2004.
133. "The Interaction of Hydromagnetic Waves and Ions in Space Plasmas," DPP/APS Meeting, Savannah, Georgia, November 2004.
134. "Generation of Turbulence at Shocks," IGPP Conference on the Physics of Collisionless Shocks, Palm Springs, California, February 2005.
135. "Particle Acceleration from the Sun to the Earth and Beyond," NCAR Summer Colloquium on Space Weather, Boulder, Colorado, June 2005.
136. "Shocks and Particle Acceleration," SHINE 2005, Kona, Hawaii, July 2005.
137. "Pickup Ions from Cometary to Interstellar: Lessons Learned," IAGA 2005, Toulouse, France, July 2005.
138. "The IBEX Science and Mission Teams," IAGA 2005, Toulouse, France, July 2005 (given for D.McComas).
139. "Manfred Scholer and Reminiscences of MPE During 1971-1973," MPE Retirement Symposium, Schloss Ringberg, Tegernsee, Germany, November 2005.
140. "Wave-Particle Interactions in Hot Plasmas," IGPP Conference on The Physics of the Inner Heliosheath: Voyager Observations, Theory and Future Prospects, Waikiki Beach, Hawaii, March 2006.
141. "Coronal and Interplanetary Shocks," AAS-SPD Summer School on High Energy Solar Physics, Durham, New Hampshire, June 2006.
142. "Turbulence Generation at Interplanetary Shocks," SHINE Workshop 2006, Midway, Utah, August 2006.
143. "What Determines the Composition of SEPs in Gradual Events?," Symposium on the Composition of Matter, Grindelwald, Switzerland, September 2006.

144. "Ion Acceleration at an Evolving Coronal/Interplanetary Shock Wave," Seminar, CESR/CNRS, Toulouse, France, September 2006.
145. "SEP Acceleration and Transport," Solar Energetic Particle Environment Modelling Workshop, Southampton, UK, February 2007.
146. "Solar Energetic Particles – Injection, Acceleration, and Transport: Theory," SOHO/CELIAS – STEREO/PLASTIC/SEPT Workshop, Kiel, Germany, March 2007.
147. "Outstanding Puzzles in Shock Acceleration," AGU Spring Meeting, Acapulco, Mexico, May 2007.
148. "Wave Excitation Upstream of Shocks: Relevance to SEP Events," IUGG/IAGA Assembly, Perugia, Italy, July 2007.
149. "Shock Acceleration of Solar Energetic Particles," SHINE 07 Workshop, Whistler, Canada, July/August 2007.

Invited Workshop Participation

1. International Working Group on Collisionless Shocks, Alpbach, Austria, May 1983.
2. NASA Solar Terrestrial Physics Workshop, Berkeley Springs, West Virginia, June 1983.
3. Workshop on Cosmic Ray Modulation, Boulder, Colorado, October 1983, April 1984, October 1984, and February 1985.
4. STTP Workshop in Solar-Terrestrial Physics, Los Alamos, New Mexico, November 1984.
5. Workshop on the Interplanetary Charged Particle Environment, Pasadena, California, March 1987.
6. Workshop on Quasiparallel Shock Structure, Los Alamos, New Mexico, June 1988, and Los Angeles, California, February 1989.
7. Workshop on the Interstellar Probe, Ballston, Virginia, March 1990.
8. Workshop on Cosmic Ray Modulation, Tucson, Arizona, November 1991 and September 1992.
9. Workshop on Particle Acceleration in Cosmic Plasmas, Newark, Delaware, December 1991.
10. CELIAS Data Workshop, Tramelan, Switzerland, September 1993, September 1994.
11. Solar Environment Workshop, Moscow, Russia, June 1995.
12. Workshop on the Heliosphere in the Local Interstellar Medium, International Space Science Institute, Bern, Switzerland, November 1995.
13. Ulysses Workshop on Corotating Interaction Regions in the Solar Wind, Elmau Castle, Germany, March 1996, April 1997.
14. Workshop on the Solar Modulation of Galactic Cosmic Rays, International Space Science Institute, Bern, Switzerland, September 1996.
15. CELIAS Scientific Workshop and Co-I Meeting, Kloster Seeon, Germany, September 1996.
16. International Workshop on Nonlinear Waves and Turbulence in Space Plasmas, Köln, Germany, February 1997.
17. NASA Space Science Enterprise Strategic Planning Workshop, Breckenridge, Colorado, May 1997.
18. CELIAS Scientific Workshop and Co-I Meeting, Solomons Island, Maryland, October 1997.
19. CELIAS Scientific Workshop and Co-I Meeting, Northeim, Germany, March 1998.
20. ISSI Workshop on Corotating Interaction Regions in the Solar Wind, Bern, Switzerland, June 1998.
21. ISSI Workshop on Mass-Loaded Plasmas, Bern, Switzerland, September 1998.

