

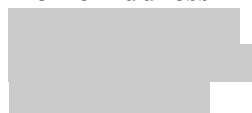
CURRICULUM VITAE

Matthew Eric Hill

Office Address

Department of Physics
University of Maryland
College Park, MD 20742-4111
(301) 405-6237
mehill@umd.edu

Home Address



I. Biographical Data

, New Jersey

Marital Status: Married

Citizenship: United States

II. Education

| | | |
|-------------------|---|-----------------------|
| Ph.D. | University of Maryland, College Park | Dec. 1998 – Dec. 2001 |
| M.S. | University of Maryland, College Park | Aug. 1996 – Dec. 1998 |
| B.S., High Honors | Rutgers University, New Brunswick, NJ | Sep. 1994 – May 1996 |
| A.S. | Brookdale Community College, Lincroft, NJ | Jan. 1992 – May 1994 |

III. Employment History

| | | |
|----------------------------------|---|---------------------------|
| Asst. Research Scientist | University of Maryland, College Park | July 2004 – present |
| Research Associate | University of Maryland, College Park | January 2002 – June 2004 |
| Graduate Research Assistant | University of Maryland, College Park | June 1996 – December 2001 |
| Tutor & Supervisor | University of Maryland, College Park | September 1998 – May 2000 |
| Teaching Assistant | University of Maryland, College Park | August 1996 – May 1997 |
| Undergraduate Research Assistant | Rutgers University, New Brunswick, New Jersey | May 1995 – May 1996 |

IV. Research Interests, Experience, and Experiments

- Transport and acceleration of energetic particles in space plasmas.
- Solar wind, its interaction with planetary magnetospheres, and its termination shock.
- Scientific analysis and instrumental diagnostics of energetic particle measurements from space borne instruments: the LECF experiments on Voyagers 1 & 2, the HENA and LENA telescopes on IMAGE, and the MIMI/CHEMS instrument on Cassini.
- Pulse-height analysis and time-of-flight techniques used to measure the differential flux, energy spectra, composition, and anisotropy of ions or neutral atoms.
- Numerical modeling of particle diffusion, convection, and adiabatic cooling.
- Laboratory calibration & testing for the MIMI/CHEMS instrument on Cassini.
- Design of motion control electronics for FPP experiment at Jefferson Labs in VA.

V. Narrative Overview

Matthew Hill studies energetic particle processes in heliospheric and magnetospheric plasmas, through extensive analysis of space-borne instrumentation, by making in situ and remote measurements, and through numerical modeling. The F.L. Scarf award he received in 2003 from the American Geophysical Union (*see also* Section VII.A.) is annually given to one Ph.D. recipient internationally, in recognition of “outstanding dissertation research that contributes directly to solar-planetary science.” He is author or co-author of 23 papers: 12 papers in the peer-reviewed literature (7 published, 1 submitted, and 4 in preparation; Section X.A), including *Nature*, the *Astrophysical Journal*, and the *Journal of Geophysical Research*; as well as 11 papers in widely cited conference proceedings (Section X.B). In addition to 37 contributions to scientific conferences (Section X.C.2), he has been invited to give 10 seminars or conference talks (Section X.C.1). Since his time as a graduate student and recipient of the Distinguished Research Fellowship from the University of Maryland, Matthew Hill has demonstrated an enduring commitment to higher education (Section IX). In addition to his position as the course instructor for Physics 161, a calculus-based Newtonian dynamics course for engineers, he has consistently maintained a productive interaction with students, be it as a volunteer academic advisor, a tutor and tutor-supervisor (he was the University’s nominee for a national tutor award), a teaching assistant, or through the mentoring relationships he fosters with his research students.

VI. Professional and Honorary Associations

American Geophysical Union (AGU)

VII. Honors, Grants, and Awards

A: Honors and Awards

- Fred L. Scarf Award, American Geophysical Union, outstanding dissertation research in solar-planetary science, 2003.
- Distinguished Alumni Award, Brookdale Community College, Lincroft, New Jersey, 2004.
- Tom Pasternack Outstanding Tutor Award (nominee), College Reading and Learning Association, May 2000.
- Best Publication in a Refereed Journal, Johns Hopkins University Applied Physics Laboratory, November 2004.
- Distinguished Research Fellowship/Assistantship, University of Maryland, College Park, Maryland, August 1996 – May 1998.
- B.S. with High Honors, Rutgers University, New Brunswick, New Jersey, May 1996.
- Research Experience for Undergraduates (recipient), NSF & Rutgers University, New Brunswick, New Jersey, May – August 1995.

