

Kristopher G. Klein: Curriculum Vitae

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Chronology of Education

University of Iowa	Iowa City, IA
Doctor of Philosophy in Physics; <i>Advisor:</i> G.G. Howes	Dec. 2013
<i>The Kinetic Plasma Physics of Solar Wind Turbulence</i>	10.5281/zenodo.50471
<i>Committee:</i> F. Skiff, C. Kletzing, S. Spangler, A. Ratner	
Luther College	Decorah, IA
Bachelor of Arts in Physics and Mathematics; Magna Cum Laude	May 2008
<i>Advisor:</i> Todd Pedlar; Departmental Honors	

Chronology of Employment

University of Arizona	Tucson, AZ
Associate Professor, Dept. Planetary Sciences & LPL	2023-present
Assistant Professor, Dept. Planetary Sciences & LPL	2018-2023
University of Michigan	Ann Arbor, MI
Postdoctoral Research Scholar, CLASP	2016-2018
University of New Hampshire	Durham, NH
NSF AGS Postdoctoral Researcher, Space Science Center	2014-2016
University of Iowa	Iowa City, IA
Postdoctoral Researcher, Dept. Physics & Astronomy	2014

Honors and Awards

Fellow of the American Physical Society	2026
University of Arizona Distinguished Scholar Award	2025
American Astronomical Society Solar Physics Division Karen Harvey Prize	2024
Collier Trophy for Greatest Achievement in Aeronautics or Astronautics (Parker Solar Probe Mission Team)	2024
American Physical Society Division of Plasma Physics Lev D. Landau and Lyman Spitzer Jr. Award for Outstanding Contributions to Plasma Physics	2022
NASA Silver Achievement Medal (Parker Solar Probe Team)	2019
NASA Early Career Investigator Program Award	2019
National Academy of Science New Leaders in Space Physics	2016
National Science Foundation AGS Postdoctoral Research Fellow	2014
University of Iowa Goertz/Nicholson Memorial Scholarship	2012
Phi Beta Kappa - National Honor Society	2008
Pi Mu Epsilon - National Mathematics Honor Society	2007
Sigma Pi Sigma - National Physics Honor Society	2006

Service

Local/State Outreach

HelioSwarm: The Nature of Turbulence in Space Sonora Astronomical Society, March 2023
HelioSwarm: A Mission to Better Understand Space Plasmas Tucson Amateur Astronomy Association, Jan. 2023

National/International Outreach/Service

Government Service

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION:
Review Panelist - 2014, 2019, 2020, 2021, 2025 (Chair)
External Reviewer - 2015, 2023, 2024

NATIONAL SCIENCE FOUNDATION:

Review Panelist - 2014, 2017, 2020, 2021, 2026;
External Reviewer - 2016, 2019, 2024, 2025

DEPARTMENT OF ENERGY: External Reviewer - 2020, 2024, 2025
UNITED KINGDOM RESEARCH COUNCIL: External Reviewer - 2021
DEUTSCHE FORSCHUNGSGEMEINSCHAFT: External Reviewer - 2025, 2026
AGENCE NATIONALE DE LA RECHERCHE: External Reviewer - 2025

Community Service

American Physical Society Topical Group of Plasma Astrophysics:

Executive Committee Member-at-Large: 2018-2021

Treasurer: 2021-2027

SHINE Steering Committee: 2023-2025

Parker Solar Probe Science Working Group Lead Organizer: Fall 2022-

American Physical Society Division of Plasma Physics:

Space & Astrophysics Program Committee: 2023,2027 (Chair)

Summer School Lecturer

NSF/APS-DPP GPAP Summer School on Plasma Astrophysics: 2019, 2021, 2026

Simons Collaboration on Extreme Electrodynamics of Compact Sources Summer School: 2025, 2026

The heliospheric space plasma physics in the era of multipoint space missions: 2026

Workshop and Conference Organization

Excitation and Dissipation of Kinetic-Scale Fluctuations in Space Plasmas: ISSI Team Leader (2025-2026)

Electron Kinetic Physics: The Next Frontier in Space and Astrophysical Plasmas

ISSI Workshop Organizing Committee (2024)

Multiscale Investigation of Kinetic Processes Governing Solar Wind Evolution ISSI Team Member (2025-2026)

Cross-Scale Energy Transfer in Space Plasmas ISSI Team Member (2023-2024)

Ion Kinetic Instabilities in the Solar Wind in Light of Parker Solar Probe and Solar Orbiter Observations

ISSI Team Member (2022-2023)

Program Committee, American Physical Society Division of Plasma Physics (2023)

Parker Two Conference Science Organizing Committee (Spring 2022)

Parker Solar Probe Science Working Group Local Organizing Committee (Fall 2022)

SHINE Workshop Session Organizer (2015-2019,2022)

COSPAR Session Organizing Committee: PSP Session (2022)

Department Committees

Lunar and Planetary Laboratory & Department of Planetary Sciences, U. Arizona:

Theoretical Astrophysics Program Steering Committee: 2018-2023, 2025-

Curriculum Committee: Ad Hoc member: 2026-

Graduate Advising and Admissions Committee:

Member: 2018-2021, Chair: 2021-2022, 2024-2025)

College Committees

Steward Observatory Faculty Search Committee: Spring 2023

University Committees

University of Arizona Distinguished Scholar Selection Committee: Spring 2026

Other

Mission Leadership

Solar Wind Electrons Alphas and Proton Instrument Suite, Parker Solar Probe: Deputy Principle Investigator (2025-)

HelioSwarm: Deputy Principle Investigator (2019-)

Professional Membership

American Astronomical Society, Division of Solar Physics (2018-present)

American Geophysical Union, (2013-present)

American Physical Society, Division of Plasma Physics (2010-present)

