

LARRY W. ESPOSITO

BORN: 15 April 1951

EDUCATION

Massachusetts Institute of Technology, S.B. in Mathematics, 1973
University of Massachusetts at Amherst, Ph.D. in Astronomy, 1977

EMPLOYMENT

University of Colorado, Boulder

Laboratory for Atmospheric and Space Physics
Research Associate 1977–present

Department of Astrophysical and Planetary Sciences
Lecturer 1979–1984, Associate Professor 1984–1995, Professor 1995–present

RESEARCH ACTIVITIES

Co-Investigator

Pioneer Venus UVS, 1978–1993
Pioneer Saturn IPP, 1979–1981
Voyager PPS, 1980–1991
Galileo UVS 1984–2002
NASA VIMS Spectrometer Development Team, 1984–1988
Mars Observer VIMS, 1986–1988
USSR PHOBOS KRFM, 1986–1992
USSR MARS 94 Omega-VIMS, 1989–1990
USSR MARS 96 METEOPACKAGE, SVET, and TOROMETER, 1991–1996
Pluto Fast Flyby UVS Technical Development, 1993–1995
Pluto UVS PIDDP, 1993–1996
ESA Venus Express Venus Monitor Camera, 2002–

Principal Investigator

Cassini UV Imaging Spectrometer, 1990–present
Venus Discovery Mission Study, 1993–1998
Hubble Space Telescope High Resolution Spectroscopy of Venus, 1993–1997
Pluto and Outer Solar System Explorer (POSSE) Phase A Concept Study, 2001
Surface and Atmosphere Geochemical Explorer (SAGE) Phase A Concept Study, 2010–2011

SERVICE ACTIVITIES

NASA

Chair, Voyager Rings Science Working Group, 1984–1989
Chair, US Evaluation Panel for Cassini Titan Probe, 1990
Cassini Project Redesign Study Team, 1992
Chair, Cassini Ground System Working Group, 1993–1996
Chair, Cassini Remote Science Working Group, 1995–1996
Office of Space Science Peer Review Process Team, 1995
HST Solar System TAC Panel, 1995
Hubble second decade advisory committee, 1998–1999
VEXAG Steering Group, 2005–present
Chair, CDAP Rings Review Panel, 2006, 2007, 2008

National Academy of Sciences

Space Studies Board, 1986–1992
 Committee on Planetary and Lunar Exploration, 1982–1986; Chairman, 1989–1992
 Study on “Space Science in the 21st Century,” Deputy Chair, Planetary, 1984–1986
 SSB Steering Group, 1987–1988
 Future of Space Sciences, 1994–1995
 Panel to Review Explorer Program, 1996–1997
 Chair, Task Group on the Forward Contamination of Europa, 1999–2002

University of Colorado

Educational coordinator, Fiske Planetarium, 1984–1986
 LASP Executive Committee, 1990-present
 Chair, LASP Program Review Self Study, 1991–1992
 Chancellor’s Task Force on Communications, 1993–1994
 Head, Division of Planetary and Atmospheric Sciences, 1993–1996
 APS Executive Committee, 1996–1998
 Freshman Experience Seminar Faculty Mentor, 1994–1997
 Norlin Scholars Advisory Board, 1997–1999
 Arts and Sciences Reallocation Advisory Committee, 1998–2002

PROFESSIONAL ORGANIZATIONS

Division for Planetary Sciences AAS (Committee, 1983–1986)
 American Geophysical Union, European Geophysical Union, International Astronomical Union
 COSPAR Commissions B and C
 Main Scientific Organizer, COSPAR Symposium on “Planetary Atmospheres”, 2002, 2004, 2006, 2008, 2010
 Convenor, AGU Chapman Conference on “Exploring Venus as a terrestrial planet”, 2004–2006
 Convenor, IUGG Union Symposium, “Solar and Planetary Geophysics”, 2007
 Scientific Advisory Committee (Fachbeirat) Max Planck Institut for Solar System Research, 2009-present