B: Proposals and Grants

- Principle Investigator, NASA-ROSS-2004 (Solar and Heliospheric Physics), Multi-Spacecraft Investigation into the Size and Shape of the Heliosphere Using Anomalous Cosmic Ray Intensity Gradients, *pending*.
- Co-Investigator, NASA-ROSES-2005 (Planetary Geology and Geophysics), Direct Space Weathering of Surfaces for Solar System Bodies in Heliospheric and Magnetospheric Environments, (John F. Cooper, PI), *pending*.

- Co-PI, Extended Proposal for Voyager LECP Data Processing and Analysis, subcontract to JHU Applied Physics Laboratory, May 2005, *pending*.
- Principle Investigator, NASA-ROSES-2005 (SSSC Guest Investigator), Multiscale Investigation of Solar Wind Shocks, *in preparation*. (Funding has been postponed.)
- Travel Grant, NSF & American Astronomical Society, travel to 28th International Cosmic Ray Conference, Tsukuba, Japan, July – August 2003.
- Travel Grant, NSF & American Astronomical Society, travel to 27th International Cosmic Ray Conference, Hamburg, Germany, August 2001.

VIII. Professional and Community Service

A: Professional Service

- Referee, NASA, National Science Foundation and J. Geophys. Res. (Space Physics).
- Organizer of the Univ. of Maryland Space & Cosmic Ray Physics Seminar (Physics Department & Institute for Physical Science and Technology), since August 2003.
- Present poster “Explore the Heliosheath: Voyager Interstellar Mission” at Sun-Solar System Connections Roadmap Workshop (U. Maryland, November 16-17, 2004)
- Co-convenor and chair, 2004 Fall AGU Meeting, special session SH07, “Voyager and Beyond, Physics of the Outer Heliosphere.”
- Volunteer academic advisor, Advise-5 program, Division of Letters and Sciences, August 2002 to August 2004.
- Chair, AGU Joint Assembly, “Saturn” Session, SM12A 23 May 2005.
- Chair, AGU Joint Assembly, “Outer Heliosphere” Session SH22A, 24 May 2005.
- Chair, AGU Joint Assembly, “Solar Wind” Sessions, SH53B, SH54A, 21 May 2004.
- Chair, AGU Fall Meeting, “Termination Shock” Session, SH12B, 8 December 2003.
- Organizer of the Space Physics Group Weekly Meeting, Sept. 1998 – Dec. 2003.

B: Community Outreach

- Contributed an essay on science and society to a book published in conjunction with a traveling art exhibition: Hill, M.E., *Dreaming Beneath the Tamarind Tree: Science, Art, Society and the Role of Science Fiction*, in Possible Futures, Science Fiction Art from the Frank Collection: Re-reading Science Fiction Art, Dorit Yaron, ed., *The Art Gallery, University of Maryland*, 74-83, 2000.
- Physics Department volunteer at 27 April 2002 *Maryland Day* event, College Park, performed physics laboratory demonstrations for visitors.

IX. Experience in Higher Education

- Instructor, Physics 161 (3 credits), General Physics: Mechanics and Particle Dynamics; first-semester, calculus-based physics course for engineers and scientists, covering classical dynamics and gravitation. University of Maryland, 1 June – 11 July 2004. Duties included developing and conducting all aspects of the course and supervising a teaching assistant.
- Instructor, Physics 499 (1 credit/semester), Special Problems in Physics; supervise Greg Vieira in a research project on interactions between solar wind and the Earth’s magnetosphere. Univ. of Maryland, fall 2004 & spring 2005. Duties include guiding student to identify and investigate problems using analysis and physical principles.

