

## CURRICULUM VITAE

**Matthew O. Fillingim**

University of California, Berkeley  
Space Sciences Laboratory # 7450  
7 Gauss Way  
Berkeley, CA 94720-7450  
Tel: (510) 643-8485  
Fax: (510) 643-8302  
Email: [matt@ssl.berkeley.edu](mailto:matt@ssl.berkeley.edu)

---

---

### **RESEARCH EXPERIENCE & INTERESTS:**

Analysis of magnetospheric plasma data  
from geosynchronous to lunar altitudes  
Global auroral imaging and its connection  
to magnetospheric dynamics

Conjugate auroral observations  
Wave-particle interactions in the magnetotail  
Modeling of electron transport and auroral  
emission at Mars

### **EDUCATION:**

- 2002 **University of Washington, Seattle, WA**  
**Ph.D.** in Geophysics  
Dissertation: *Kinetic Processes in the Plasma Sheet Observed during Auroral Activity*  
Advisor: Dr. George K. Parks
- 1997 **Florida Institute of Technology, Melbourne, FL**  
**M.S.** in Space Sciences  
Thesis: *Characterization of 15 to 200 eV Electrons Observed at Geosynchronous Orbit*  
Advisor: Dr. Mark B. Moldwin
- 1995 **B.S.** in Space Sciences

### **PROFESSIONAL EXPERIENCE:**

- since 2004 **Assistant Research Physicist**
- 2002 - 2004 **Visiting Postgraduate Research Physicist**  
Space Sciences Laboratory, University of California, Berkeley, CA  
Supervisor: Dr. George K. Parks  
Analyze Wind 3DP plasma data and Polar UVI image data; fulfill Polar UVI data requests; manage locally stored Polar UVI data.
- 1997 - 2002 **Graduate Student Research Assistant**  
Geophysics Program/Department of Earth and Space Sciences, University of Washington, Seattle, WA  
Supervisor: Dr. George K. Parks  
Analyzed Wind 3DP plasma data and Polar UVI image data; developed data analysis software in ID and Fortran; assisted in prototyping and integration of instrumentation for a sounding rocket experiment; helped teach an introductory space science course within the Program.
- 1995 - 1997 **Graduate Student Teaching Assistant**  
Department of Physics and Space Sciences, Florida Institute of Technology, Melbourne, FL  
Supervisor: Mr. James Gering  
Instructed and graded two sections of Introductory Physics Laboratory courses for five semesters; graded homework assignments and proctored exams for instructors within the Department.
- 1995 **Research Experience for Undergraduates (REU) Program Participant**  
Department of Physics, Florida International University, Miami, FL  
Supervisor: Dr. Walter Van Hamme  
Reduced and analyzed eclipsing binary light curve observations using IRAF software; determined eclipsing binary light curve solutions using a Fortran computer model and graphically displayed the results with IDL; assisted in manuscript and research proposal preparation.
- 1994 **Undergraduate Research Fellow**  
Department of Physics, Baylor University, Waco, TX  
Supervisor: Dr. W. Merle Alexander  
Conducted research related to interplanetary dust particle detectors; assisted in proposal preparation.

**GRANTS & AWARDS:**

- 2006 - 2009 **Principle Investigator** of NASA Geospace SR&T grant “A Comprehensive Study of Auroral Substorm Timescales”
- 2005 - 2007 **Principle Investigator** of NASA Geospace SR&T grant “Simultaneous Conjugate Observations of IMF-Dependent Solar Wind-Magnetosphere Coupling in the Afternoon Sector”
- 2001 American Geophysical Union, Space Physics & Aeronomy Section **Outstanding Student Paper Award**
- 1997 Florida Institute of Technology, Department of Physics and Space Sciences **Miller Award for Physics Teaching**
- 1996, 1997 Florida Institute of Technology, Department of Physics and Space Sciences **Outstanding Graduate Student Award**

**ACADEMIC ACTIVITIES:**

- 2000 - 2001 University of Washington, Department of Earth and Space Sciences **Curriculum Committee** (student representative)
- 2000 **Family Science, Science Celebrations volunteer**
- 1999 - 2000 University of Washington, Geophysics Program **Admissions Committee** (student representative)
- 1998 - 1999 University of Washington, Geophysics Program **Qualifying Exam Committee** (student representative)

