

## FRANCES BAGENAL

**Born:** November 4, 1954, Dorchester, England

**Education:**

1973-1976 University of Lancaster  
BSc degree in Physics and Geophysics  
1976-1981 Massachusetts Institute of Technology  
Ph.D. in Earth and Planetary Sciences.

**Appointments:**

1999- Professor, Department of Astrophysical and Planetary Sciences,  
University of Colorado, Boulder  
1993- 1999 Associate Professor, APS Dept.  
1995, 1997, 2005 Associate Chair, APS Dept.  
1989-1993 Assistant Professor, APS Dept., University of Colorado, Boulder  
1987-1988 Visiting Scientist, High Altitude Observatory, NCAR  
1985-1987 Visiting Scientist, Center for Space Research, MIT  
1985-1987 Advanced Research Fellow, Imperial College, London  
1982-1985 Post-Doctoral Research Assistant, Imperial College, London  
1981-1982 Post-Doctoral Research Asst., MIT, Center for Space Research  
1977-1981 Research Assistant, Center for Space Research, MIT

**Research:**

The main theme of Dr Bagenal's research has been the synthesis of data analysis and theory in the study of space plasmas. She has specialized in the fields of planetary magnetospheres. Dr Bagenal is a co-investigator on the Voyager Plasma Science (PLS) experiment and has worked with colleagues at MIT in analyzing plasma data obtained in the magnetospheres of Jupiter, Saturn, Uranus and Neptune. From the PLS measurements one derives the properties of the low energy ions and electrons that comprise the thermal plasmas trapped by the planets' magnetic fields. She was an Interdisciplinary Scientist on the Galileo Project, specializing in a study of the Io plasma torus in the magnetosphere of Jupiter using both in situ plasma measurements and spectroscopic remote sensing observations. Dr Bagenal is a science team member of the Deep Space 1 mission and team leader of the plasma investigations on the New Horizons mission to Pluto and the Juno mission to Jupiter. With Tim Dowling and Bill McKinnon she co-edited *Jupiter: The Planet, Satellites and Magnetosphere* (Cambridge University Press, 2004).

**Selected Recent Publications:**

Empirical model of the Io plasma torus: Voyager measurements, F. Bagenal, *J. Geophys. Res.*, 99,11043-11062, 1994  
Planetary Magnetospheres and the Interplanetary Medium, J.A. Van Allen, F. Bagenal, in *The New Solar System* (4th edition), Eds.J. Kelly Beatty, Carolyn Collins Petersen, Andrew Chaikin, Cambridge University Press & Sky Publishing, 1998  
Galileo plasma spectrometer measurements of composition and temperature in the Io plasma torus, F.J. Crary, F. Bagenal, L.A. Frank, W.R. Paterson, *J. Geophys. Res.*, 103, 29,359-71, 1998.  
Ion cyclotron waves, pickup ions, and Io's neutral exosphere, F. Crary, F. Bagenal, *J. Geophys. Res.*, 105, 25,279-89, 2000  
Terrestrial Radio Emission: AKR, R. E. Ergun, Y.-J. Su, and F. Bagenal, in *Planetary Radio Emissions V*, edited by H. O. Rucker, M. L. Kaiser, and Y. Leblanc, Österreichischen Akademie der Wissenschaften, Vienna, Austria, p271, 2001.  
The Latitudinal Structure of the Outer Io Plasma Torus, M. Moncuquet, F. Bagenal, N Meyer-Vernet, *J. Geophys. Res.*, 107,1260, 2002.  
Observations of low frequency electromagnetic plasma waves upstream from the Martian shock by MGS MAG, Brain, D.A., F. Bagenal, M.H. Acuña, J.E.P. Connerney, D.H. Crider, C. Mazelle, D.L. Mitchell, and N.F. Ness, *J. Geophys. Res.*, 107,1029, 2002.  
Modeling variability of plasma conditions in the Io torus, Delamere, P.A. and F. Bagenal, *J. Geophys. Res.*, 108, 1276, 2003.  
Momentum transfer between the Io plasma wake and Jupiter's ionosphere, Delamere, P.A., F. Bagenal, R. Ergun and Y.-J. Su, *J. Geophys. Res.*, 108, 1241, 2003.  
Io-related Jovian auroral arcs: Modeling parallel electric fields, Su, Yi-Jiun and R.E. Ergun, F. Bagenal, P. A. Delamere, *J. Geophys. Res.*, 108, 1094, 2003  
Martian magnetic morphology: Contributions from the solar wind and crust, Brain, D.A., F. Bagenal, M.H. Acuña, and J.E.P. Connerney, *J. Geophys. Res.*, 108, 1029, 2003.

- Hubble Space Telescope observations of sulfur ions in the Io plasma torus: New constraints on the plasma distribution, Herbert, Floyd; Schneider, Nicholas M.; Hendrix, Amanda R.; Bagenal, Fran, , *J. Geophys. Res.*, *108*, 1167, 2003.
- Solar wind interactions with Comet 19P/Borrelly, D.T. Young, F.J. Crary, J.E. Nordholt, F. Bagenal, D. Boice, J.L. Burch, A. Eviatar, R. Goldstein, J.J. Hanley, D.J. Lawrence, D.J. McComas, R. Meier, D. Reisenfeld, K. Sauer, and R.C. Wiens, *Icarus*, *167*, 80-88, 2003
- Pluto's kinetic interaction with the solar wind, P.A. Delamere and F. Bagenal, *Geophys. Res. Lett.*, *31*, L04807, 2004
- Cassini UVIS observations of the Io plasma torus. I. Initial results, Andrew J. Steffl, A. Ian F. Stewart and Fran Bagenal, *Icarus*, *172*, 78-90, 2004
- Cassini UVIS Observations of the Io Plasma Torus: II. Radial Variations, Andrew J. Steffl, Fran Bagenal, A. Ian F. Stewart, *Icarus*, *172*, 91-103, 2004
- Modeling temporal variability of plasma conditions in the Io torus during the Cassini era, P. A. Delamere, A. Steffl, and F. Bagenal, *J. Geophys. Res.*, *109*, A10216, 2004
- Radial variations in the Io plasma torus during the Cassini era, Delamere, P. A.; Bagenal, F.; Steffl, A., *J. Geophys. Res.*, *110*, A12223, 2005
- Cassini UVIS observations of the Io plasma torus III: Temporal and Azimuthal Variability, Steffl, A., Delamere, P., Bagenal, F., *Icarus*, *180*, 124-140, 2006