

# Ya Song Ge

*Space Science Center, University of New Hampshire*

## ADDRESS

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## APPOINTMENTS

02/2009 – present      Research Scientist II, SSC, University of New Hampshire  
09/2003 – 02/2009      Graduate Student Researcher, IGPP/UCLA  
09/2000 – 07/2003      Graduate Student Researcher, ESS/USTC, China

## EDUCATION

**Ph.D.**    Space Physics, March 2009  
University of California, Los Angeles (UCLA), California, USA  
Thesis Title: *Comparative Study on Dynamics Associated with Terrestrial and Jovian Substorms*  
Thesis Advisor: Christopher T. Russell

**M.S.**    Space Physics, June 2006  
University of California, Los Angeles (UCLA), California, USA

**M.S.**    Space Physics, June 2003  
University of Science and Technology of China (USTC), Hefei, China  
Thesis Title: *Numerical Simulation Study on Kinetics in Space Plasmas*  
Thesis Advisor: Yi Li

**B.S.**    Space Physics, June 2000  
University of Science and Technology of China (USTC), Hefei, China

## EXPERIENCE

### **Graduate Research Assistant, 09/2003 to 02/2009**

*Department of Earth and Space Sciences, University of California, Los Angeles*

- Investigate the dynamics of Earth's magnetotail during terrestrial substorms:
  - Using the Polar magnetic field observations to study the dipolarizations in near-Earth tail region to examine the substorm models and to understand the plasma sheet behavior during substorm active times;
  - Using THEMIS in situ observations to study connection of tail reconnection and near-Earth onsets and properties of tail fast flows
- Investigate ground magnetic field disturbances during substorms

- Using THEMIS Ground-based observatories (GBO) to study the effects of substorm current system and then to determine the location of substorm onset and to time substorm onsets.
- Studying the geomagnetic pulsations to understand their properties and to use them for substorm timing.
- Investigate the Jovian and Saturnian magnetotails during substorm-like dynamic events and compare them with terrestrial substorms
  - Studying the substorm-like events on Jupiter's and Saturn's magnetosphere by examining tail reconnections and subsequent dipolarizations
  - Comparing these events with the terrestrial substorm to examine the role of reconnections both at dayside and in tail in the energy and flux transfer responsible for general substorm-like magnetospheric dynamics

### **Graduate Research Assistant, 09/2000 to 06/2003**

*Department of Earth and Space Sciences, University of Science and Technology of China*

- Investigate the particle kinetics in magnetic reconnection using hybrid simulations:
  - Study the particle acceleration mechanism during magnetic reconnection by using 2.5D hybrid simulations
  - Using test particles in 2.5D hybrid simulations to examine the acceleration of electrons in magnetic reconnection.

### **Teaching Assistant, 09/2000-07/2001**

*Department of Earth and Space Sciences and Department of Mathematics, University of Science and Technology of China*

- Theoretical Mechanics
- One-Variable Calculus
- Computational Methods
- Linear Algebra

## **AWARDS & RECOGNITIONS**

- Graduate Student Fellowship, UCLA, 2003 to present
- Recognition to Ground Magnetometer Data Quality Control of THEMIS, 2006
- Outstanding Student Scholarship, USTC, 1996-1999

## **COMPUTATION SKILLS**

- Programming in: Fortran, C, Matlab and IDL
- Knowledge of Linux/Unix System

## **PUBLICATIONS:**

1. **Ge, Y. S.**, L. K. Jian, and C. T. Russell (2007), Growth phase of Jovian substorms, *Geophys. Res. Lett.*, 34, L23106, doi: 10.1029/2007GL031987.