- Instructor, Physics 299 (1 credit), Special Problems in Physics; supervise Madison Lipman in research efforts associated with ion measurements made by the Voyager spacecraft. Univ. of Maryland, spring 2005. Duties include teaching student to apply data analysis techniques to new measurements and to automate processing.
- Occasional guest lecturer for Physics 121 (3 credits), introductory physics for non-scientists; and Physics 106 (3 credits), optics for non-scientists.
- Teaching assistant, Physics 107 (1 credit); optics-related lab for non-science students. University of Maryland, spring 1997. Duties included instructing and assisting students as they performed laboratory experiments and grading lab reports.
- Teaching assistant, Physics 122 (3 credits); second-semester non-calculus-based physics, covering electromagnetism. University of Maryland, fall 1996. Duties included leading discussion sessions, creating homework solutions, writing and grading quizzes, and grading exams and homework.
- Tutor and supervisor of tutors, academic unit of the Department of Athletics, University of Maryland, September 1998 – May 2000. Duties included tutoring mathematics and physics, advising students, and supervising several other tutors.

X. Publications

A: Refereed Publications

2001

1. Hill, M.E., D.C. Hamilton, and S.M. Krimigis, Periodicity of 151 Days in Outer Heliospheric Anomalous Cosmic Ray Fluxes, *J. Geophys. Res.*, 106, 8315-8322, 2001.
2. Hill, M.E., Transport Phenomena of Anomalous Cosmic Rays During the Recovery Phase of Solar Cycle 22, *Ph.D. Dissertation*, University of Maryland, December 2001.

2002

3. Hill, M.E., D.C. Hamilton, and S.M. Krimigis, Evolution of Anomalous Cosmic-Ray Oxygen and Helium Energy Spectra During the Solar Cycle 22 Recovery Phase in the Outer Heliosphere, *Astrophys. J.*, 572, L169-L172, 2002.

2003

4. Hill, M.E., D.C. Hamilton, J.E. Mazur, and S.M. Krimigis, Anomalous cosmic ray intensity variations in the inner and outer heliosphere during the solar cycle 22 recovery phase (1991–1999), *J. Geophys. Res.*, 108 (A10), 8037, doi:10.1029/2003JA009914, 2003.
5. Krimigis, S.M., R.B. Decker, M.E. Hill, T.P. Armstrong, G. Gloeckler, D.C. Hamilton, L.J. Lanzerotti, and E.C. Roelof, Voyager 1 Exited the Solar Wind at a distance of ~85 AU from the Sun, *Nature* 246, 45-48, doi:10.1038/nature02068, 06 November 2003.

2004

6. Hill, M.E., *INVITED* Investigating the Heliosphere with Low Energy Anomalous Cosmic Rays, in Physics of the Outer Heliosphere: Third International IGPP Conference, V. Florinski, N.V. Pogorelov, and G.P. Zank, eds., *American Institute of Physics*, CP719, 156-161, 2004.
7. Krimigis, S.M., R.B. Decker, E.C. Roelof, and M.E. Hill, *INVITED* Energetic Particle Observations Near the Termination Shock, in Physics of the Outer Heliosphere: Third

International IGPP Conference, V. Florinski, N.V. Pogorelov, and G.P. Zank, eds., *American Institute of Physics*, CP719, 133-138, 2004.

2005

8. Mosley, C.J., T.P. Armstrong, R.B. Decker, and M.E. Hill, Voyager Observations of 0.134 to 20 MeV/Nucleon Oxygen at 32 to 91 AU Helioradius, *submitted to J. Geophys. Res.*, on February 14, 2005.
9. Hill, M.E., Quasi-local radial and latitudinal intensity gradients of anomalous cosmic rays, *paper in preparation for submittal to J. Geophys. Res.*, 2005.
10. Hamilton, D.C. et al., Ion Spectra in Saturn's Ring Current, *paper in preparation for submittal to Geophys. Res. Letters*, 2005.
11. Decker, R.B. et al., Charged Particle Intensities and Plasma Convection Speed in the Heliosheath, *paper in preparation for submittal to Science*, 2005.
12. Collier, M.R. et al., Plasma Density and Neutral Atom Measurements Upstream of the Earth's Bow Shock on October 24 and 31, 2003, *paper in preparation for submittal to Geophys. Res. Letters*, 2005.