Journal Referee[50+], including Nature Physics, Nature Communications, Journal of Plasma Physics, Physics of Plasmas, Physical Review Letters, Journal of Geophysical Research, The Astrophysical Journal Letters, The Astrophysical Journal, Annales Geophysicae, Frontiers: Space Sciences, Space Science Reviews

Publications

REFEREED JOURNAL ARTICLES

- [160 Articles; h-index: 46, i10-index: 107, i100-index: 18, citations: 6983]^{1,2,3}
- [160] Schröder, D.L. et al (4th of 5 authors) *On the modelling of oblique firehose instabilities in regularised kappa plasmas using ALPS*, J. Plasma Phys., **E130**, 2026 doi: 10.1017/S0022377826102335
- [159] Qian, H. et al (6th of 8 authors) *Physics of Circularly Polarized Ion-scale Waves in Hybrid Simulations of Alfvénic Fluctuations* ApJ, **1008**, 244, 2026 doi: 10.3847/1538-4357/ae9a74
- [158] Ervin, T. et al (5th of 10 authors) *Direct Measurement of Diffusion Coefficients: Evidence for Diffusive Stochastic Heating in Collisionless Plasmas* PRL, **137**, 065201, 2026 doi: 10.1103/s4q4-v7rm
- [157] Guo, Z. et al (5th of 8 authors) *Inertial-Range Energy Transfer Free From Isotropic Assumption in Turbulent Space Plasma* JGR, **131**, e2026JA035503, 2026 doi: 10.1029/2026JA035503
- [156] Brown, C. et al (3rd of 4 authors) *Phase-Space Energy Transfer of Wave-Particle Interactions using the Field-Particle Correlation Technique and Linear Plasma Theory with JET-PLUME* PoP, **33**, 072101, 2026 doi: 10.1063/5.0335826
- [155] Martinovic, M. M., **Klein, K. G.** et al. (9 authors) *How the Oblique Drift Instability Alters Solar Wind Heating and Constrains the Distribution of Solar Wind Observations* PRL, **136**, 255201, 2026 doi: 10.1103/nlq9-2g37
- Citations: 4**
- [154] Ran, H. et al. (8th of 9 authors) *The Damping and Instability of Ion-acoustic Waves in the Solar Wind: Solar Orbiter Observations* ApJ, **1003**, 124, 2026, doi: 10.3847/1538-4357/ae60fb **Citations: 1**
- [153] Wilson III, L. et al. (5th of 7 authors) *Electron Velocity Moments in the Solar Wind. I. Calibration of the Wind 3DP EESA Low Detector* ApJS, **284**, 23, 2026, doi: 110.3847/1538-4365/ae5d2f **Citations: 1**
- [152] Niranjana^o, **Klein, K.G.** et al. (9 authors) *Free Energy Sources of Ion-scale Waves Observed by Parker Solar Probe* ApJS, **284**, 4, 2026, doi: 10.3847/1538-4365/ae48b7 **Citations: 9**
- [151] Wilson III, L. et al. (5th of 7 authors) *Electron Velocity Moments in the Solar Wind. II. Statistical Properties* ApJ, **1002**, 122, 2026, doi: 10.3847/1538-4357/ae5d4a **Citations: 1**
- [150] Villarroel-Sepúlveda, N. et al. (5th of 5 authors) *Wave-Particle Equilibria with Heavy Ions in Weakly Collisional Space Plasmas* ApJ, **1002**, 49, 2026, doi: 10.3847/1538-4357/ae5639
- [149] Das, S. B. et al. (15th of 16 authors) *Strong Prevalence of Hammerhead Velocity Distributions Close to the Heliospheric Current Sheet* ApJL, **1001**: L7, 2026, doi: 10.3847/2041-8213/ae52f6 **Citations: 1**
- [148] Pecora, F., Hellinger, P., **Klein, K.G.** et al. (8 authors) *Impact of Yaglom's law anisotropy on the estimation of the turbulence energy transfer rate. A multipoint multiscale analysis* A&A, 708, **A208**, 2026, doi: 10.1051/0004-6361/202557457
- [147] Schulz, L. et al. (5th of 8 authors) *Extending the Wave Telescope Technique to Larger Numbers of Spacecraft Obtaining Robust Spatial Power Spectra* JGR, **131**, 2026, doi: 10.1029/2025JA034710
- [146] Huang, Z. et al. (15th of 22 authors) *Evidence of 5 minute Oscillations from Parker Solar Probe* ApJL, **999**, L4, 2026, doi: 10.3847/2041-8213/ae43ec **Citations: 3**
- [145] Yogesh, Ofman, L., **Klein, K.G.** et al. (22 authors) *Solar Wind Heating near the Sun: A Radial Evolution Approach* ApJ, **999**, 225, 2026, doi: 10.3847/1538-4357/ae4582 **Citations: 7**
- [144] Afify, **Klein, K.G.** et al. (4 authors) *Velocity-space signatures of energy transfer for ion-acoustic instabilities* A&A, **A185**, 2026, doi: 10.1051/0004-6361/202558111
- [143] Mallet, A., **Klein, K.G.** et al. (5 authors) *Perpendicular ion heating in turbulence and reconnection: magnetic moment breaking by coherent fluctuations* J. Plasma Phys., **E13**, 2026 doi:10.1017/S0022377825101177 **Citations: 4**
- [142] **Klein, K.G.** et al. (9 authors) *Ion-Scale Wave Emission and Absorption for Non-Maxwellian Velocity Distributions in the Inner Heliosphere* GRL, **53**, e2025GL118809, 2026, doi:10.1029/2025GL118809 **Citations: 5**
- [141] Bianco, J.S. et al. (5th of 5 authors) *Evolution of an Alfvén Wave-driven Proton Beam in the Expanding Solar Wind* ApJ, **998**, 194, 2026, doi: 10.3847/1538-4357/ae3a9f **Citations: 3**
- [140] Zheng, X. et al. (3rd of 14 authors) *First in Situ Estimates of the Sheath Resistance for the PSP/FIELD Antenna: Employing an Electron Shot Noise Model* ApJ, **997**, 137, 2026, doi: 10.3847/1538-4357/ae25e6
- [139] Zheng, X. et al. (3rd of 11 authors) *Electrostatic Thermal Noise in Magnetized Weakly Ionized Collisional Plasmas* JGR, **131**, 121 2025JA034176, 2026, doi: 10.1029/2025JA034176 **Citations: 1**

