

## QIANG HU

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### QUALIFICATIONS

Dr. Qiang Hu has nearly 20 years' experience in space plasma environment research, specializing in spacecraft data analysis and numerical modeling. He has over 100 publications. He has been awarded a number of NASA and NSF grants on studying the interplanetary magnetic and plasma structures, and the magnetic field structures of the solar atmosphere. He is a Member of American Geophysical Union (AGU; since 1999) and an Affiliate Member of American Astronomical Society/Solar Physics Division (AAS/SPD). Dr. Hu was appointed the Associate Editor of Journal of Geophysical Research - Space Physics in June 2014, and the US Science Discipline Representative to SCOSTEP/ICSU (International Council for Science) in June 2015.

### PROFESSIONAL PREPARATION

**UNIVERSITY OF SCIENCE AND TECHNOLOGY OF CHINA** Hefei, China

*B. S. in Space Physics* July 1994

**CHINESE ACADEMY OF SCIENCES (CAS)** Beijing, China

*M. S. in Space Physics* June 1997

**THAYER SCHOOL OF ENGINEERING, DARTMOUTH COLLEGE** Hanover, NH

*Ph. D. in Engineering Sciences with emphasis on Space Physics* June 2001

**POSTDOCTORAL RESEARCHER** in *Space Plasma Physics* Newark, DE

Bartol Research Institute, University of Delaware December 2001 – December 2003

### APPOINTMENTS

**ASSOCIATE/ASSISTANT PROFESSOR** Huntsville, AL

Dept. of Space Science/CSPAR/The University of Alabama August 2018– Present/March 2012-

**RESEARCH SCIENTIST/DIRECTOR, JOINT SPACE WEATHER SUMMER CAMP**

Huntsville, AL, CSPAR, The University of Alabama March 2009 – March 2012

**ASSISTANT RESEARCH SCIENTIST** Riverside, CA

Institute of Geophysics and Planetary Physics, University of California January 2004 – March 2009

### SELECTED RELEVANT PRODUCTS (PUBLICATIONS)

- Chen, Y., Hu, Q., le Roux, J. 2019, Analysis of Small-scale Magnetic Flux Ropes Covering the Whole Ulysses Mission, ApJ, 881, 58.
- Hu, Q., Zheng, J., Chen, Y., le Roux, J., Zhao, L. 2018. Automated Detection of Small-scale Magnetic Flux Ropes in the Solar Wind: First Results from the Wind Spacecraft Measurements. The Astrophysical Journal Supplement Series 239, 12.
- Zheng, J., and Q. Hu, 2018, Observational evidence for self-generation of small-scale magnetic flux rope from intermittent solar wind turbulence, ApJL, 852:L23.
- Jiang, C., Feng, X., Hu, Q. 2018. Formation and Eruption of an Active Region Sigmoid. II. Magnetohydrodynamic Simulation of a Multistage Eruption. The Astrophysical Journal 866, 96.
- Jiang, C., Wu, S.-T., Feng, X., Hu, Q. 2016. Data-driven magnetohydrodynamic modelling of a flux-emerging active region leading to solar eruption. Nature Communications 7, 11522.

## **OTHER PRODUCTS**

- Prasad, A., Bhattacharyya, R., Hu, Q., Kumar, S., Nayak, S.~S. 2018. A Magnetohydrodynamic Simulation of Magnetic Null-point Reconnections in NOAA AR 12192, Initiated with an Extrapolated Non-force-free Field. *The Astrophysical Journal* 860, 96.
- Hu, Q. (2017), The Grad-Shafranov Reconstruction of Toroidal Magnetic Flux Ropes: Method Development and Benchmark Studies, *Solar Physics*, 292:116, DOI 10.1007/s11207-017-1134-z.
- Hu, Q., M. G. Linton, B. E. Wood, et al., 2017, The Grad-Shafranov reconstruction of toroidal magnetic flux ropes: first applications, *Sol. Phys.*, 292:171, DOI 10.1007/s11207-017-1195-z
- Hu, Q., J. Qiu, and S. Krucker (2015), Magnetic field line lengths inside interplanetary magnetic flux ropes, *J. Geophys. Res. Space Physics*, 120, doi:10.1002/2015JA021133
- Hu, Q., J. Qiu, B. Dasgupta, A. Khare, and G. M. Webb, 2014, Structures of Interplanetary Magnetic Flux Ropes and Comparison with Their Solar Sources, *The Astrophysical Journal*, 793:53 (21pp), 2014 September 20 doi:10.1088/0004-637X/793/1/53

## **SELECTED BOOKS**

- *Outstanding Problems in Heliophysics: From Coronal Heating to the Edge of the Heliosphere*, *ASP Conf. Series 484*, Eds. Q. Hu, and G.P. Zank, San Francisco, 2014.
- *Space Weather: The Space Radiation Environment*, *AIP Conf. Proc. 1500*, Eds. Q. Hu, G. Li, G.P. Zank, X. Ao, O. Verkhoglyadova, J.H. Adams, New York (2012).
- *Particle Acceleration and Transport in the Heliosphere and Beyond – 7<sup>th</sup> Annual International Astrophysics Conference*, *AIP Conference Proceedings 1039*, Eds. G. Li, Q. Hu, O. Verkhoglyadova, G.P. Zank, R.P. Lin, and J. Luhmann, New York (2008).

## **SYNERGISTIC ACTIVITIES**

- Conducted TV interviews on solar physics research with local TV news stations.
- Participated in outreach activities: public lectures on Space Weather and Alabama A&M University annual STEM Day Judge.
- Coordinated with the German colleagues (German Aerospace Center/DLR and the Univ. of Rostock) on formulating the first Joint Space Weather Summer Camp 2011, and developed the corresponding syllabus for a 3-credit course.
- Supervised undergraduate and graduate student researchers on sponsored research projects; Mentor on a current NSF REU project.
- Led the effort in constructing a small-scale magnetic flux rope database (*fluxrope.info*).

## **AWARDS**

- NASA Silver Achievement Medal to Parker Solar Probe Team, August 2019