22. CELIAS Scientific Workshop and Co-I Meeting, Portsmouth, New Hampshire, October 1998.
23. CELIAS Scientific Workshop and Co-I Meeting, Pertisau, Austria, March 1999.
24. SHINE 99 Workshop, Boulder, Colorado, June 1999.
25. CELIAS Scientific Workshop and Co-I Meeting, Charleston, South Carolina, March 2000.
26. ACE Science Working Team Meeting, APL, Maryland, October 2000.
27. SHINE 01 Workshop, Snowmass, Colorado, June 2001.
28. Michigan MURI Workshop, Ann Arbor, Michigan, July 2001.
29. NASA Living with a Star CDAW on the Solar and Geospace Connections of Solar Energetic Particles, GSFC, Greenbelt, Maryland, July 2002.
30. SHINE 02 Workshop, Banff, Alberta, August 2002.
31. Berkeley/Michigan MURI Workshop on Solar Energetic Particles, Tucson, Arizona, March 2003.
32. SHINE 03 Workshop, Maui, Hawaii, July 2003.
33. ISSI Workshop on Coronal Mass Ejections, Bern, Switzerland, March 2004.
34. SHINE 05 Workshop, Kona, Hawaii, July 2005.
35. SHINE 06 Workshop, Midway, Utah, August 2006.
36. IBEX Team Meeting, Oxnard, CA, November 2007.
37. Solar Energetic Particle Environment Modelling Workshop, Southampton, UK, February 2007.
38. SOHO/CELIAS – STEREO/PLASTIC/SEPT Workshop, Kiel, Germany, March 2007.
39. IBEX Team Meeting, Bern, Switzerland, April 2007.
40. SHINE 07 Workshop, Whistler, Canada, July/August 2007.

Contributed Talks (Since June, 1980)

1. "Shock Acceleration of Energetic Particles in Corotating Interaction Regions," COSPAR Symposium, Budapest, Hungary, June 1980.
2. "Solar Flare Ion Acceleration in a Coronal Blast Wave," AGU Winter Meeting, San Francisco, California, December 1980.
3. "Shock Acceleration of Ions Upstream of the Earth's Bow Shock," AGU Winter Meeting, San Francisco, California, December 1980.
4. "Coupled Wave Generation and Ion Acceleration Upstream of the Earth's Bow Shock," AGU Spring Meeting, Baltimore, Maryland, May 1981.
5. "Time-Dependent Ion Acceleration in a Coronal Shock," AGU Spring Meeting, Baltimore, Maryland, May 1981.
6. "Time-Dependent Modulation of Galactic Cosmic Rays," 17th ICRC, Paris, France, July 1981.
7. "The Role of Particle Drifts in Solar Modulation," 17th ICRC, Paris, France, July 1981.
8. "Solar Flare Ion Acceleration in a Coronal Blast Wave," 17th ICRC, Paris, France, July 1981.
9. "Coupled Wave Generation and Ion Acceleration Upstream from the Earth's Bow Shock," 17th ICRC, Paris, France, July 1981.
10. "Acceleration of Cosmic Rays in Accretion Shocks," 17th ICRC, Paris, France, July 1981.
11. "Self-Consistent Ion Acceleration and Hydromagnetic Wave Generation Upstream of the Earth's Bow Shock," AGU Winter Meeting, San Francisco, California, December 1981.
12. "The Role of Helium in the Excitation of Hydromagnetic Waves Upstream of the Earth's Bow Shock," AGU Spring Meeting, Philadelphia, Pennsylvania, May 1982.
13. "Coupled Hydromagnetic Wave Excitation and Ion Acceleration at Interplanetary Traveling Shocks," AGU Winter Meeting, San Francisco, California, December 1982.
14. "Coupled Hydromagnetic Wave Excitation and Cosmic Ray Acceleration at Interstellar Shocks," 18th ICRC, Bangalore, India, August 1983.
15. "Coupled Hydromagnetic Wave Excitation and Ion Acceleration at Interplanetary Shocks," 18th ICRC, Bangalore, India, August 1983.
16. "The Acceleration of the Anomalous Cosmic Ray Component," 18th ICRC, Bangalore, India, August 1983.
17. "Coupled Hydromagnetic Wave Excitation and Ion Acceleration at Interplanetary Traveling Shocks. II. Numerical Integration of the Wave Kinetic Equations," Chapman Conference on Collisionless Shock Waves in the Heliosphere, Napa Valley, California, February 1984.
18. "A Model for the Coupled Evolution of Energetic Ions and Waves Upstream of the Earth's Bow Shock," AGU Spring Meeting, Cincinnati, Ohio, May 1984.