¹ As of October 12, 2026 from SAO/NASA ADS: http://adsabs.harvard.edu/abstract_service.html

² ORCID ID: 0000-0001-6038-1923

^{3o} Postdoctoral mentee or graduate student advisee. *Work done as a graduate student.

- [138]Yoon, P. et al. (5th of 11 authors) *Regulation of temperature anisotropy for solar wind protons and alpha particles by collisions and instabilities*, A&A, **795**, A14, 2026, doi: 0.1051/0004-6361/202557070 **Citations: 2**
- [137]Bowen, T. et al. (9th of 10 authors) *Stochastic Heating in the Sub-Alfvénic Solar Wind*, PRL, **135**, 255201, 2025, doi: 10.1103/txd8-22m9 **Citations: 12**
- [136]Badman, S. T., et al. (5th of 21 authors) *Multispacecraft Measurements of the Evolving Geometry of the Solar Alfvén Surface over Half a Solar Cycle*, ApJL **995**, L37, 2025 doi: 10.3847/2041-8213/ae0e5c **Citations: 17**
- [135]Richard, L. et al. (5th of 9 authors) *Non-Maxwellianity of ion velocity distributions in the Earth’s magnetosheath*, PRE **112**, L053201, 2025 doi: 10.1103/7p1x-84y9 **Citations: 3**
- [134]Guo, X, Zhao, J., **Klein, K.G.**, and Xie, H. *Free Energy Source of the Mirror Instability: Nonresonant Particles*, PRL **135**, 185201, 2025 doi: 10.1103/x12v-h3xq **Citations: 1**
- [133]**Klein, K. G.** and Verscharen, D. *The Dielectric Response of Plasmas with Arbitrary Gyrotropic Velocity Distributions*, PoP **32**, 9, 2025 doi: 10.1063/5.0286477 **Citations: 5**
- [132]Rivera, Y. J., **Klein, K. G.** et al. (18 authors) *Observational Constraints on the Radial Evolution of O^{6+} Temperature and Differential Flow in the Inner Heliosphere*, ApJ **990**, L60, 2025 doi: 10.3847/2041-8213/adfa97 **Citations: 2**
- [131]Zhang, J. et al. (5th of 5 authors) *Parker Solar Probe Observations of Turbulence and Waves between a Current Sheet and an Interplanetary Coronal Mass Ejection–Driven Shock*, ApJ **990**, 73, 2025 doi: 110.3847/1538-4357/adf55b
- [130]Chandran, B.D.G. et al. (6th of 11 authors) *A Two-Fluid Solar-Wind Model with Intermittent Alfvénic Turbulence*, J. Plasma Phys. **91**, E125, 2025 doi: 10.1017/S0022377825100640 **Citations: 1**
- [129]Sadykov, V. M. et al. (7th of 8 authors) *Identification of Ion-Kinetic Instabilities in Hybrid-PIC Simulations of Solar Wind Plasma with Machine Learning* ApJS, **279**, 28, 2025, doi: 10.3847/1538-4365/addd07 **Citations: 4**
- [128]Martinovic, M. M., **Klein, K.G.** (6 authors) *Impact of Two-population α -particle Distributions on Plasma Stability* ApJL, **988**, L25, 2025, doi: 10.3847/2041-8213/adeaac **Citations: 6**
- [127]Yogesh et al. (4th of 12 authors) *Evidence of Interaction between Ion-Scale Waves and Ion Velocity Distributions in the Solar Wind* ApJ, **986**, 119, 2025, doi: 10.3847/1538-4357/add467 **Citations: 9**
- [126]Zheng, X. et al. (3rd of 10 authors) *Quasi-thermal Noise in Magnetized Plasma: Theory and Simulations* ApJ, **985**, 114, 2025, doi: 10.3847/1538-4357/add00f **Citations: 2**
- [125]Bowen, T. et al. (9th of 13 authors) *Nonlinear Interactions in Spherically Polarized Alfvénic Turbulence* ApJ, **985**, 49, 2025, doi: 10.3847/1538-4357/adc569 **Citations: 8**
- [124]Schröder, D.L., et al. (5th of 5 authors) *Temperature anisotropy instabilities of solar wind electrons with regularized kappa-halos resolved with ALPS* PoP, **32**, 032109, 2025, doi: 10.1063/5.0254526 **Citations: 6**
- [123]Zhang, M. et al. (4th of 4 authors) *Extreme Heating of Minor Ions in Imbalanced Solar-wind Turbulence* ApJ, **979**, 121 e2024GL112038, 2025, doi: 10.3847/1538-4357/ad95fc **Citations: 13**
- [122]Ofman, L. et al. (7th of 8 authors) *Modeling Hot, Anisotropic Ion Beams in the Solar Wind Motivated by the Parker Solar Probe Observations Near Perihelia* ApJ, **984**, 1274, 2025, doi: 10.3847/1538-4357/adc812 **Citations: 10**
- [121]**Klein, K.G.** et al. (4 authors) *Wave-Telescope Analysis for Multipoint Observatories: Impact of Timing and Spatial Uncertainties* JGR, 129, e2024JA033428, 2024, doi: 10.1029/2024JA033428 **Citations: 2**
- [120]Lewis, H. et al. (5th of 9 authors) *Turbulent Energy Conversion Associated With Kinetic Microinstabilities in Earth’s Magnetosheath* GRL, **51**, e2024GL112038, 2024, doi: 10.1029/2024GL112038 **Citations: 5**
- [119]Zheng, X. et al. (4th of 10 authors) *Radial Evolution of Non-Maxwellian Electron Populations Derived from Quasi-thermal Noise Spectroscopy: Parker Solar Probe Observations* ApJ, **977** 39, 2024, doi: 10.3847/1538-4357/ad7d05 **Citations: 8**
- [118]Roberts, O.W. **Klein, K.G.** et al. (9 authors) *Measurement of the Taylor Microscale and the Effective Magnetic Reynolds Number in the Solar Wind With Cluster* JGR, **129** 11, 2024, doi: 10.1029/2024JA032968 **Citations: 3**
- [117]Walters, J.°, **Klein, K.G.** et al. (5 authors) *Electron Influence on the Parallel Proton Firehose Instability in 10-moment, Multifluid Simulations* ApJ, **975** 290, 2024, doi: 10.3847/1538-4357/ad7c47 **Citations: 4**
- [116]Yoon, P.H. et al., (3rd of 9 authors) *Regulation of solar wind electron temperature anisotropy by collisions and instabilities* ApJ, **975** 105, 2024 doi: 10.3847/1538-4357/ad7b09 **Citations: 5**
- [115]Afshari, A.S. et al., (4th of 11 authors) *Direct observation of ion cyclotron damping of turbulence in Earth’s magnetosheath plasma* Nat. Comm., **15** 7870, 2024 doi: 10.1038/s41467-024-52125-8 **Citations: 9**
- [114]Shankarappa, N.°, **Klein, K.G.**, et al. (4 authors), *Estimated Heating Rates Due to Cyclotron Damping of Ion-scale Waves Observed by Parker Solar Probe* ApJ, **973** 20, 2024 doi: 10.3847/1538-4357/ad5f2a **Citations: 16**

