

QIANG HU

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QUALIFICATIONS

Dr. Qiang Hu has over 20 years' experience in space plasma environment research, specializing in spacecraft data analysis and numerical modeling. He has ~ 200 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)

- Hu, Q., W. He, J. Qiu, A. Vourlidas, and C. Zhu, 2020, On the quasi-three dimensional configuration of magnetic clouds, *Geophys. Res. Letts*, doi: 10.1029/2020GL090630.
- Y. Chen and Q. Hu, 2020, Effects of Radial Distances on Small-scale Magnetic Flux Ropes in the Solar Wind, *Astrophys. J.*, 894, 25,
- Y. Chen, Q. Hu, L.-L. Zhao, J. C. Kasper, S. D. Bale, K. E. Korreck, A. W. Case, M. L. Stevens, J. W. Bonnell et al., 2020, Small-scale Magnetic Flux Ropes in the First Two Parker Solar Probe Encounters, *Astrophys. J.*, 903, 76,
- Chen, Y., Hu, Q., le Roux, J. 2019, Analysis of Small-scale Magnetic Flux Ropes Covering the Whole Ulysses Mission, *ApJ*, 881, 58.
- Prasad, A. Dissauer, K. Hu, Q., and 4 colleagues 2020. Magnetohydrodynamic Simulation of Magnetic Null-point Reconnections and Coronal Dimmings during the X2.1 Flare in NOAA AR 11283. *The Astrophysical Journal* 903. doi:10.3847/1538-4357/abb8d2

OTHER SELECTED PRODUCTS

- 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.
- 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 – 7th 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, August 2019.

Academic advisees: Dr. Jinlei Zheng, and Dr. Yu Chen (graduated PhD students); Ms. R. Harvey, and Ms. Wen He (PhD candidates), and Dr. Avijeet Prasad (postdoctoral researcher)