**PROFESSIONAL AFFILIATIONS:**

- since 1994 **American Geophysical Union**
- 1996 - 1997 **American Association of Physics Teachers**

**SELECTED PUBLICATIONS:**

- Halekas, J. S., D. A. Brain, R. J. Lillis, **M. O. Fillingim**, D. L. Mitchell, and R.P. Lin (2006), Current sheets at low altitudes in the Martian magnetotail, *Geophys. Res. Lett.*, *33*, L13101, doi:10.1029/2006GL026229.
- Østgaard, N., N. A. Tsyganenko, S. B. Mende, H. U. Frey, T. J. Immel, **M. O. Fillingim**, L. A. Frank, and J. B. Sigwarth (2005), Observations and model predictions of substorm auroral asymmetries in the conjugate hemispheres, *Geophys. Res. Lett.*, *32*, L05111, doi:10.1029/2004GL022166.
- Fillingim, M. O.**, G. K. Parks, H. U. Frey, T. J. Immel, S. B. Mende (2005), Hemispheric asymmetry of the afternoon electron aurora, *Geophys. Res. Lett.*, *32*, L03113, doi:10.1029/2004GL021635.
- Milan, S. E., S. W. H. Cowley, M. Lester, D. M. Wright, J. A. Slavin, **M. Fillingim**, C. W. Carlson, and H. J. Singer (2004), Response of the magnetotail to changes in the open flux content of the magnetosphere, *J. Geophys. Res.*, *109*, A04220, doi:10.1029/2003JA010350,.
- Fillingim, M. O.**, G. K. Parks, R. P. Lin, M. McCarthy, and A. Szabo (2003), High time resolution observations of magnetospheric disturbances during auroral activity, in *Disturbances in Geospace: The Storm-Substorm Relationship*, *Geophys. Monogr. Ser.*, vol. 142, A. S. Sharma, Y. Kamide, and G. S. Lakhina, eds., pp. 45-54, AGU, Washington, D.C.
- Chen, L.-J., A. Bhattacharjee, K. Sigsbee, G. Parks, **M. Fillingim**, and R. Lin (2003), Wind observations pertaining to current disruption and ballooning instability during substorms, *Geophys. Res. Lett.*, *30*(6), 1335, doi:10.1029/2002GL016317.
- Parks, G. K., L. J. Chen, **M. Fillingim**, R. P. Lin, D. Larson, and M. McCarthy (2002), A new framework for studying the relationship of aurora and plasma sheet dynamics, *J. Atmos. Solar Terr. Phys.*, *64*(2), 115-124.
- Fillingim, M. O.**, G. K. Parks, L. J. Chen, M. McCarthy, J. F. Spann, and R. P. Lin (2001), Comparison of plasma sheet dynamics during pseudobreakups and expansive aurorae, *Phys. Plasmas*, *8*(4), 1127-1132.
- Parks, G. K., L. J. Chen, **M. Fillingim**, and M. McCarthy (2001), Kinetic characterization of plasma sheet dynamics, *Space Sci. Rev.*, *95*(1-2), 237-255.
- Brittnacher, M., M. Wilber, **M. Fillingim**, D. Chua, G. Parks, J. Spann, and G. Germany (2000), Global auroral response to a solar wind pressure pulse, *Adv. Space Res.*, *25*(7-8), 1377-1385.
- Fillingim, M. O.**, G. K. Parks, L. J. Chen, M. Brittnacher, G. A. Germany, J. F. Spann, D. Larson, and R. P. Lin (2000), Coincident Polar/UVI and Wind observations of pseudobreakups, *Geophys. Res. Lett.*, *27*(9), 1379-1382.
- Brittnacher, M., **M. Fillingim**, G. Parks, G. Germany, and J. Spann (1999), Polar cap area and boundary motion during substorms, *J. Geophys. Res.*, *104*(A6), 12,251-12,262.
- Fillingim, M. O.**, M. B. Moldwin, H. K. Rassoul, P. Parrish, M. F. Thomsen, and D. J. McComas (1999), Angular distributions of suprathermal electrons observed at geosynchronous orbit, *J. Geophys. Res.*, *104*(A3), 4457-4466.