- [113]Pecora, F. et al., (4th of 7 authors) *Evaluation of Scale-dependent Kurtosis with HelioSwarm* ApJ, **970** L36, 2024 doi: 10.3847/2041-8213/ad5fff **Citations: 2**
- [112]Yoon, P.H. et al., (6th of 7 authors) *Boundary of the Distribution of Solar Wind Proton Beta versus Temperature Anisotropy* ApJ, **969** 77, 2024 doi: 10.3847/1538-4357/ad47f1 **Citations: 10**
- [111]Gorman, W.^o and Klein, K.G., *Mind the Gap: Nonlocal Cascades and Preferential Heating in High- β Alfvénic Turbulence* MNRAS, **531** 1, 2024 doi: 10.1093/mnras/slaf018 **Citations: 4**
- [110]Chen, X. et al. (4th of 4 authors), *Parallel Diffusion Coefficient of Energetic Charged Particles in the Inner Heliosphere from the Turbulent Magnetic Fields Measured by Parker Solar Probe* ApJ, **965** 61, 2024 doi: 10.3847/1538-4357/ad33c3 **Citations: 14**
- [109]Broeren, T.^o, Klein, K.G., and TenBarge, J.M. *Multi-Spacecraft Magnetic Field Reconstructions: A Cross-Scale Comparison of Methods* Earth and Space Science, **11** 3, 2024 doi: 10.1029/2023EA003369 **Citations: 4**
- [108]Holmes, J. et al. (3rd of 5 authors), *Zone of Preferential Heating for Minor Ions in the Solar Wind* ApJ, **964** 19, 2024 doi: 10.3847/1538-4357/ad23ea **Citations: 3**
- [107]Johnson, E. et al. (5th of 6 authors) *Application of Collisional Analysis to the Differential Velocity of Solar Wind Ions* FrASS, **10**, 2024, doi: 10.3389/fspas.2023.1284913 **Citations: 6**
- [106]McManus, M., Klein, K.G. et al. (11 authors) *Proton- and Alpha-driven Instabilities in an Ion Cyclotron Wave Event* ApJ, **961** 142, 2024, doi: 10.3847/1538-4357/ad05ba **Citations: 24**
- [105]Jiang, W. et al. (5th of 7 authors) *Velocity-space Signatures of Resonant Energy Transfer between Whistler Waves and Electrons in the Earth's Magnetosheath* ApJ, **960** 30, 2024, doi: 10.3847/1538-4357/ad0df8 **Citations: 11**
- [104]Klein, K.G. et al. (50 authors) *HelioSwarm: A Multipoint, Multiscale Mission to Characterize Turbulence* SSR, **219** 74 doi: 10.1007/s11214-023-01019-0 **Citations: 56**
- [103]Pecora, F. et al. (5th of 11 authors) *Three-Dimensional Energy Transfer in Space Plasma Turbulence from Multipoint Measurement* PRL, **131** 225201, 2023, doi: 10.1103/PhysRevLett.131.225201 **Citations: 17**
- [102]Giacalone, F. et al. (7th of 21 authors) *Analyses of ~ 0.05 –2 MeV Ions Associated with the 2022 February 16 Energetic Storm Particle Event Observed by Parker Solar Probe* ApJ, **958** 144, 2023, doi: 10.3847/1538-4357/acfb86 **Citations: 21**
- [101]Walters, J.^o, Klein, K.G. et al. (6 authors) *The Effects of Nonequilibrium Velocity Distributions on Alfvén Ion-cyclotron Waves in the Solar Wind* ApJ, **955** 97, 2023, doi: 10.3847/1538-4357/acf1fa **Citations: 19**
- [100]Romero, O. et al. (13th of 23 authors) *Near-Sun In Situ and Remote-sensing Observations of a Coronal Mass Ejection and its Effect on the Heliospheric Current Sheet* ApJ, **954** 168, 2023, doi: 10.3847/1538-4357/ace62e **Citations: 51**
- [99]Lewis, H. et al. (5th of 11 authors) *Magnetospheric Multiscale Measurements of Turbulent Electric Fields in Earth's Magnetosheath: How do Plasma Conditions Influence the Balance of Terms in Generalized Ohm's Law?* PoP, **30**, 082901, 2023, doi: 10.1063/5.0158067 **Citations: 6**
- [98]Roberts, O.W. et al. (10th of 14 authors) *Estimation of the Error in the Calculation of the Pressure-Strain Term: Application in the Terrestrial Magnetosphere* JGR, **128** 8, 2023, doi: 10.1029/2023JA031565 **Citations: 10**
- [97]Huang, J. et al. (8th of 28 authors) *The Structure and Origin of Switchbacks: Parker Solar Probe Observations* ApJ, **952** 33, 2023, doi:10.3847/1538-4357/acd17e **Citations: 27**
- [96]Halekas, J. et al. (7th of 15 authors) *Quantifying the Energy Budget for Solar Wind Acceleration from 13.3-100 Solar Radii* ApJ, **952** 26, 2023, doi: 10.3847/1538-4357/acd769 **Citations: 33**
- [95]Martinović, M. & Klein, K.G. *Ion-Driven Instabilities in the Inner Heliosphere II: Classification and Multi-Dimensional Mapping* ApJ, **952** 14, 2023, doi: 10.3847/1538-4357/acdb79 **Citations: 12**
- [94]Johnson, E. et al. (4th of 17 authors) *Anterograde Collisional Analysis of Solar Wind Ions* ApJ, **950** 51, 2023, doi: 10.3847/1538-4357/accc32 **Citations: 6**
- [93]Broeren, T.^o & Klein, K.G. *Data-Driven Uncertainty Quantification of the Wave-Telescope Technique: General Equations and Demonstration using HelioSwarm* ApJS, **266** 12, 2023 doi: 10.3847/1538-4365/acc6c7 **Citations: 7**
- [92]Huang, J. et al. (9th of 26 authors) *Parker Solar Probe Observations of High Plasma β Solar Wind from the Streamer Belt* ApJS, **265** 47, 2023, doi: 10.3847/1538-4365/acbcd2 **Citations: 19**
- [91]Niranjana^o, Klein, K. G., & Martinović, M.M., *Estimation of turbulence proton and electron heating rates via Landau damping constrained by Parker Solar Probe observations* ApJ, **946** 85, 2023, doi: 10.3847/1538-4357/acb542 **Citations: 17**
- [90]Raouafi, N.E., et al., (6th of 57 authors), *Parker Solar Probe: Four Years of Discoveries at Solar Cycle Minimum* SSRv, **219** 8, 2023, doi: 10.1007/s11214-023-00952-4 **Citations: 154**