B: Papers Published in their Entirety in Conference Proceedings

1997

1. Hamilton, D.C., M.E. Hill, R.B. Decker, and S.M. Krimigis, Temporal and Spatial Variations in the Spectra of Low Energy Ions in the Outer Heliosphere, *Proc. 25th Int. Cosmic Ray Conf.*, 2, 261-264, 1997.
2. Krimigis, S.M., R.B. Decker, D.C. Hamilton, and M.E. Hill, Energetic Ions in the Outer Heliosphere, 1992-1997, *Proc. 25th Int. Cosmic Ray Conf.*, 1, 393-396, 1997.

1999

3. Hamilton, D.C., M.E. Hill, G. Gloeckler, R.B. Decker, and S.M. Krimigis, Anomalous Cosmic Ray Spectra in the Outer Heliosphere: 1992-1998, *Proc. 26th Int. Cosmic Ray Conf.*, 7, 535-538, 1999.
4. Stone, E.C., A.C. Cummings, D.C. Hamilton, M.E. Hill, and S.M. Krimigis, Voyager Observations of Anomalous and Galactic Cosmic Rays During 1998, *Proc. 26th Int. Cosmic Ray Conf.*, 7, 551-554, 1999.
5. Decker, R.B., S.M. Krimigis, A.G. Ananth, D.C. Hamilton, and M.E. Hill, Small-Scale Variations in ACR Intensities at Voyager 1 and Voyager 2 in 1992-1998, *Proc. 26th Int. Cosmic Ray Conf.*, 7, 512-515, 1999.
6. Christian, E.R., W.R. Binns, J.B. Blake, C.M.S. Cohen, A.C. Cummings, J.R. Dwyer, D.C. Hamilton, M.E. Hill, P.L. Hink, E. Keppler, S.M. Krimigis, R.A. Leske, M.D. Looper, R.G. Marsden, G.M. Mason, J.E. Mazur, R.A. Mewaldt, T.R. Sanderson, E.C. Stone, T.T. von Rosenvinge, M.E. Wiedenbeck, and N. Yanasak, Observations of the Solar Modulation of Galactic and Anomalous Cosmic Rays During Solar Minimum, *Proc. 26th Int. Cosmic Ray Conf.*, 7, 519-522, 1999.

2001

7. Hill, M.E., D.C. Hamilton, J.E. Mazur, and S.M. Krimigis, The 1992 - 2000 Recovery of Anomalous Cosmic Ray Oxygen Throughout the Heliosphere, *Proc. 27th Int. Cosmic Ray Conf.*, 10, 4247-4250, 2001.

May 12, 2005

8. Krimigis, S.M., R.B. Decker, D.C. Hamilton, M.E. Hill, and G. Gloeckler, Survey of Energetic Particles Observed at Voyager 1 and 2 During 1991 – 2001, *Proc. 27th Int. Cosmic Ray Conf.*, 9, 3607-3610, 2001.

2003

9. Hill, M.E., and D.C. Hamilton, Quasi-Local and Non-Local Intensity Gradients of Anomalous Cosmic Rays, *Proc. 28th Int. Cosmic Ray Conf.*, 7, 3969-3972, 2003.
10. Hill, M.E., D.C. Hamilton, R.B. Decker, S.M. Krimigis, Sustained Energetic Particle Intensity Enhancements at Voyager 1 Beginning in 2002, *Proc. 28th Int. Cosmic Ray Conf.*, 7, 3893-3896, 2003.
11. R.B. Decker, S.M. Krimigis, E.C. Roelof, and M.E. Hill, Angular Distributions and Energy Spectra of Energetic Particles Observed by Voyager 1 at 85-88 AU, *Proc. 28th Int. Cosmic Ray Conf.*, 7, 3773-3776, 2003.

C: Scientific Presentations

C.1: Invited Talks and Seminars

2001

1. Hill, M.E., Radial and Latitudinal Intensity Gradients of Low-Energy ACRs, *Space Radiation Laboratory Seminar*, California Institute of Technology, 7 December 2001.

2002

2. Hill, M.E., Anomalous Cosmic Ray Transport During the Solar Cycle 22 Recovery Phase, *Space Physics Seminar*, Johns Hopkins University Applied Physics Laboratory, 10 January 2002.
3. Hill, M.E., Anomalous Cosmic Ray Transport During the Solar Cycle 22 Recovery Phase, *University of Maryland Space and Cosmic Ray Physics Seminar*, 4 February 2002.