HONORS AND AWARDS

NASA Group Achievement Awards: Pioneer Venus Orbiter Science Team 1980; Voyager PPS Team 1982, 1986;
 Galileo UVS Development 1991, Galileo Asteroid Encounters 1993, 1995; Cassini UVIS Development and
 Operations 1998, Cassini UVIS Science Investigation 2009
 Division for Planetary Sciences, Harold C. Urey Prize, 1985
 NASA Medal for Exceptional Scientific Achievement, 1986
 AAPT Richtmyer Memorial Lecture Award, 1991
 National Academy of Sciences National Associate, 2002–
 JPL Distinguished Visiting Scientist 2004 –
 American Geophysical Union, Fellow, 2006 –

RESEARCH INTERESTS

Observational and theoretical studies of planetary atmospheres and rings

- Canup, R. M., and L. W. Esposito. 1996. Accretion of the Moon from an impact-generated disk. *Icarus* 119, 427–446.
- Canup, R. M., and L. W. Esposito. 1997. Evolution of the G ring and the population of macroscopic ring particles. *Icarus* 126, 28–41.
- Esposito, L. W., J.-L. Bertaux, V. Krasnopolsky, V. I. Moroz, and L. V. Zasova. 1997. Chemistry of lower atmosphere and clouds. In *Venus II*, ed. S. W. Bougher, D. M. Hunten, and R. J. Phillips, pp. 415–458. Tucson: Univ. of Arizona Press.
- Na, C. Y., and L. W. Esposito. 1997. Is disulfur monoxide the second absorber on Venus? *Icarus* 125, 361–368.
- Esposito, L. W., J. E. Colwell, and W. E. McClintock. 1998. Cassini UVIS observations of Saturn's rings. *Planet. Space Sci.* 46, 1221–1235.
- Harri, A.-M., V. Linkin, J. Polkko, M. Marov, J.-P. Pommereau, A. Lipatov, T. Siili, K. Manuilov, V. Lebedev, A. Lehto, R. Pellinen, R. Pirjola, T. Carpentier, C. Malique, V. Makarov, L. Khloustova, L. Esposito, J. Maki, G. Lawrence, and V. Lystsev. 1998. Meteorological observations on Martian surface: Met-packages of Mars—96 small stations and penetrators. *Planet. Space Sci.* 46, No. 6/7, 779–793.
- Throop, H. B., and L. W. Esposito. 1998. G ring particle sizes derived from ring plane crossing observations. *Icarus* 131, 152–166.
- Colwell, J. W., L. W. Esposito, and D. Bundy. 2000. Fragmentation rates of small satellites in the outer solar system. *J. Geophys. Res.* 105, 17,589–17,599.
- Throop, H. B., J. Bally, L. W. Esposito, and M. J. McCaughrean. 2001. Evidence for dust grain growth in young circumstellar disks. *Science* 292, 1686–1689.
- Barbara, J. M., and L. W. Esposito. 2002. Moonlet collisions and the effects of tidally modified accretion in Saturn's F ring. *Icarus* 160, 161–171.
- Esposito, L. W. 2002. Planetary rings. *Rep. Prog. Phys.* 65, 1741–1783. Planetary rings.
- Richardson, L. J., D. Deming, G. Wiedemann, C. Goukenleuque, D. Steyert, J. Harrington, and L. W. Esposito. 2002. Infrared observations during the secondary eclipse of HD 209458b, I. 3.6-micron occultation spectroscopy using the VLT. *Astrophys. J.* 583, 1053-1062.
- Esposito, Larry. 2003. Cassini Imaging at Jupiter. *Science* 299,1529-1530.
- Brooks, S. M., L. W. Esposito, M. R. Showalter, and H. B. Throop. 2004. The size distribution of Jupiter's main ring from Galileo imaging and spectroscopy. *Icarus*. 170, 35-57
- Esposito, L. W., C. A. Barth, J. E. Colwell, G. M. Lawrence, W. E. McClintock, A. I. F. Stewart, H. U. Keller, A. Korth, H. Lauche, M. C. Festou, A. L. Lane, C. J. Hansen, J. N. Maki, R. A. West, H. Jahn, R. Reulke, K. Warlich, D. E. Shemansky, and Y. L. Yung. 2004. The Cassini Ultraviolet Imaging Spectrograph investigation. *Space Sci. Rev.* 115, 294-361.
- Ajello J.M., W. Pryor, L.W. Esposito, A.I.F. Stewart, W. McClintock, J. Gustin, D. Grodent, J.-C. Gerard, and J.T. Clarke. The Cassini Campaign Observations of the Jupiter Aurora by the Ultraviolet Imaging Spectrograph and the Space Telescope Imaging Spectrograph. 2005. *Icarus* 178 327-345.