19. "Time-Dependent Coronal Shock Acceleration of Energetic Solar Flare Particles," IAGA Scientific Assembly, Prague, Czechoslovakia, August 1985.
20. "Hydromagnetic Wave Excitation by Ionized Interstellar Hydrogen and Helium in the Solar Wind," AGU Fall Meeting, San Francisco, California, December 1985.
21. "On the Location of the Solar Wind Termination Shock," APS Spring Meeting, Washington, District of Columbia, April 1986.
22. "Excitation of 100s and 3s Waves Upstream of Giacobini-Zinner by Cometary Pickup Ions," AGU Spring Meeting, Baltimore, Maryland, May 1986.
23. "On the Location of the Solar Wind Termination Shock," XXVI COSPAR, Toulouse, France, July 1986.
24. "Hydromagnetic Wave Excitation by Ionized Interstellar Hydrogen and Helium in the Solar Wind," XXVI COSPAR, Toulouse, France, July 1986.
25. "Model Structure of a Cosmic Ray Mediated Stellar Wind," AGU Fall Meeting, San Francisco, California, December 1986.
26. "The Evolution of Interstellar Pickup Ions in the Outer Heliosphere," AGU Spring Meeting, Baltimore, Maryland, May 1988.
27. "Quasilinear Evolution of ULF Waves Excited by Cometary Ion Pickup," AGU Fall Meeting, San Francisco, California, December 1988.
28. "Quasilinear Evolution of ULF Waves Excited by Cometary Ion Pickup," AGU Chapman Conference on Cometary Plasma Processes, Guildford, England, July 1989.
29. "Coupled Stochastic Fermi Acceleration and Wave Damping in Space Plasmas," XXI International Cosmic Ray Conference, Adelaide, Australia, January 1990.
30. "Cosmic Ray Nuclei and Electron Propagation in a Static Diffusing Galaxy with a Thin Matter Disk," XXI International Cosmic Ray Conference, Adelaide, Australia, January 1990.
31. "Coupled Hydromagnetic Wave Excitation and Ion Acceleration at Interplanetary Shocks: Numerical Integration of the Wave Kinetic Equations," AGU Fall Meeting, San Francisco, California, December 1990.
32. "Forbush Decreases and Cosmic Ray Modulation at High Energies," AGU Spring Meeting, Baltimore, Maryland, May 1991.
33. "Forbush Decreases and Cosmic Ray Modulation at High Energies," XXII International Cosmic Ray Conference, Dublin, Ireland, August 1991.
34. "On the Coupled Behavior of Reflected Ions and Low-Frequency Waves Downstream of Quasiperpendicular Shocks," AGU Fall Meeting, San Francisco, California, December 1991.
35. "Theoretical Predictions of Mass- and Momentum-Loading of the Solar Wind by Pickup of Interstellar Hydrogen and Helium," AGU Spring Meeting, Montreal, Canada, May 1992.