2003

4. Hill, M.E., First *in situ* evidence of the heliospheric boundary, *Space Physics Research Laboratory Seminar*, University of Michigan, Ann Arbor, Presented 14 November 2003.
5. Hill, M.E., Low-energy anomalous cosmic ray observations: new insights and challenges to our understanding of heliospheric particle transport, *Eos, Trans. AGU*, 84(46), Fall Meet. Suppl., Abstract SH22C-01, San Francisco, CA, 9 December 2003.

2004

6. Hill, M.E., Investigating the Heliosphere with Low Energy Anomalous Cosmic Rays, *IGPP Third Annual International Astrophysics Conference, Physics of the Outer Heliosphere*, University of California, Riverside, 10 February 2004.

2005

7. Hill, M.E., Transport of Low-rigidity Ions in the Distant Heliosphere, Southwest Research Institute, San Antonio, TX, 6 April, 2005.
8. Hill, M.E., Transport of Low-rigidity Ions in the Distant Heliosphere, Johns Hopkins University Applied Physics Laboratory, Laurel, MD; *to be presented* 13 May, 2005.
9. Hill, M.E., TBD, University of Arizona, Tucson; *to be presented* June 30 (data is tentative), 2005.

10. Hill, M.E., Radial Dependence of Suprathermal Particles, NSF SHINE (Solar, Heliospheric, and Interplanetary Environment) workshop, Kona, Hawaii; *to be presented* 10 – 15 July, 2005.

C.2: Papers Presented at Scientific Meetings & Conferences (Not Including X. B)

1996

1. Hamilton, D.C., M.E. Hill, M.C. Collier, and R.B. Decker, Temporal and Spatial Variations in the Spectra of Low Energy Ions in the Outer Heliosphere, Presented at the fall meeting of the American Geophysical Union, San Francisco, CA, December 1996, *Eos Trans. AGU, 77, Fall Meet. Suppl.*, 1996.

1997

2. Hamilton, D.C., M.E. Hill, G. Gloeckler, R.B. Decker, and S.M. Krimigis, The Importance of Interplanetary Pick-up Ion Acceleration in the Production of Anomalous Cosmic Rays -- Voyager LECP Results, Presented at the *International Association of Geomagnetism and Aeronomy (IAGA) 8th Scientific Assembly*, Uppsala, Sweden, 1997.
3. Hamilton, D.C., M.E. Hill, Decker, R.B., and S.M. Krimigis, Evolution of the Spectra of Energetic Ions in the Outer Heliosphere: 1992-1997, Presented at the Fall meeting of the American Geophysical Union, San Francisco, CA, December 1997, *Eos Trans. AGU, 78, Fall Meet. Suppl., Abstract SH41B-05*, 1997.
4. Decker, R.B., S.M. Krimigis, D.C. Hamilton, and M.E. Hill, Energetic Ion Fluxes at Voyagers 1 and 2 During 1992-1997, Presented at the Fall meeting of the American Geophysical Union, San Francisco, CA, December 1997, *Eos Trans. AGU, 78, Fall Meet. Suppl., Abstract SH41B-06*, 1997.

1998

5. Krimigis, S.M., D.C. Hamilton, R.B. Decker, M.E. Hill, and G. Gloeckler, Spectra of Energetic Ions in the Outer Heliosphere: 1992-1997, Presented at *The 32nd Committee on Space Research (COSPAR) Scientific Assembly, 40th Anniversary*, Nagoya, Japan, July 1998.
6. Decker, R.B., S.M. Krimigis, A.G. Ananth, D.C. Hamilton, M.E. Hill, and G. Gloeckler, Short-term Variations of Anomalous Cosmic Rays at Voyagers 1 & 2 in 1992-98, Presented at *Anomalous and Galactic Cosmic Rays in the Heliosphere*, University of New Hampshire, October 1998.
7. Hill, M.E., D.C. Hamilton, G. Gloeckler, R.B. Decker, and S.M. Krimigis, Variations in the Spectra of Anomalous Cosmic Rays in the Outer Heliosphere: 1992 – 1998, Presented at *Anomalous and Galactic Cosmic Rays in the Heliosphere*, University of New Hampshire, October 1998.
8. Hamilton, D.C., M.E. Hill, G. Gloeckler, R.B. Decker, and S.M. Krimigis, Changes in ACR Spectra in the Outer Heliosphere between the 1987 and 1997 Solar Minima, Presented at the Fall meeting of the American Geophysical Union, San Francisco, CA, December 1998, *Eos Trans. AGU, 79(45), Fall Meet. Suppl., Abstract SH21A-18*, 1998.
9. Krimigis, S.M., R.B. Decker, D.C. Hamilton, M.E. Hill, and G. Gloeckler, Onset of the New Solar Cycle at 71 AU and Implications on the Termination Shock, Presented at the fall meeting of the American Geophysical Union, San Francisco, CA,

