

## **Invited Talks of Louis A. Frank 1997-Present**

**The University of Iowa  
Department of Physics and Astronomy  
Iowa City, IA**

### **1997**

1. Frank, L. A. and W. R. Paterson, The Mysterious Plasmas in the Vicinities of the Galilean Moons, presented at the conference The Three Galileos: the Man, the Spacecraft, the Telescope, Padova, Italy, 7-10 January, 1997.
2. Frank, L. A. and W. R. Paterson, The Fascinating Interactions of the Galilean Moons with Jupiter's Magnetosphere, Magnetospheres of the Outer Planets, Boulder, Colorado, p. 70, 17-21 March 1997.
3. Frank, L. A., W. R. Paterson, J. B. Sigwarth, S. Kokubun and T. Yamamoto, Simultaneous Observations of the Auroral Oval With the Polar Spacecraft and of Plasma Sheet Dynamics With the Geotail Spacecraft, 8th Scientific Assembly of International Association of Geomagnetism and Aeronomy (IAGA), Uppsala, Sweden, p. 269, 4-15 August 1997.
4. Frank, L. A., Small Comets and Atmospheric Holes, presented at a colloquium, Department of Physics, North Carolina State University, Raleigh, North Carolina, 29 September 1997.
5. Frank, L. A., Small Comets and Atmospheric Holes, presented at the Cedar Rapids Amateur Astronomers meeting, Cedar Rapids, Iowa, 2 October 1997.
6. Frank, L. A., Small Comets and Atmospheric Holes, presented at ASEE Northwest Regional Conference, The University of Iowa, Iowa City, Iowa, 10 October 1997.
7. Frank, L. A., Small Comets and Atmospheric Holes, presented at a physics colloquium, Institute of Geophysics and Planetary Physics, University of California Los Angeles, Los Angeles, California, 14 October 1997.
8. Frank, L. A., Small Comets and Atmospheric Holes, presented at a physics colloquium, University of California Riverside, Riverside, California, 16 October 1997.
9. Frank, L. A., Small Comets and Atmospheric Holes, presented at a colloquium, Department of Physics and Astronomy, The University of Iowa, Iowa City, Iowa, 20 October 1997.
10. Frank, L. A., Small Comets and Atmospheric Holes, presented at the United States Naval Academy, Annapolis, Maryland, 12 November 1997.

11. Frank, L. A., The Cosmic Rain of Small Comets Into Our Atmosphere, presented at a Chesley Bonestell Memorial Lecture, Monterey Institute of Research in Astronomy, Monterey, California, 22 November 1997.
12. Frank, L. A., Small Comets and Atmospheric Holes, presented at an Honors Seminar, College of Pharmacy, The University of Iowa, Iowa City, Iowa, 4 December 1997.
13. Frank, L. A. and J. B. Sigwarth, On the Seasonal Variations of Small Comet Impacts Into Our Upper Atmosphere, presented at the American Geophysical Union Fall Meeting, San Francisco, California, 8-12 December 1997.

## **1998**

14. Frank, L. A., Small Comets and Atmospheric Holes, presented at a Colloquium, Department of Physics and Astronomy, Iowa State University, Ames, Iowa, 26 January 1998.
15. Frank, L. A., Small Comets and Atmospheric Holes, presented at a colloquium, Wayne State University, Detroit, Michigan, 19 February 1998.
16. Frank, L. A., Auroral Substorms, Recent Observations and Unanswered Questions, presented at the International Conference on Substorms, ICS-4, Lake Hamana, Japan, p. 1, 9-13 March 1998.
17. Frank, L. A., Small Comets and Atmospheric Holes, presented at the Burlington Kiwanis Club, Burlington, Iowa, 19 March 1998.
18. Frank, L. A., Small Comets and Atmospheric Holes, presented at the Space Science Telescope Institute, Baltimore, Maryland, 24 March 1998.
19. Frank, L. A., Small Comets and Atmospheric Holes, presented at the Planetary Geosciences Spring Colloquium, Penn State University, State College, Pennsylvania, 14 April 1998.
20. Frank, L. A., Small Comets and Atmospheric Holes, presented at the 1998 Texas Star Party, Ft. Davis, Texas, 21 April 1998.
21. Frank, L. A., Small Comets and Atmospheric Holes, presented at the Iowa Academy of Science annual meeting, North Iowa Community College, Mason City, Iowa, 24 April 1998.
22. Frank, L. A., Small Comets and Atmospheric Holes, presented at the North Central Astronomical League convention, Altoona, Iowa, 9 May 1998.
23. Frank, L. A., W. R. Paterson, J. B. Sigwarth, S. Kokubun and T. Yamamoto, Global Images of Earth's Auroras and Their Relationship to Plasma Dynamics in the Equatorial Magnetosphere, presented at the 1998 Cambridge Symposium/Workshop, Lisbon, Portugal, p. 16, 22 June - 3 July 1998.
24. Frank, L. A., W. R. Paterson, K. L. Ackerson and S. J. Bolton, Plasma Dynamics Near Jupiter's Moons, presented at the 32nd COSPAR Scientific Assembly, Nagoya, Japan, p. 89, 12-19 July 1998.

