

Haoming Liang, PhD

Center of Space Plasma and Aeronomic Research (CSPAR), University of Alabama in Huntsville (UAH),
CRH 2089, 320 Sparkman Dr NW, Huntsville, AL 35805, US, haoming.liang@uah.edu

POSITIONS HELD

01/2020-present Research Scientist I
Center of Space Plasma and Aeronomic Research, University of Alabama in Huntsville

04/2017-01/2020 Postdoctoral Fellow
Department of Physics and Astronomy, West Virginia University

02/2014 Visiting Scholar
Faculty of Science, Katholieke Universiteit Leuven, Belgium

09/2012-12/2014 Teaching Assistant
Department of Physics and Astronomy, University of California, Los Angeles

09/2011-03/2017 Graduate Student Researcher
Department of Physics and Astronomy, University of California, Los Angeles

EDUCATION

2011-2017 **Ph.D. Physics**, University of California, Los Angeles, California
Dissertation Title: Electron and Ion Acceleration Associated with Magnetotail Reconnection
Advisors: Maha Ashour-Abdalla, Raymond J. Walker

2008-2011 **M.S. Physics**, Peking University, Beijing, China
Thesis Title: In situ measurements of Interplanetary Turbulent Plasmas
Advisors: Chijie Xiao, Xiaogang Wang

2003-2007 **B.S. Applied Physics**, University of Science and Technology Beijing, China

HONORS AND AWARDS

2020 NERSC Award for High Impact Computational Science - Early Career Achievement

2015 American Geophysical Union Fall Meeting Outstanding Student Paper Award

2013 The 11th International School/Symposium for Space Simulations Poster Prize

TEACHING EXPERIENCE

Teaching Assistant, Department of Physics and Astronomy,
University of California, Los Angeles

- Fall 2014 Numerical Analysis Techniques and Particle Simulations, Physics 160
- Spring 2014 Physics for Life Sciences Majors: Mechanics, Physics 6A
- Fall 2013 Introduction to Plasma Electronics, Physics M122
- Spring 2013 Physics for Life Sciences Majors: Mechanics, Physics 6A
- Winter 2013 Physics for Life Sciences Majors: Light, Fluids, Thermodynamics, Modern Physics, Physics 6C
- Fall 2012 Physics for Life Sciences Majors: Mechanics, Physics 6A

PROFESSIONAL SERVICE

- Reviewer of NASA Earth and Space Science Fellowship (NESSF) Program proposals: 2018
- Judge for student poster awards:
 - Outstanding Student Presentation Awards for the Space Physics and Aeronomy section of the American Geophysical Union: December of 2017, 2018
 - Outstanding Student Presentation Awards for Geospace Environment Modeling: June of 2017, 2018, 2019
- Peer Reviewer of:
 - Geophysical Research Letters
 - Journal of Geophysical Research – Space Physics
 - Nonlinear Processes in Geophysics
 - Astrophysical Journal

PUBLICATIONS

1. **Liang, H.**, P. A. Cassak, M. Swisdak, S. Servidio, Estimating Effective Collision Frequency and Kinetic Entropy Uncertainty in Particle-in-Cell Simulations, submitted to Journal of Physics: Conference Series.
2. Zou, Y., Walsh, B. M., Atz, E., **Liang, H.**, Ma, Q., and Angelopoulos, V. (2020). Azimuthal variation of magnetopause reconnection at scales below an Earth radius. Geophys. Res. Lett., 47, e2019GL086500.