December 1998, *Eos Trans. AGU*, 79(45), *Fall Meet. Suppl.*, Abstract SH21A-21, 1998.

10. Decker, R.B., S.M. Krimigis, A.G. Ananth, D.C. Hamilton, M.E. Hill, G. Gloeckler, Small-Scale Variations in ACR Fluxes at Voyagers 1 and 2 in 1992-1998, Presented at the Fall meeting of the American Geophysical Union, San Francisco, CA, December 1998, *Eos Trans. AGU*, 79(45), *Fall Meet. Suppl.*, Abstract SH21A-22, 1998.

1999

11. Cummings, A.C., C.D. Steenberg, E.C. Stone, D.C. Hamilton, M.E. Hill, R.B. Decker, and S.M. Krimigis, Composition of Anomalous Cosmic Rays, Presented at the (APR99) Meeting of The American Physical Society, 1999.
12. Christian, E.R., T.T. von Roseninge, M.D. Looper, J.E. Mazur, C.M. Cohen, A.C. Cummings, R.A. Leske, R.A. Mewaldt, E.C. Stone, S.M. Krimigis, M.E. Wiedenbeck, N. Yanasak, J.R. Dwyer, D.C. Hamilton, M.E. Hill, G.M. Mason, W.R. Binns, P.L. Hink, Observations of the Solar Modulation of Galactic and Anomalous Cosmic Rays During Solar Minimum, Presented at the (APR99) Meeting of The American Physical Society, 1999.
13. Hamilton, D.C., M.E. Hill, G. Gloeckler, R.B. Decker, and S.M. Krimigis, Solar Cycle Effects on the Spectrum of ACR Oxygen, Presented at the *International Union of Geodesy and Geophysics 1999 Symposia*, Birmingham, UK, July 1999.
14. Hamilton, D.C., M.E. Hill, R.B. Decker, and S.M. Krimigis, ACR Response in the Outer Heliosphere to the Onset of the New Solar Cycle, Presented at the Spring meeting of the American Geophysical Union, Boston, MA, May 1999, *Eos Trans. AGU*, 80(17), *Spring Meet. Suppl.*, Abstract SH32B-05, 1999.

2000

15. Hill, M.E., D.C. Hamilton, R.B. Decker, and S.M. Krimigis, Modulation and Short-Term Variations of Anomalous Cosmic Rays in the Distant Heliosphere: 1996-2000, Presented at the Spring meeting of the American Geophysical Union, Washington, DC, May 1999, *Eos Trans. AGU*, 81(19), *Spring Meet. Suppl.*, Abstract SH42A-14, 2000.
16. Hamilton, D.C., M.E. Hill, N.P. Cramer, R.B. Decker, and S.M. Krimigis, ACR Oxygen Spectrum Variations in the Outer Heliosphere from 1992 to 2000, Presented at the *COSPAR Colloquium*, Potsdam, Germany, July 2000.
17. Hill, M.E., D.C. Hamilton, R.B. Decker, and S.M. Krimigis, Distinguishing Between Solar-Cycle and Spatial Influences on Outer-Heliospheric ACRs, Presented at the Fall meeting of the American Geophysical Union, San Francisco, CA, December 2000, *Eos Trans. AGU*, 81(48), *Fall Meet. Suppl.*, Abstract SH72A-11, 2000.