- Esposito, L.W., J. E. Colwell, K. Larsen, W. E. McClintock, A. I. F. Stewart, J. Tew Hallett, D. E. Shemansky, J. M. Ajello, C. J. Hansen, A. R. Hendrix, R. A. West, H. U. Keller, A. Korth, W. R. Pryor, R. Reulke and Y. L. Yung. 2005. Ultra-Violet Imaging Spectroscopy shows an active Saturn system. *Science*. 307, 1251-1255
- Pryor, W.R., A. I. F. Stewart, L. W. Esposito and, J. E. Colwell, A. J. Jouchoux, A. J. Steffl, D. E. Shemansky, J. M. Ajello, R. A. West, C. J. Hansen, B. T. Tsurutani, W. S. Kurth, G. B. Hospodarsky, D. A. Gurnett, K. C. Hansen, J. H. Waite, Jr., F. J. Crary, D. T. Young, N. Krupp, J. T. Clarke, D. Grodent, and M. K. Dougherty. Cassini UVIS observations of Jupiter's auroral variability. 2005. *Icarus*, 178, 312–326.
- Shemansky, D.E., A.I.F. Stewart, R.A. West, L.W. Esposito, J.T. Hallet, and X. Liu. 2005. The Cassini UVIS stellar probe of the Titan atmosphere. *Science*. 308, 978-982.
- Esposito, L. W. 2006. *Planetary Rings*, Cambridge, UK: Cambridge University Press.
- Colwell, J. E., L. W. Esposito, and M. Sremcevic. 2006. Gravitational Wakes in Saturn's A ring measured by Stellar Occultations from Cassini. *GRL*, 33, L07201, doi:10.1029/2005GL025163..
- Hansen, C. J., L. W. Esposito, A. I. F. Stewart, J. Colwell, A. R. Hendrix, W. Pryor, D. E. Shemansky, and R. A. West. 2006. Enceladus' Water Vapor Plume. *Science*. 311. no.5766. 1422-1425.
- Tian, F., A.I.F. Stewart, Owen B. Toon, Kristopher Larsen, Larry W. Esposito. 2007. Monte Carlo Simulations of the water vapor plume on Enceladus. *Icarus* 188, 154–161.
- Esposito, L.W., B. K. Meinke, J.E. Colwell, P.D. Nicholson, M.M. Hedman. 2008. Moonlets and Clumps in Saturn's F Ring. *Icarus*. Vol 194/1, 278-289.
- Hansen, C. J., Esposito, L.W., Stewart, A.I.F., Meinke, B., Wallis, B., Colwell, J., Hendrix, A.R., Larsen, K., Pryor, W., Tian, F. 2008. Water Vapor Jets in Enceladus' Plume. *Nature*. 456, 477-479.
- Charnoz, S., L. Dones, L.W. Esposito, P.R. Estrada, M.M. Hedman. 2009. Origin and evolution of Saturn's ring system, A chapter in the book *Saturn From Cassini-Huygens*. M. Dougherty et al. Eds. 17, 537-575. Dordrecht, Netherlands: Springer-Verlag.
- Esposito, L.W. 2010. Composition, Structure, Dynamics and Evolution of Saturn's rings. *Annual Review of Earth & Planetary Sciences*, 38, 383-410.
- Esposito, L.S., N. Albers, B. K. Meinke, M. Sremcevic, Pr. Madhusudhanan, J. Colwell, R. G. Jerousek. 2011. A Predator-Prey Model for Moon-triggered Clumping in Saturn's Rings. *Icarus*. 217, 1, 103-114.