3. **Liang, H.**, P. A. Cassak, S. Servidio, M. A. Shay, J. F. Drake, M. Swisdak, M. R. Argall, J. C. Dorelli, E. E. Scime, W. H. Matthaeus, V. Roytershteyn, and G. L. Delzanno (2019), Decomposition of plasma kinetic entropy into position and velocity space and the use of kinetic entropy in particle-in-cell simulations. *Physics of Plasmas*, 26(8), p.082903, doi: 10.1063/1.5098888
4. Walker, R. J., G. Lapenta, **H. Liang**, J. Berchem, M. El-Alaoui, and M. L. Goldstein, (2018). Structure and Dynamics of Three-Dimensional Magnetotail Reconnection. *J. Geophys. Res. Space Physics*, 123, 8241–8260, doi: 10.1029/2018JA025509
5. **Liang, H.**, G. Lapenta, R. J. Walker, D. Schriver, M. El-Alaoui, and J. Berchem (2017), Oxygen acceleration in magnetotail reconnection, *J. Geophys. Res. Space Physics*, 122, 618–639, doi:10.1002/2016JA023060.
6. **Liang, H.**, M. Ashour-Abdalla, G. Lapenta, and R. J. Walker (2016), Oxygen impacts on dipolarization fronts and reconnection rate, *J. Geophys. Res. Space Physics*, 121, 1148–1166, doi:10.1002/2015JA021747.
7. M. Zhou, M. Ashour-Abdalla, J. Berchem, R.J. Walker, **H. Liang**, M. El-Alaoui, M. L. Goldstein, P.-A. Lindqvist, G. Marklund, Y.V. Khotyaintsev, R.E. Ergun, F.D. Wilder, C.T. Russell, R.J. Strangeway, C. Zhao, W.R. Paterson, B.L. Giles, C.J. Pollock, R.B. Torbert, J.L. Burch, J.C. Dorelli, D.J. Gershman, L.A. Avanov, B. Lavraud, and M.O. Chandler (2016), Observation of high-frequency electrostatic waves in the vicinity of the reconnection ion diffusion region by the spacecraft of the Magnetospheric Multiscale (MMS) mission, *Geophys. Res. Lett.*, 43, 4808–4815, doi:10.1002/2016GL069010.
8. Ashour-Abdalla, M., G. Lapenta, R. Walker, M. El-Alaoui, **H. Liang**, M. Zhou, J. Berchem, and M. L. Goldstein (2016), Identifying the electron diffusion region in a realistic simulation of Earth's magnetotail, *Geophys. Res. Lett.*, 43, 6005–6011, doi:10.1002/2016GL069355.
9. Goldstein, M.L., M. Ashour-Abdalla, A.F. Viñas, J. Dorelli, D. Wendel, A. Klimas, K.-J. Hwang, M. El-Alaoui, R.J. Walker, Q. Pan and **H. Liang** (2015), Mission Oriented Support and Theory (MOST) for MMS—the Goddard Space Flight Center / University of California Los Angeles Interdisciplinary Science Program, *Space Sci. Rev.*, 199: 689. doi:10.1007/s11214-014-0127-6.
10. Ashour-Abdalla, M., G. Lapenta, R. J. Walker, M. El-Alaoui, and **H. Liang** (2015), Multiscale study of electron energization during unsteady reconnection events, *J. Geophys. Res. Space Physics*, 120, 4784–4799. doi: 10.1002/2014JA020316.
11. **Liang, H.**, M. Ashour-Abdalla, R. Richard, D. Schriver, M. El-Alaoui, and R. J. Walker (2014), Contrasting electron acceleration processes during two substorms, *J. Geophys. Res. Space Physics*, 119, 5382–5400, doi:10.1002/2013JA019721.
12. **Liang H.**, C. Xiao, G. Zhou, Z. Pu, H. Wang and X. Wang (2012), Alfvénic fluctuations in an interplanetary coronal mass ejection observed near 1 AU, *Plasma Science and Technology*, 14(2), 102.

INVITED TALKS

1. “Kinetic Entropy as a Diagnostic in Particle-in-Cell Simulations of Astrophysical, Heliospheric, and Planetary Plasmas”
The 19th Annual International Astrophysics Conference
Santa Fe, New Mexico, March 12, 2020
2. “Kinetic Entropy as a Diagnostic for Magnetic Reconnection”
Plasma Physics Seminar, University of Maryland
College Park, Maryland, November 19, 2018
3. “Kinetic Entropy as a Diagnostic in Particle-in-Cell Simulations”
Invited talk, 13th International School/Symposium for Space Simulation
University of California, Los Angeles, California, September 12, 2018
4. “Oxygen Ions in Magnetotail Reconnection”
Space Physics Seminar, University of California, Los Angeles,
Los Angeles, California, March 17, 2017
5. “Oxygen Ions in Magnetotail Reconnection”
Plasma Physics Seminar, West Virginia University
Morgantown, West Virginia, January 10, 2017
6. “Oxygen Ions in Magnetotail Reconnection”
Plasma Physics Seminar, Peking University
Beijing, China, October 18, 2016
7. “Oxygen Ions in the Magnetotail Reconnection”
Science Telecon (remotely), NASA Goddard Space Flight Center
July 18, 2016