36. "Coupled Wave Excitation and Ion Acceleration at Oblique Shocks Including Ion Perpendicular Diffusion," AGU Fall Meeting, San Francisco, California, December 1992.
37. "The Solar Cycle Dependence of Cosmic Ray Modulation at High Energies," AGU Spring Meeting, Baltimore, Maryland, May 1993.
38. "Ion Thermalization and Wave Excitation Downstream of the Quasiperpendicular Bow Shock," AGU Spring Meeting, Baltimore, Maryland, May 1993.
39. "Ion Thermalization Downstream of Quasi-Perpendicular Shocks," IAGA Scientific Assembly, Buenos Aires, Argentina, August 1993.
40. "Ion-excited Wave Intensities Upstream of Earth's Bow Shock: Comparison of Theory and AMPTE/IRM Observations," IAGA Scientific Assembly, Buenos Aires, Argentina, August 1993.
41. "Interstellar Pickup Ion Evolution and Wave Excitation in the Solar Wind: 2- and 3-Stream Equations," AGU Fall Meeting, San Francisco, California, December 1993.
42. "Ion Acceleration at Quasiperpendicular Shocks" with V.D. Shapiro and R.Z. Sagdeev, Gordon Research Conference on Collisionless Dissipation in Space Plasmas, Wolfeboro, New Hampshire, June 1994.
43. "A Perturbation Calculation of the Dynamical Effects of Cosmic Rays and Interstellar Gas on the Solar Wind," Solar Wind 8, Dana Point, California, June 1995.
44. "Effects of Spatial Transport and Ambient Wave Intensity on the Generation of MHD Waves by Interstellar Pickup Ions," IAGA Scientific Assembly, Boulder, Colorado, July 1995.
45. "Pickup Ion Energization by Shock Surfing," IAGA Scientific Assembly, Boulder, Colorado, July 1995.
46. "Modulation of High Energy Cosmic Rays Throughout the Solar Activity and Magnetic Cycles" with E. Bennett, International Cosmic Ray Conference, Rome, Italy, September 1995.
47. "The Fisk/Lee Theory of Ion Acceleration at CIRs," Ulysses Workshop on CIRs, Elmau Castle, Germany, March 1996.
48. "Energy Spectra and Spatial Dependence of Shock-Accelerated Ions at CIRs," AGU Spring Meeting, Baltimore, Maryland, May 1997.
49. "An Analytical Model Including Drift for the Solar-Cycle Modulation of Galactic Cosmic Rays" with E. Bennett, International Cosmic Ray Conference, Durban, South Africa, August 1997.
50. "An Analytical Theory of the Morphology, Flows, and Shock Compression in CIRs," AGU Fall Meeting, San Francisco, California, December 1997.
51. "Shock Surfing as the Pre-Energization Mechanism at the Astrophysical Shocks" with V.D. Shapiro and K.B. Quest, AGU Fall Meeting, San Francisco, California, December 1997.
52. "Shocks and Flows at Corotating Interaction Regions in the Solar Wind," AGU Spring Meeting, Boston, Massachusetts, May 1998.

53. "Shocks and Flows at Corotating Interaction Regions in the Solar Wind," Solar Wind Nine, Nantucket, Massachusetts, October 1998.
54. "A Simple Model for Ion Acceleration and Transport at an Evolving Coronal/ Interplanetary Shock," ACE-2000 Symposium, Indian Wells, California, January 2000.
55. "A Simple Model for Ion Acceleration and Transport at an Evolving Coronal/ Interplanetary Shock," CELIAS Workshop and Co-I Meeting, Charleston, South Carolina, March 2000.
56. "Analytical Solutions of the Gyrophase-Averaged Transport Equation for the Solar Wind Proton Distribution Function," AGU Spring Meeting, Washington, District of Columbia, May 2000.
57. "High-Energy Cosmic Ray Modulation in the Outer Heliosphere," COSPAR Colloquium on the Outer Heliosphere: The Next Frontier, Potsdam, Germany, July 2000.
58. "Ion Acceleration at a Coronal/Interplanetary Shock," ACE/SWT Meeting, APL, Maryland, October 2000.
59. "A Theory for Ion Acceleration and Transport at an Evolving Coronal/Interplanetary Shock," AGU Fall Meeting, San Francisco, California, December 2000.
60. "The Predicted Intensities of Solar Energetic Ions Accelerated by an Evolving CME-Driven Shock," AGU Spring Meeting, Boston, Massachusetts, May 2001.
61. "Ion Shock Acceleration in Gradual Events Where the Excited Wave Intensity is a Prescribed Power-Law in Wavenumber," SHINE 2002 Workshop, Banff, Alberta, August 2002.
62. "Coupled Hydromagnetic Waves and Energetic Ions at CME-driven Shocks," Solar Wind 11, Whistler, British Columbia, Canada, June 2005.