2. **Ge, Y. S.**, C. T. Russell, and T.-S. Hsu (2008), Implication of multiple depolarization event near 9 RE for the physics of substorms, *Adv. Space Res.*, Vol. 41, No. 8, doi:10.1016/j.asr.2007.12.010
3. **Ge, Y. S.**, C. T. Russell, T.-S. Hsu, S. B. Mende, V. Angelopoulos, and R. L. McPherron, Occurrence of Pi1 B pulsations at substorm onset using THEMIS ground-based magnetometers, submitted to *J. Geophys. Res.*
4. **Ge, Y. S.**, C. T. Russell, V. Angelopoulos, S. B. Mende, P. Chi, H. Zhang and H. Frey, A Substorm Study during THEMIS Major Conjunction on January 5, 2008, submitted to *J. Geophys. Res.*
5. **Ge, Y. S.**, and C. T. Russell (2006), Polar survey of magnetic field in near tail: Reconnection rare inside 9 R<sub>E</sub>, *Geophys. Res. Lett.*, 33, L02101, doi:10.1029/2005GL024574
6. Russell, C. T., P. J. Chi, D. J. Dearborn, **Y. S. Ge**, B. Kuo-Tiong, J. D. Means, D. R. Pierce, K. M. Rowe, and R. C. Snare (2008), THEMIS Ground-Based Magnetometers, *Space Science Reviews*, doi: 10.1007/s11214-008-9337-0.
7. M. Ludlam, V. Angelopoulos, E. Taylor, R. C. Snare, J. D. Means, **Y. S. Ge**, P. Narvaez, H. U. Auster, O. LeContel, D. Larson, and T. Moreau (2008), The THEMIS Magnetic Cleanliness Program, submitted to *Space Science Reviews*.
8. **Ge, Y. S.**, C. T. Russell, T.-S. Hsu, and R. L. McPherron (2006), Polar spacecraft observations near 9 RE: rapid multiple dipolarizations and their interpretation, in *Proceedings of the Eighth International Conference on Substorms (ICS-8)*, edited by Syrjäsuo and Donovan, University of Calgary, Alberta, Canada, pp. 77-80.
9. **Ge, Y. S.**, Y. Li, S. Wang, and X. K. Dou (2004), A Numerical Simulation Study on the mechanism of Electron Acceleration in Magnetic Reconnection, *Chinese J. of Geophys.*, 47, pp. 847.
10. Li, Y., **Y. S. Ge**, S. Wang, and H. N. Zheng (2003), Study of particle velocity distribution of plasmas in magnetic reconnection with hybrid simulation, *Adv. Space Res.*, Vol. 32, No. 6, doi: 10.1016/S0273-1177(03)00313-2.
11. Jia, Y. D., Y. Li, S. Wang, and **Y. S. Ge** (2003), Hybrid Simulation of Ion Orbits in Magnetic Reconnection, *Chinese J. of Geophys.*, Vol. 46, No. 2, pp. 199.
12. Jia, Y. D., **Y. S. Ge**, Y. Li, and S. Wang (2000), Study on kinetics in magnetic reconnection with a hybrid code, *Plasma Sci. Technol.*, Vol. 2, No. 5, pp. 481-490.

## PRESENTATIONS

1. **Ge, Y. S.**, C. T. Russell, V. Angelopoulos, H. Frey, S. Mende, P. Chi, and H. Zhang, Conjugate study of a THEMIS substorm event on January 5, 2008, *EGU General Assembly*, Vienna, Austria, 13-18 April, 2008.
2. **Ge, Y. S.**, C. T. Russell, T.-S. Hsu, S. Mende, V. Angelopoulos, I. J. Rae, and R. L. McPherron, Investigation on Pi1 B pulsations using THEMIS ground-based magnetometers, *AGU Fall Meeting*, San Francisco, California, 10-14 December 2007.
3. **Ge, Y. S.**, and C. T. Russell, Magnetospheric Substorms on Jupiter: Lessons for the terrestrial substorms, *GEM Summer Workshop*, Zermatt, Utah, 17-22 June, 2007.
4. **Ge, Y. S.**, C. T. Russell, L. Jian, M. K. Dougherty, and C. M. Jackman, Substorms