2001

18. Hill, M.E., D.C. Hamilton, and S.M. Krimigis, A 151-Day Periodicity in Outer Heliospheric Anomalous Cosmic Ray Intensities and its Relationship to Solar and Interplanetary Variations, Presented at the Spring meeting of the American Geophysical Union, Boston, MA, May 2001, *Eos Trans. AGU*, 82(20), *Spring Meet. Suppl.*, Abstract SH22F-09, 2001.
19. Hill, M.E., D.C. Hamilton, and S.M. Krimigis, Radial and Latitudinal Intensity Gradients of Anomalous Cosmic Rays During the Solar Cycle 22 Recovery Phase, Presented at the Fall meeting of the American Geophysical Union, San Francisco,

CA, December 2001, *Eos Trans. AGU*, 82(47), Fall Meet. Suppl., Abstract SH22A-0749, 2001.

2002

20. Hill, M.E., D.C. Hamilton, and S.M. Krimigis, Low-Energy Anomalous Cosmic Ray Observation of Negative Latitudinal Intensity Gradients During an $A > 0$ Period, Presented at the Spring meeting of the American Geophysical Union, Washington, DC, May 2002, *Eos. Trans. AGU*, 83(19), Spring Meet. Suppl., Abstract SH22C-07, 2002.
21. Hill, M.E., D.C. Hamilton, and S.M. Krimigis, Evidence That Particle Drift Does not Contribute Significantly to Low-Rigidity ACR Transport During $A > 0$ Recovery, Presented at the Fall meeting of the American Geophysical Union, San Francisco, CA, December 2002, *Eos. Trans. AGU*, 83(47), Fall Meet. Suppl., Abstract SH71A-06, 2002.
22. Retterer, K.C., M.E. Hill, D.C. Hamilton, L.M. Kistler, C.G. Mouikis, M.R. Collier, T.E. Moore, and D.G. Mitchell, Ionospheric Outflow and Ring Current Composition During 2001 Geomagnetic Storms, Presented at the Fall meeting of the American Geophysical Union, San Francisco, CA, December 2002, *Eos. Trans. AGU*, 83(47), Fall Meet. Suppl., Abstract SM22A-0578, 2002.

2003

23. Decker, R.B., S.M. Krimigis, E.C. Roelof, and M.E. Hill, Angular Distributions and Energy Spectra of Low-Energy Ions Observed by Voyager 1 at 85-88 AU, *Abstract Number EAE03-A-03301*, accepted to the EGS-AGU-EUG Joint Assembly, Nice, France, 06 - 11 April 2003.
24. Hill, M.E., S.M. Krimigis, D.C. Hamilton, R.B. Decker, and E.C. Roelof, Composition and Spectral Evolution of Energetic Ions at Voyager 1 in the Vicinity of the Solar Wind Termination Boundary, *Eos, Trans. AGU*, 84(46), Fall Meet. Suppl., Abstract SH11C-1121, *San Francisco, CA, 8-12 December 2003*.
25. *INVITED*. Krimigis, S.M., R.B. Decker, M.E. Hill, E.C. Roelof, T.P. Armstrong, G. Gloeckler, D.C. Hamilton, and L. J. Lanzerotti, Evidence That Voyager 1 Exited the Solar Wind at ~85 AU and Re-entered at ~87 AU in August 2002 and February 2003, *Eos, Trans. AGU*, 84(46), Fall Meet. Suppl., Abstract SH12B-03, *San Francisco, CA, 8-12 December 2003*.

2004

26. Hill, M.E., D.C. Hamilton, F.M. Ipavich, G.B. Vieira, J. Meszaros, M.R. Collier, and T.E. Moore, Energetic Neutral Atom Response to the Interaction Between the Magnetosphere and the Solar Wind During the Halloween 2003 Geomagnetic Storm Period, *submitted to the 30th Anniversary Yosemite Workshop, Inner Magnetosphere Interactions*, Yosemite National Park, CA, 4 February 2004.
27. Hill, M.E., D.C. Hamilton, and S.M. Krimigis, Ion Energy Spectra Observed During the Ongoing Termination Shock Events at Voyager 1, *Eos. Trans. AGU*, 85(17), Jt. Assem. Suppl., Abstract SH54A-06, Montreal, Canada, 17-21 May, 2004.
28. Hill, M.E., G.B. Vieira, D.C. Hamilton, F.M. Ipavich, M.R. Collier, J.L. Green, M.-C. Fok, T.E. Moore, and S.G. Kanekal, Energetic Neutral Atom Response to the Interaction Between the Solar Wind and the Dayside Magnetosphere During the Halloween 2003 Geomagnetic Storm, *Eos. Trans. AGU*, 85(17), Jt. Assem. Suppl., Abstract SH53A-08, Montreal, Canada, 17-21 May, 2004.