- [89]Juno, J, et al. (8th of 8 authors) *Phase-space Energization of Ions in Oblique Shocks* ApJ **944** 15, 2023 doi: 10.3847/1538-4357/acaf53 **Citations: 11**
- [88]Verscharen, D. et al. (15th of 27 authors) *A Case for Electron-Astrophysics* Experimental Astronomy 2021 doi:10.1007/s10686-021-09761-5 **Citations: 19**
- [87]Bowen, T. S. et al., (6th of 12 authors), *In Situ Signature of Cyclotron Resonant Heating in the Solar Wind* PRL, **129** 16, 2022, doi: 10.1103/PhysRevLett.129.165101 **Citations: 63**
- [86]Livi, R. et al., (6th of 22 authors), *The Solar Probe ANalyzer-Ions on the Parker Solar Probe* ApJ, **938** 2, 2022, doi: 10.3847/1538-4357/ac93f5 **Citations: 162**
- [85]Jiang, W., et al. (5th of 5 authors), *Whistler Waves as a Signature of Converging Magnetic Holes in Space Plasmas* ApJ, **935**, 169, 2022 doi: 10.3847/1538-4357/ac7ce2 **Citations: 17**
- [84]Shi, C., et al. (10th of 21 authors), *Patches of Magnetic Switchbacks and Their Origins* ApJ, **934**, 152, 2022 doi: 10.3847/1538-4357/ac7c11 **Citations: 33**
- [83]Howes, G. G., et al. (7th of 14 authors), *Revolutionizing our Understanding of Particle Energization in Space Plasmas Using On-Board Wave-Particle Correlator Instrumentation* FrASS, **9**, 912868, 2022 doi: 10.3389/fspas.2022.912868 **Citations: 2**
- [82]Martinović, M. M.^o, Antonije R. Dordević, **Klein, K. G.**, et al. (10 authors) *Plasma Parameters from Quasi-Thermal Noise Observed by Parker Solar Probe: A New Model for the Antenna Response* JGR, 127, e2021JA030182. 2022 doi: 10.1029/2021JA030182 **Citations: 17**
- [81]Verniero, J, et al. (12th of 19 authors), *Strong perpendicular velocity-space in proton beams observed by Parker Solar Probe* ApJ, **924**, 112, 2022 doi: 10.3847/1538-4357/ac36d5 **Citations: 56**
- [80]Kasper, J. C., **Klein, K.G.** et al., (28 authors), *Parker Solar Probe Enters the Magnetically Dominated Solar Corona*, PRL, **127**, 255101, 2021, doi: 10.1103/PhysRevLett.127.255101 **Citations: 197**
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Other Scholarship

OPEN SOURCE SOFTWARE

Plasma in a Uniform Magnetized Environment (PLUME; FORTRAN)

A numerical linear Vlasov-Maxwell dispersion solver for a collisionless plasma with an arbitrary number of Bi-Maxwellian ion and electron velocity distributions, with distinct densities, drift velocities, and anisotropic temperatures. PLUME returns the complex frequency solution to the dispersion relation as well as the electromagnetic and fluid eigenfunctions, and allows for an arbitrary scan through the any of the underlying plasma parameters, c.f. Klein & Howes 2015 PoP [8] and used in [28,32,35,70]. This code is used as the core of the numerical Nyquist instability solver, described in Klein et al. 2017 JGR [17], and used in e.g. [24,37,56,64,65,80,114,115,145] Available as an open source code on [github](#). Library of published papers (currently 52) using PLUME are available [here](#).