- without dayside reconnection; Lessons from the outer planets, *AGU Spring Joint Assembly*, Acapulco, 22-25 May, 2007.
5. **Ge, Y. S.**, L. Jian, and C. T. Russell, Jovian Substorms and their effects on the Magnetotail, *AGU Spring Joint Assembly*, Acapulco, 22-25 May, 2007.
  6. **Ge, Y. S.**, C. T. Russell, L. Jian, M. K. Dougherty, and C. Jackman, The near-Earth neutral line model: Progress and future, *EGU General Assembly*, Vienna, Austria, 15 – 20 April 2007.
  7. **Ge, Y. S.**, L. Jian, and C. T. Russell, Jovian Substorms: Comparison with their Terrestrial Counterpart, *EGU General Assembly*, Vienna, Austria, 15 – 20 April 2007.
  8. **Ge, Y. S.**, and C. T. Russell, Tail Dipolarizations at the Polar Spacecraft and GOES Geosynchronous Satellites, *AGU Fall Meeting*, San Francisco, California, 11-15 December 2006.
  9. T. Hsu, R. McPherron, J. Borovsky, **Y. S. Ge**, C. T. Russell, An examination of the location of the Central Meridian of Substorm current wedge with auroral images and geosynchronous observations, *Eos Trans. AGU*, 87(36), Jt. Assem. Suppl., Abstract, SM11A-0305, presented at Fall AGU meeting, December 2006
  10. **Ge, Y. S.**, C. T. Russell, and T.-S. Hsu, Implication of multiple depolarization event near 9 RE for the physics of substorms, *36<sup>th</sup> COSPAR Scientific Assembly*, Beijing, China, 16-23 July 2006.
  11. **Ge, Y. S.**, and C. T. Russell, Role of solar wind dynamic pressure in controlling the location of the near-Earth neutral point, *36<sup>th</sup> COSPAR Scientific Assembly*, Beijing, China, 16-23 July 2006.
  12. **Ge, Y. S.**, C. T. Russell, T.-S. Hsu, H. J. Singer, I. R. Mann, and E. Donovan, Multiple Onsets of Substorms in Near-Earth Region From Polar Observations, *GEM Summer Workshop*, Snowmass, Colorado, 25-30 June, 2006.
  13. T.-S. Hsu, R. L. McPherron, J. E. Borovsky, **Y. S. Ge**, C. T. Russell, and J. Weygand, An investigation of IMF triggering by multi-satellite observations, presented at GEM Meeting, Snowmass, June 2006
  14. **Ge, Y. S.**, C. T. Russell, T.-S. Hsu, and R. L. McPherron, Polar spacecraft near 9 R<sub>E</sub>: Rapid multiple dipolarizations and their interpretation, *the 8<sup>th</sup> international Conference on Substorms*, Banff, Canada, 27-31 March, 2006.
  15. **Ge, Y. S.**, C. T. Russell, T.-S. Hsu, and R. L. McPherron, Investigation of rapid multiple dipolarizations observed by the Polar spacecraft near 9 R<sub>E</sub>, *EGU General Assembly*, Vienna, Austria, 2 – 7 April 2006.
  16. **Ge, Y. S.**, and C. T. Russell, Polar's observations of Pc pulsations in near-Earth tail, *AGU Fall Meeting*, San Francisco, California, 5 – 9 December 2005.
  17. **Ge, Y. S.**, and C. T. Russell, Mirror mode waves detected by Polar in near-midnight tail, *GEM Summer Workshop*, Santa Fe, New Mexico, 26 June - 1 July, 2005.
  18. **Ge, Y. S.**, and C. T. Russell, Polar MFE Investigation of Near-Tail Dynamics: Stretching and Collapse of the Nightside Magnetosphere at 9R<sub>E</sub>, *GEM Summer Workshop*, Santa Fe, New Mexico, 26 June - 1 July, 2005.
  19. **Ge, Y. S.**, and C. T. Russell, Polar observations at 9 Re: Evidence of M-I Coupling in Near-Earth Tail?, *GEM Summer Workshop*, Santa Fe, New Mexico, 26 June - 1 July, 2005.

20. **Ge, Y. S.**, and C. T. Russell, Stretching and Collapse of the Nightside Magnetosphere at 9 R<sub>E</sub>, *AGU Spring Joint Assembly*, New Orleans, Louisiana, 23-27 May, 2005.
21. **Ge, Y. S.**, and C. T. Russell, Mirror Mode Waves Detected by Polar in Low Field Regions Near Midnight, *AGU Spring Joint Assembly*, New Orleans, Louisiana, 23-27 May, 2005.
22. **Ge, Y. S.**, C. T. Russell, and T.-S. Hsu, Dynamics of the near-Earth tail: Polar, GOES, and Cluster coordinated observations, *EGU General Assembly*, Vienna, Austria, 24 – 29 April 2005.
23. **Ge, Y. S.**, and C. T. Russell, Polar observations of the near equatorial plasma sheet Near 9 R<sub>E</sub>: Radial dynamics, presented at *Fall AGU Meeting*, Eos. Trans. AGU, 85(47), Fall Meeting Supl., Abstract SM31A-1211, F1563, 2004.
24. **Ge, Y. S.**, and C. T. Russell, Polar observations of inward moving compressions near midnight in the equatorial plane at 9 R<sub>E</sub>, *13th Annual GEM Meeting*, Snowmass, CO, June 2004