Chen Shi

Email : cshi1993@ucla.edu
Phone : +1(720)582-2222
Homepage: www.chenshihelio.com

595 Charles Young Drive East
Geology 6697
Los Angeles, CA 90095

EMPLOYMENT

University of California, Los Angeles, Los Angeles, California, U.S.
Postdoctoral Researcher
2020-now

EDUCATION

University of California, Los Angeles, Los Angeles, California, U.S.
Doctor of Philosophy, Geophysics and Space Physics
2015-2020
Thesis: Magnetic Reconnection and Turbulence in the Inner Heliosphere
Advisor: Marco Velli

Peking University, Beijing, China
Bachelor of Science, Space Physics
2011-2015

SKILLS

Programming languages: Expert at **C/C++, Fortran, Python, & IDL**; familiar with **MATLAB & MATHEMATICA**

Proficient at: MHD simulation and theory; Parallel computing (MPI & OpenMP) including SLURM; Data science

AWARDS

[1] ***Vincenzo Ferraro Award for best PhD thesis***, 2021
[2] ***EPSS department fellowship***, 2015, UCLA
[3] ***Outstanding College Student of Beijing***, 2014, Bureau of Education of Beijing

GRANTS & PROJECTS

[1] ***3D Magnetohydrodynamic Simulations of Magnetic Reconnection and Turbulence in the Heliosphere***, Extreme Science And Engineering Discovery Environment (XSEDE) #TG-AST200031, Principal Investigator

MEDIA REPORT

[1] ***UCLA researchers use UC San Diego-based resource to simulate solar wind behavior***, Kimberly Mann Bruch, San Diego Supercomputer Center News Releases, 2021

OUTREACHES

[1] ***Booth: Our Exiciting Sun!*** at 10th annual EXPLORE YOUR UNIVERSE, Nov 4th, 2018, UCLA
[2] ***Evening in the Lab*** at Plasma Science and Technology Institute, Dec 3th, 2019, UCLA

[3] ***Booth: Our Magnetic Sun*** at EXPLORE YOUR UNIVERSE 2020, Nov 1st, 2020, UCLA

TEACHING EXPERIENCES

[1] Invited lecture on *Resistive tearing mode instability and magnetic reconnection*, October 28, 2021, University of Science and Technology of China

[2] Student day tutorial talk: *MHD waves and turbulence in the expanding solar wind*, SHINE Conference, 2019, Boulder, Colorado

[3] Teaching assistant & lab instructor, *Oceanography*, 2016 spring quarter, UCLA

[4] Instructed junior PhD and undergraduate students to conduct scientific research

---

RESEARCH EXPERIENCES

[1] Linear stability analysis and nonlinear MHD/Hall-MHD simulations of tearing mode instability under different configurations of magnetic field and plasma flows

[2] Simulations of MHD turbulence in different environments including the solar wind and the Earth's magnetosheath

[3] Analysis of Parker Solar Probe data and OMNI2 database to study the properties of solar wind turbulence

[4] Development of 3D MHD simulation codes with different algorithms including spectral, finite difference, and finite volume methods

---

SEMINARS & SELECTED TALKS

[1] ***Evolution of MHD turbulence in the solar wind: Parker Solar Probe observations and numerical simulations***, Space Physics Seminar of UCLA, Oct 1, 2021

[2] ***Evolution of MHD turbulence in the solar wind: Parker Solar Probe observations and numerical simulations***, Space Plasma Seminar, Space Research Institute of the Russian Academy of Sciences, Nov 1, 2021

[3] ***Stability of the magnetotail current sheet with normal magnetic field and field-aligned plasma flows***, Space Plasma Seminar, Space Research Institute of the Russian Academy of Sciences, Jun 7, 2021

[4] ***Large-scale structures and their effects on the evolution of solar wind turbulence***, High Altitude Observatory (HAO) Colloquium, Boulder, Colorado, Jan 15, 2020

[5] ***Patches of the magnetic switchbacks: hints of their origins***, AGU Fall Meeting, ***invited***, 2021

[6] ***Ions and electron temperatures in the solar wind and their correlations with the solar wind speed***, AGU Fall Meeting, 2021

[7] ***MHD Turbulence in the Solar Wind: Observations from First Five Encounters of Parker Solar Probe***, AGU Fall Meeting, 2020, Virtual Meeting

[8] ***Propagation of Alfvén waves and evolution of turbulence in the expanding solar wind with the presence of stream interaction***, AGU Fall Meeting, 2019, San Francisco, California