Teaching Experience

A. Courses

1. "Classical Mechanics" (required course for junior-level physics undergraduate students: text used - Marion, "Classical Dynamics of Particles and Systems"), Washington University, St. Louis, Missouri, 9/74 - 6/75, 9/75 - 6/76, 9/76 - 6/77.
2. "Mathematical Physics" (required course for physics graduate students; texts used - Carrier, Krook, and Pearson, "Functions of a Complex Variable: Theory and Technique"; Arfken, "Mathematical Methods for Physicists"; Mathews and Walker, "Mathematical Methods of Physics") Washington University, St. Louis, Missouri, 9/77 - 12/77, 9/78 - 12/78.
3. "Plasma Astrophysics" (advanced specialty course for physics graduate students), Washington University, St. Louis, Missouri, 1/76 - 5/76, 1/78 - 5/78.
4. "Cosmic Physics" (advanced specialty course for physics graduate students team-taught with J. Hollweg, T. Moore, and G. Simpson), University of New Hampshire, Durham, New Hampshire, 9/80 - 12/80, 9/81 - 12/81.
5. "Solar Wind and Cosmic Rays" (advanced specialty course for physics graduate students taught with J. Hollweg), University of New Hampshire, Durham, New Hampshire, 1/85 - 5/85.
6. Physics 954: "Solar Wind and Cosmic Rays" (advanced specialty course for physics graduate students), University of New Hampshire, Durham, New Hampshire, 1/87 - 5/87, 1/92 - 5/92.
7. Physics 407: "Mechanics" (freshman physics), recitation section, University of New Hampshire, Durham, New Hampshire, 1/90 - 5/90, 1/98 - 5/98, 1/00 - 5/00, 1/02 - 5/02, 9/04 - 12/04 (2 sections).
8. Physics 408: "Electricity & Magnetism; Heat " (freshman physics), recitation section, University of New Hampshire, Durham, NH, 9/96 - 12/96, 1/98 - 5/98, 09/05 - 12/05 (3 sections).
9. Physics/EOS 955: "Geophysical and Astrophysical Fluid Dynamics" (advanced interdisciplinary course for EOS/physics graduate students), University of New Hampshire, Durham, New Hampshire, 9/90 - 12/90, 1/93 - 5/93, 1/94 - 5/94, 1/96 - 5/96, 1/02 - 5/02.
10. Physics 931: "Mathematical Physics" (core graduate course), University of New Hampshire, Durham, NH, 9/94 - 12/94, 9/96 - 12/96, 9/99 - 12/99.
11. Physics 932: "Mathematical Physics" (core graduate course), University of New Hampshire, Durham, NH, 1/99 - 5/99, 1/00 - 5/00.
12. Physics 939: "Theoretical Mechanics I" (core graduate course), University of New Hampshire, Durham, NH, 9/00 - 12/00, 9/01 - 12/01, 09/03 - 12/03.
13. Physics 616: "Classical Mechanics II" (core undergraduate course), University of New Hampshire, Durham, NH, 9/07 - 12/07.

B. Ph.D. Theses Supervised

1. Ping Ping Chih, "Temporal Variations of Cosmic Rays in the Heliosphere," Physics Department, University of New Hampshire, 7/83 - 12/89, degree conferred

December 1989 (a joint paper describing a portion of the thesis published in Journal of Geophysical Research - see publication 50).

2. Yuri Litvinenko, "Aspects of Particle Acceleration in Solar Flares," Physics Department, University of New Hampshire, 5/95 - 8/96, degree conferred December 1996.
3. Bruce Gordon, "Resonant Wave-Ion Interactions in the Heliosphere: I. Interplanetary Traveling Shocks; II. Ion Heating and Acceleration in the Extended Corona," Physics Department, University of New Hampshire, 1/98 - 10/02, degree conferred December 2002 (a joint paper describing a portion of the thesis published in Journal of Geophysical Research - see publication 102).
4. Yong Liu, "Ion Downstream Thermalization and Wave Excitation at the Quasi-perpendicular Earth's Bow Shock," Physics Department, University of New Hampshire, 8/02 - 1/07, degree conferred December 2006 (two joint papers describing a portion of the thesis are published in Journal of Geophysical Research - see publications 127 and 142).