Arbitrary Linear Plasma Solver (ALPS; FORTRAN; doi: 10.5281/zenodo.8075681)

A numerical linear Vlasov-Maxwell dispersion solver for a collisionless plasma that allows for an arbitrary gyrotropic distribution of ions and electrons in momentum space. ALPS returns the complex frequency solution to the dispersion relation in both the relativistic and non-relativistic limits and allows for an arbitrary scan of the solutions as a function of wavevector. c.f. Verscharen, Klein, et al 2018 J. Plasma Phys. [27] and used in e.g.

[57,101,115,133,142,143]. Available as an open source code on [github](#). Library of published papers (currently 15) using ALPS are available [here](#).

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Media

Expert Interviews

Parker Solar Probe Launch (Fall 2018) Provided expert interviews for press coverage of Parker Solar Probe launch. Quoted in a number of local, domestic, and international articles, including on **CNN** and **CNET**.

Predictions for Crossing the Alfvén Surface (Summer 2019, Winter 2021) Provided expert interviews for prediction of 'region of preferential heating' below the Alfvén surface in advance of PSP entering this region, associated with publication of **Kasper & Klein** 2019 ApJL. Quoted in various domestic and international articles, including **Science Daily** and **NASA Spaceflight.com**. Provided additional interviews when PSP crossed this surface, e.g. an article in **Futurity**, coinciding with publication of **Kasper, Klein, et al** 2021 PRL.

Parker Solar Probe First Results (Winter 2019) Quoted in online articles, e.g. this article from **Futurity**, coinciding with the release of the first light papers from PSP published in Nature in Winter 2019.

HelioSwarm Selection (Spring 2022) Provided interviews to coincide with announcement of NASA selection of HelioSwarm mission, used in local **online** and **radio** articles.

Other

Galaxy Slam (Spring 2026) Participated in a Week-long Celebration of the University of Arizona's Legacy in Space Science **Galaxy Slam** highlighting the research done in astronomy, planetary science, and optical science.

Conferences / Scholarly Presentations

INVITED COLLOQUIUM PRESENTATIONS [41 TOTAL, 8 DURING TIME IN RANK]

Excitation and Dissipation: Kinetic-Scale Waves and Instabilities in Space Plasmas

Dartmouth College Physics Colloquium, Sept 2025

Excitation and Dissipation: Kinetic-Scale Waves and Instabilities in Space Plasmas

University of Wisconsin, Madison Plasma Physics Colloquium, Sept 2025

HelioSwarm: The Nature of Turbulence in Space Plasmas

HelioHub Solar Circuit Virtual Presentation, July 2025

Excitation and Dissipation: Kinetic-Scale Waves and Instabilities in Space Plasmas

West Virginia University KINETIC Plasma Physics Seminar, April 2025

Exploring the Slopes of Phase Space with ALPS: An Open-Source Code for Calculating Dispersion Relations for Non-Maxwellian Plasmas

Parker Solar Probe Theory Telecon, Feb. 2024

Excitation and Dissipation

UNH Physics Department Colloquium, Sept. 2024

The Role of Kinetic-Scale Waves and Instabilities in the Evolution of the Solar Wind

NANOGrav Noise Budget Working Group, July 2024

Using the Solar Wind as a Natural Laboratory to Study Space Plasma Turbulence

Columbia University Astronomy Department Colloquium, April 2023

INVITED CONFERENCE PRESENTATIONS [35 TOTAL, 11 DURING TIME IN RANK]

The Oblique Drift Instability: A Route to Ion Heating via Drifts in Magnetically Dominated Plasmas MAGNET US, August 2026

Statistical Distributions of Elsässer Variables in the Near Sun Environment Fall AGU Meeting, Dec 2025

Instability and Excitation in the Heliosphere: Theory and Observation Asia Oceania Geoscience Society, July 2025

A New Era of Multi-spacecraft Measurements: Novel multipoint & multiscale techniques SHINE, June 2025

Clarifying the Role of Kinetic Plasma Process in the Inner Heliosphere AGU Fall Meeting, Dec 2024

Towards a new era of Space Plasma Physics Plasma Observatory Workshop, Rome, IT, Nov 2024

Traversing the Slopes of Phase Space: Linear Dispersion Relations from Plasma Peaks to Gravitational Valleys

KITP Interconnections between Physics of Plasmas and Self-gravitating Systems, June 2024

Kinetic-Scale Waves and Instabilities in the Evolution of the Solar Wind AAS 244, June 2024

Karen Harvey Prize Lecture: The Role of Kinetic-Scale Waves in the Evolution of the Solar Wind TESS, April 2024

HelioSwarm: Characterizing the Nature of Space Plasma Turbulence KITP, "Turbulence in the Universe" Feb 2024

Theory of Ion instabilities, Application to PSP (and other spacecraft) data ISSI Workshop 563, Sept 2023

What are the Basic Building Blocks of Solar Wind Turbulence? SHINE Workshop Aug 2023

CONTRIBUTED CONFERENCE PRESENTATIONS [64 TOTAL, 12 DURING TIME IN RANK]