[9] ***Onset and nonlinear evolution of fast reconnection: Lundquist number and Hall effects***, AOGS 15th Annual Meeting, 2018, Honolulu, Hawaii

---

SELECTED PUBLICATIONS

[1] ***Influence of the heliospheric current sheet on the evolution of solar wind turbulence***, Shi, C., Velli, M., Tenerani, A. et al., 2022, ApJ in press, ARXIV:2201.02894

[2] ***Stability of the magnetotail current sheet with normal magnetic field and field-aligned plasma flows***, Shi, C., Artemyev, A., Velli, M. et al., 2021, accepted by JGR Space Physics, DOI:10.1029/2021JA029711

[3] ***Alfvénic versus non-Alfvénic turbulence in the inner heliosphere as observed by Parker Solar Probe***, Shi, C., Velli, M., Panasenco, O., et al., 2021, A&A, DOI:10.1051/0004-6361/202039818

[4] ***Oblique Tearing Mode Instability: Guide Field and Hall Effect***, Shi, C., Velli, M., Pucci, F., et al., 2020, ApJ, 902, 2, DOI: 10.3847/1538-4357/abb6fa

[5] ***Propagation of Alfvén waves in the expanding solar wind with the fast-slow stream interaction***, Shi, C., Velli, M., Tenerani, A., et al., 2020, ApJ, 888, 2, DOI: 10.3847/1538-4357/ab5fce

[6] ***Fast recursive reconnection and the Hall effect: Hall-MHD simulations***, Shi, C., Tenerani, A., Velli, M., et al., 2019, ApJ, 883, 2, DOI: 10.3847/1538-4357/ab33ff

[7] ***Marginal stability of Sweet–Parker type current sheets at low Lundquist numbers***, Shi, C., Velli, M., & Tenerani, A., 2018, ApJ, 859, 2, DOI: 10.3847/1538-4357/aabd83

[8] ***Statistical analysis of intermittency and its association with proton heating in the near Sun environment***, Sioulas, N., Velli, M., Chhiber, R., et al., 2022, ApJ in press, ARXIV:2201.10067

[9] ***Evolution of Switchbacks in the Inner Heliosphere***, Tenerani, A., Sioulas, N., Matteini, L., et al., 2021, ApJL, 919, L31, DOI: 10.3847/2041-8213/ac2606

[10] ***Evolution of Solar Wind Turbulence from 0.1 to 1 au during the First Parker Solar ProbeSolar Orbiter Radial Alignment***, Telloni, D., Sorriso-Valvo, L., Woodham, L. D., et al., ApJL, 912, L21, DOI: 10.3847/2041-8213/abf7d1

[11] ***Onset of fast magnetic reconnection and particle energization in laboratory and space plasmas***, Pucci, F., Velli, M., Shi, C., et al., 2020, Journal of Plasma Physics, 86(6), 535860601, DOI: 10.1017/S0022377820001373

[12] ***Tearing Instability and Periodic Density Perturbations in the Slow Solar Wind***, Réville, V., Velli, M., Rouillard, A., et al., 2020, ApJL, 895, 1, DOI: 10.3847/2041-8213/ab911d

[13] ***The role of Alfvén wave dynamics on the large scale properties of the solar wind: comparing a MHD simulation with PSP E1 data***, Réville, V., Velli, M., Panasenco, O., et al., 2020, ApJS, 246, 2, DOI: 10.3847/1538-4365/ab4fef

[14] ***Magnetic field kinks and folds in the solar wind***, Tenerani, A., Velli, M., Matteini, L., et al., 2020, ApJS, 246, 2, DOI: 10.3847/1538-4365/ab53e1

[15] ***Exploring Solar Wind Origins and Connecting Plasma Flows from the Parker Solar Probe to 1 au: Nonspherical Source Surface and Alfvénic Fluctuations***, Panasenco, O., Velli, M., D'Amicis, R., et al., 2020, ApJS, 246, 2, DOI: 10.3847/1538-4365/ab61f4

[16] ***The geometry of an electron scale magnetic cavity in the plasma sheet***, Liu, H., Zong, Q.-G., Zhang, H., et al., 2019, GRL, 46, 16, DOI: 10.1029/2019GL083569

[17] ***Turbulence and particle acceleration in collisionless magnetic reconnection: effects of temperature inhomogeneity across pre-reconnection current sheet***, Lu, S., Angelopoulos, V., Artemyev, A. V., et al., 2019, ApJ, 878, 2, DOI: 10.3847/1538-4357/ab1f6b