25. Frank, L. A., Earth's Oceans Come From Comets!, presented at Simpson College, Indianola, Iowa, 8 October 1998.
26. Frank, L. A., J. B. Sigwarth, W. R. Paterson, S. Kokubun, R. P. Lepping and K. W. Ogilvie, The Earth's Auroras as Viewed With the High-Resolution Cameras on the Polar Spacecraft, presented at the 1998 Huntsville Workshop on "The New Millennium Magnetosphere: Integrating Imaging, Discrete Observations, and Global Simulations," Guntersville, Alabama, p. 32, 26-30 October 1998.
27. Frank, L. A., W. R. Paterson, J. B. Sigwarth and S. Kokubun, Global Images of Earth's Auroras and Their Relationship to Plasma Dynamics in the Equatorial Magnetosphere, presented at the Mini-Conference on Space Physics at the APS Division of Plasma Physics Annual Meeting, New Orleans, Louisiana, Bulletin of the American Physical Society, 43(8), 1816, 16-20 November 1998.

## 1999

28. Frank, L. A., Small Comets and Our Origins: The Ecstasy and the Agony of the Scientific Debate, Sixteenth Annual Presidential Lecture, The University of Iowa, Iowa City, Iowa, 21 February 1999.
29. Frank, L. A., Atmospheric Holes and Small Comets, presented at The University of Southern California, Los Angeles, 14 April 1999.
30. Frank, L. A., J. B. Sigwarth, W. R. Paterson and S. Kokubun, Observations Pertaining to the Location of the Substorm Onset Instability, XXII IUGG/IAGA General Assembly, Birmingham, United Kingdom, p. B.365, 18-30 July 1999.
31. Frank, L. A. and W. R. Paterson, Plasma Observations in the Vicinity of Io and its Torus, presented at the American Geophysical Union Fall Meeting, San Francisco, California, 13-17 December 1999.

## 2000

32. Frank, L. A., Small Comets and Our Origins: The Ecstasy and the Agony of the Scientific Debate, presented at the Morrison Planetarium, California Academy of Sciences, San Francisco, California, 25 January 2000.
33. Frank, L. A., Small Comets and Atmospheric Holes, presented at the Cedar Rapids Amateur Astronomers meeting, Cedar Rapids, Iowa, 3 August 2000.
34. Frank, L. A., Successful Searches for Small Comets With Optical Telescopes, presented at the University of Iowa, Department of Physics and Astronomy Colloquium, 16 October 2000.
35. Frank, L. A., The Cosmic Rain of Small Comets, presented at Coe College, Cedar Rapids, Iowa, 17 October 2000.
36. Frank, L. A., J. B. Sigwarth, W. R. Paterson and S. Kokubun, The Region in the Plasma Sheet Associated With the Onset of Classical Auroral Substorms, presented at the Huntsville 2000 Workshop, Pine Mountain, Georgia, 30 October - 3 November 2000.

37. Frank, L. A., On the Elusive Location and Mechanism for Substorm Onset, EOS, **81**(48), 1050, 2000.

## **2001**

38. Frank, L. A., Dynamics of the Ring Current During Substorm Onset as Observed With the Geotail and Polar Spacecraft, presented at the Danish Space Research Institute, Copenhagen, Denmark, 13 March 2001.
39. Frank, L. A., The Cosmic Rain of Small Comets Into Our Atmosphere, presented at the Niels Bohr Institute, Copenhagen, Denmark, 14 March 2001.
40. Frank, L. A., Boundary Layers in Earth's Distant Magnetosphere: The Exploratory Years, presented at the Low-Latitude Boundary Layer Chapman Conference, New Orleans, Louisiana, 16-20 April 2001.
41. Frank, L. A., W. R. Paterson and M. G. Kivelson, Plasma Observations With the Galileo Spacecraft During the Joint Campaign With Cassini, EOS, **82**(20), 254, 2001.
42. Frank, L. A. and W. R. Paterson, Thermal Plasmas in Jupiter's Torus and Magnetotail, presented at the Jupiter Planet, Satellites & Magnetosphere Meeting, Boulder, Colorado, 25-30 June 2001.
43. Frank, L. A. and W. R. Paterson, Probing the Mysteries of Io's Ionosphere With the Plasma Instrumentation on the Galileo Spacecraft, EOS, **82**(47), 684, 2001.

## **2002**

44. Frank, L. A., J. B. Sigwarth and W. R. Paterson, Insights Into the Dynamics of Substorms With Simultaneous Auroral Images and In-situ Plasma and Magnetic Field Observations, presented at the International Conference on Substorms, ICS-6, Seattle, Washington, 25-29 March 2002.
45. Frank, L. A., W. R. Paterson and J. B. Sigwarth, Observational Evidence for the Extraterrestrial Ring Current as the Position for Substorm Onset, presented at the 34th COSPAR Scientific Assembly/World Space Congress 2002, Houston, Texas, 10-19 October 2002.

## **2004**

46. Slinker, S. P., J. A. Fedder, D. G. Sibeck, J. G. Lyon, L. A. Frank and T. Mukai, Global MHD Simulation of Observed Magnetopause Waves, to be presented at the 2004 National Radio Science Meeting (URSI), Boulder, Colorado, 4-8 January 2004.
47. Frank, L. A. and W. R. Paterson, Thermal Plasmas Near Jupiter's Galilean Moons, Eos Trans. AGU, **85**(17), Jt. Assem. Suppl., Abstract SM43D-02, 2004.