C. Masters Thesis Supervised

1. Bonnie Kwiatkowski, "Forbush Decreases in the Cosmic Ray Intensity at High Energies," Physics Department, University of New Hampshire, 6/90 - 5/93, degree conferred May 1993.

D. Independent Study

1. Craig Pollock, "Instability of Cometary ULF Waves," 1 unit, UNH, 1/86-5/86 (joint paper presented at the AGU Spring Meeting, Baltimore, Maryland, May 1986).
2. Mohini Gupta, "Interstellar Propagation of Galactic Cosmic Rays," 1 unit, UNH, 1/86-5/86 [joint paper coauthored with W.R. Webber presented and published in the Proceedings of the XXI International Cosmic Ray Conference, Adelaide, Australia, January, 1990 (see publication 63) and in the Astrophysical Journal (see publication 70)].
3. Elaine Bennett, "Solar Modulation of Galactic Cosmic Rays," Physics Department, UNH, 5/93 - 8/95 (paper published in the Proceedings of the 24th International Cosmic Ray Conference, Rome, Italy, September, 1995 - see publication 84).

E. Ph.D. Dissertation Committees (within the Department of Physics unless noted otherwise)

1. John Perko, "Solar Modulation of Galactic Cosmic Rays: Techniques and Applications," December 1984.
2. Craig Pollock, "Rocket-Borne Low Energy Ion Measurements in Space," September 1987.
3. Parameswaran Sreekumar, "Ground Level Atmospheric Gamma Ray Flux Measurements in the 1-6 MeV Range," May 1989.
4. Steve Frolking, "Testing the Sensitivity of Methane Fluxes from Northern Wetlands to Climate Change" (EOS/Department of Earth Sciences), December 1993.
5. Guang Yang, "Resonance Absorption of MHD Surface Waves with Applications to the Solar Atmosphere," May 1992.

6. Kristina Lynch, "Fine Structure of Auroral Particle Acceleration," May 1992.
7. Chen Lu, "Study of Cross-Tail Current Carriers in the Magnetotail," December 1993.
8. Venku Jayanti, "Parametric Instabilities of Alfvén Waves in the Solar Wind," February 1995.
9. Brian Doyle.
10. Ilson C. da Silveira, "A Quasigeostrophic Study of the North Brazil Current Retroflection Eddies" (EOS/Department of Earth Sciences), April 1996.
11. Kemei Wang , "Source and Acceleration of Energetic He⁺ Ions at the Earth's Bow Shock," October 1997.
12. Scott Brennison, "Wavelet Analysis of ULF Magnetospheric Waves," December 2003.
13. Ioannis Kontodinas, "Energy Flow and Non-Guiding Center Effects in a Thin, Two-Dimensional Current Sheet," December 1997.
14. Lynette Gelinias, "An In-Situ Measurement of Charged Mesospheric Dust During a Sporadic Atom Layer Event," April 1999.
15. Alex Young, "Solar Flare Gamma-Ray Spectroscopy with CGRO-Comptel," December 2000.
16. Abe Falcone, "Studies of Solar Energetic Particles Using the Milagro Observatory," April 2001.
17. Lukas Saul, "Interstellar Helium Pickup Ion Flux Variations Observed with SOHO/CELIAS." April 2005.
18. Jiebing Sun, September 2005.
19. Qiuhua Zheng, November 2004.
20. Bin Miao, September 2006.

Service at UNH

Co-organizer (with T. Moore) of Space Science Seminars, ~ 1979-1985.

Co-organizer (with other faculty) of Physics Department Colloquia, 1985-1992, 1999 - 2001.

Co-organizer (with M. Hines) of EOS Colloquia, 1985-1987.

President of the UNH Faculty Club, 1984-1985.

Chair, Physics Department Graduate Curriculum Committee, 1992 - 1996, 2001 - 2006.

Graduate Advisor, Physics Department, 2001 - 2005.

Member of the UNH Graduate Council, 9/02 - present.

Chair of Physics Department Graduate Self-Study, 2003-2005.

Chair, Solar-Terrestrial Faculty Search Committee, February – May 2005.