Ion-Scale Wave Emission and Absorption from non-Maxwellian Velocity Distributions

Measured by SWEAP/SPANi Fall AGU Meeting, Dec 2025

Ion-Scale Wave Emission and Absorption from non-Maxwellian Velocity Distributions

Measured by SWEAP/SPANi APS-DPP, Nov 2025

Non Maxwellian Wave Excitation and Dissipation: Recent Progress

SHINE Workshop, June 2025

Wave Excitation and Dissipation for Non-Maxwellian Plasmas in the Inner Heliosphere

Parker Four Workshop, May 2025

Traversing the Slopes of Phase Space with ALPS AGU Fall Meeting, Dec 2024

Error in Multi-Spacecraft Reconstruction Methods ISSI Team #556, Oct 2024

Optimal Polyhedral Selection for Wave Telescope Applications ISSI Team #556, Oct 2024

Traversing the Slopes of Phase Space with ALPS: Linear Dispersion Relations for

Arbitrary Plasma Distributions APS-DPP, Oct 2024

Traversing the Slopes of Phase Space with ALPS: Linear Dispersion Relations for

Arbitrary Plasma Distributions SHINE, Aug 2024

The Arbitrary Linear Plasma Solver: An Open-Source Code for Calculating Dispersion

Relations for Non-Maxwellian Plasmas AGU Fall Meeting, Dec 2023

Characterizing Electromagnetic Waves using Wave-Telescope Techniques Applied to

Multipoint, Multiscale Observatories AGU Fall Meeting, Dec 2023

Beyond Brazil: Numerical Tools for Studying Waves and Instabilities in non-Maxwellian

Plasmas APS-DPP, Oct 2023

International Research Collaboration

Table 1: International collaborators during time in rank identified from refereed ADS publications, 2023–2026.

Name	Institution / Organization	Country	Papers
Joel B. Abraham	Mullard Space Science Laboratory University College London, Holmbury St. Mary, Dorking RH5 6NT, UK	United Kingdom	1
Olga Alexandrova	Observatoire de Paris, LESIA, 92190, Meudon, France	France	1
M. Berthomier	Laboratoire de Physique des Plasmas, CNRS, Sorbonne Universite, Ecole Polytechnique, Observatoire de Paris, Universite Paris-Saclay, Paris F-75005, France	France	1
L. Berčič	Mullard Space Science Laboratory, University College London, RH5 6NT, Dorking, UK	United Kingdom	1
Roberto Bruno	National Institute for Astrophysics (INAF) - Institute for Space Astrophysics and Planetology (IAPS), 00133, Rome, Italy	Italy	2
D. Chakrabarty	Physical Research Laboratory, Navrangpura, Ahmedabad 380009, India	India	1
C. H. K. Chen	Department of Physics and Astronomy, Queen Mary University of London, E1 4NS, London, UK	United Kingdom	3
Kun Cheng	Department of Earth and Space Sciences, Southern University of Science and Technology, People’s Republic of China	China	1
Yutian Chi	Institute of Deep Space Sciences, Deep Space Exploration Laboratory, Hefei 230026, People’s Republic of China	China	1
Jesse T. Coburn	Department of Physics, Imperial College London, London, SW7 2BW, UK	United Kingdom	2
Raffaella D’Amicis	National Institute for Astrophysics (INAF) - Institute for Space Astrophysics and Planetology (IAPS), 00133, Rome, Italy	Italy	2
Emma E. Davies	Austrian Space Weather Office, GeoSphere Austria, Graz, Austria	Austria	1
Rossana De Marco	INAF—Istituto di Astrofisica e Planetologia Spaziali, Via Fosso del Cavaliere 100, 00133 Rome, Italy	Italy	1
Thierry Dudok de Wit	LPC2E, CNRS, CNES, and, University of Orléans, Orléans, France; ISSI, Hallerstrasse 6, 3012 Bern, Switzerland	France	1
Jonathan Eastwood	Blackett Laboratory, Imperial College London, SW7 2AZ, London, UK	United Kingdom	1
Maria Federica Mar- cucci	IAPS INAF Istituto di Astrofisica e Planetologia Spaziali, 00133, Roma, Italy	Italy	1
H. Fichtner	Institut für Theoretische Physik, Lehrstuhl IV: Plasma-Astroteilchenphysik, Ruhr-Universität Bochum, D-44780 Bochum, Germany;	Germany	1
Colin Forsyth	Mullard Space Science Laboratory, University College London, RH5 6NT, Dorking, UK	United Kingdom	1
Luca Franci	Department of Mathematics, Physics and Electrical Engineering, Northumbria University, Newcastle Upon Tyne, UK;	United Kingdom	2
Vincent Genot	Institut de Recherche en Astrophysique et Planetologie, 31028, Toulouse, France	France	1