29. G.B. Vieira, Hill, M.E., D.C. Hamilton, M.R. Collier, T.E. Moore, J.L. Green, D.G. Mitchell, and R.M. Skoug, Observation of the Solar Wind and Magnetospheric Interaction Near the Subsolar Point During Active Geomagnetic Periods on October 24 and 31, 2003, submitted to Fall AGU meeting, San Francisco, 13-17 December, 2004.
30. Hill, M.E., D.C. Hamilton, G. Gloeckler, S.M. Krimigis, and D.G. Mitchell, Near-Saturn Solar Wind Speeds Determined from MIMI/CHEMS Measurements of Pickup Ion Spectra at the Cassini Spacecraft, submitted to Fall AGU meeting, San Francisco, 13-17 December, 2004.

2005

31. Hill, M.E., D.C. Hamilton, S.M. Krimigis, and R.B. Decker, Evolving Ion Spectra Near the Termination Shock and a Possible “Third” Particle Source, accepted to IGPP 4th Annual International Astrophysics Conference, the Physics of Collisionless Shocks, Palm Springs, CA, 26 February – 3 March, 2005.
32. Hill, M.E., D.C. Hamilton, M.D. Lipman, R.B. Decker and S.M. Krimigis, Three Possible Particle Sources at the Termination Shock, *accepted by AGU 2005 Joint Assembly, New Orleans, LA, 23-27 May, 2005.*
33. Hill, M.E., D.C. Hamilton, G. Gloeckler, S.M. Krimigis, D.G. Mitchell, J.T. Steinberg, and F.J. Crary, Using Pickup Ions to Determine the Solar Wind Speed at the Cassini Spacecraft, *accepted by AGU 2005 Joint Assembly, New Orleans, LA, 23-27 May, 2005.*
34. Vieira, G.B., M.E. Hill, D.C. Hamilton, M.-C. Fok, M.R. Collier, T.E. Moore, D.G. Mitchell, R.M. Skoug, and M.I. Desai, Angular Distribution of Neutral Atoms in the Solar Wind on October 24 & 31, 2003, *accepted by AGU 2005 Joint Assembly, New Orleans, LA, 23-27 May, 2005.*
35. Hamilton, D.C, M.E. Hill, S.M. Krimigis, D.G. Mitchell, J. Dandouras, S. Livi, N. Krupp, and T.P. Armstrong, Variations in Ion Composition in Saturn’s Magnetosphere and a Comparison with Earth and Jupiter, *accepted by AGU 2005 Joint Assembly, New Orleans, LA, 23-27 May, 2005.*
36. Krimigis, S.M., D.G. Mitchell, D.C. Hamilton, N. Krupp, S. Livi, E.C. Roelof, J. Dandouras, B.H. Mauk, J.P. Brandt, C. Paranicas, J. Saur, T.P. Armstrong, S. Bolton, A.F. Cheng, G. Gloeckler, M.E. Hill, K.C. Hsieh, W.-H. Ip, A. Lagg, L.J. Lanzerotti, R.W. McEntire, and D.J. Williams, Saturn’s Dynamic Magnetosphere: Energetic Particles and Neutrals from the Magnetospheric Imaging Instrument (MIMI), *accepted by AGU 2005 Joint Assembly, New Orleans, LA, 23-27 May, 2005.*
37. *INVITED.* Krimigis, S.M., R.B. Decker, E. C. Roelof, and M. E. Hill, Physics of the termination shock and the heliosheath: Voyager observations, *Solar Wind 11 / SOHO 16 Conference*, Whistler, Canada, 12-17 June, 2005.

D: Technical Reports

1. Hill, M.E., Methods of Analysis for Voyager LECB Data, *Univ. Maryland, College Park, Department of Physics Paper, PP01-048*, 1998.

NOTE: See also sections X-B and X-C.1 for presentations that were associated with papers published in conference proceedings or invited presentations.