Name	Institution / Organization	Country	Papers
K.-H. Glassmeier	Institute of Geophysics and Extraterrestrial Physics, Technische Universität Braunschweig, Braunschweig, Germany; Max Planck Institute of Solar System Research, Göttingen, Germany;	Germany	1
Antonella Greco	Dipartimento di Fisica, Università della Calabria, I-87036 Cosenza, Italy	Italy	1
Xudong Guo	Purple Mountain Observatory, Chinese Academy of Sciences, Nanjing 210023, People's Republic of China; School of Astronomy and Space Science, University of Science and Technology of China, Hefei 230026, People's Republic of China;	China	1
Aakash Gupta	Physical Research Laboratory, Navrangpura, Ahmedabad 380009, India; Indian Institute of Technology-Gandhinagar, Gandhinagar 382055, India	India	1
Petr Hellinger	Astronomical Institute of the Czech Academy of Sciences, Prague, Czechia; Institute of Atmospheric Physics of the Czech Academy of Sciences, Prague, Czechia;	Czech Republic	1
Timothy S. Horbury	Department of Physics, Imperial College London, South Kensington Campus, SW7 2AZ, London, UK	United Kingdom	5
Chuanpeng Hou	University of Potsdam, Karl-Liebknecht-Str. 24-25, Haus 28, 2.109, 14476 Potsdam, Germany	Germany	1
Maria Elena Innocenti	Theoretische Physik I, Ruhr-Universität Bochum, Bochum, Germany;	Germany	1
Charalambos Ioannou	Mullard Space Science Laboratory, University College London, Dorking, RH5 6NT, UK	United Kingdom	1
Seong-Yeop Jeong	Samsung Electronics Co. Ltd, Hwaseong, 18448, Republic of Korea	South Korea	1
Wence Jiang	State Key Laboratory of Space Weather, National Space Science Center, Chinese Academy of Sciences, Beijing 100190, People's Republic of China; Mullard Space Science Laboratory, University College London, Dorking RH5 6NT, UK; Key Laboratory of Solar Activity and Space Weather, National Space Science Center, Chinese Academy of Sciences, Beijing 100190, People's Republic of China	China	1
Yuri V. Khotyaintsev	Swedish Institute of Space Physics, Uppsala 751 21, Sweden; Department of Physics and Astronomy, Uppsala University, Uppsala 751 20, Sweden	Sweden	1
R. Kieokaew	Institut de Recherche en Astrophysique et Planétologie, CNRS, UPS, CNES, Université de Toulouse, Toulouse, France	France	1
Matthieu Kretschmar	Laboratoire de Physique et Chimie de l'Environnement et de l'Espace, CNRS and Université d'Orléans, 45071, Orléans, France	France	1
R. Laker	Department of Physics, Imperial College London, South Kensington Campus, SW7 2AZ, London, UK	United Kingdom	1
Benoit Lavraud	Institut de Recherche en Astrophysique et Planétologie, 31028, Toulouse, France; Laboratoire d'astrophysique de Bordeaux, Univ. Bordeaux, CNRS, Pessac, France; Laboratoire d'astrophysique de Bordeaux, Univ. Bordeaux, CNRS, Pessac, France	France	3

Name	Institution / Organization	Country	Papers
Marian Lazar	Centre for Mathematical Plasma Astrophysics, Department of Mathematics, KU Leuven, Celestijnenlaan 200B, B-3001, Leuven, Belgium; Institute for Theoretical Physics IV, Faculty for Physics and Astronomy, Ruhr University Bochum, D-44780, Bochum, Germany;	Belgium	4
Olivier Le Contel	Laboratoire de Physique des Plasmas, CNRS/Sorbonne Université/Université Paris-Saclay/Observatoire de Paris/Ecole Polytechnique Institut Polytechnique de Paris, 75005, Paris, France	France	1
Harry C. Lewis	Department of Physics, Imperial College London, London SW7 2AZ, United Kingdom;	United Kingdom	2
Hui Li	State Key Laboratory of Space Weather, National Space Science Center, Chinese Academy of Sciences, Beijing 100190, People's Republic of China; Key Laboratory of Solar Activity and Space Weather, National Space Science Center, Chinese Academy of Sciences, Beijing 100190, People's Republic of China; University of Chinese Academy of Sciences, Beijing, People's Republic of China	China	1
Jingchun Li	Shenzhen Key Laboratory of Nuclear and Radiation Safety, Institute for Advanced Study in Nuclear Energy & Safety, College of Physics and Optoelectronic Engineering, Shenzhen University, Shenzhen 518060, People's Republic of China,	China	3
X. Li	Department of Physics, Aberystwyth University, Aberystwyth, UK	United Kingdom	1
Xiaodong Lin	Shenzhen Key Laboratory of Nuclear and Radiation Safety, Institute for Advanced Study in Nuclear Energy & Safety, College of Physics and Optoelectronic Engineering, Shenzhen University, Shenzhen 518060, People's Republic of China	China	1
Per-Arne Lindqvist	School of Electrical Engineering, KTH Royal Institute of Technology, 114 28 Stockholm, Sweden;	Sweden	1
Guoqing Liu	Shenzhen Key Laboratory of Nuclear and Radiation Safety, Institute for Advanced Study in Nuclear Energy & Safety, College of Physics and Optoelectronic Engineering, Shenzhen University, Shenzhen 518060, People's Republic of China	China	1
Jingting Liu	Mullard Space Science Laboratory, University College London, Dorking, RH5 6NT, UK	United Kingdom	1
Mingzhe Liu	LESIA, Observatoire de Paris, Université PSL, CNRS, Sorbonne Université, Université de Paris, 5 place Jules Janssen, F-92195 Meudon, France	France	7
Yong Liu	Shenzhen Key Laboratory of Nuclear and Radiation Safety, Institute for Advanced Study in Nuclear Energy & Safety, College of Physics and Optoelectronic Engineering, Shenzhen University, Shenzhen 518060, People's Republic of China	China	1
Jingting Luo	Shenzhen Key Laboratory of Nuclear and Radiation Safety, Institute for Advanced Study in Nuclear Energy & Safety, College of Physics and Optoelectronic Engineering, Shenzhen University, Shenzhen 518060, People's Republic of China	China	1

Name	Institution / Organization	Country	Papers
Rodrigo A. López	Research Center in the intersection of Plasma Physics, Matter, and Complexity (, P, mc,), Comisión Chilena de Energía Nuclear, Casilla 188-D, Santiago, Chile; Departamento de Ciencias Físicas, Facultad de Ciencias Exactas, Universidad Andres Bello, Sazié 2212, Santiago, 8370136, Chile;	Chile	4
O. Malandraki	Institute for Astronomy, Astrophysics, Space Applications & Remote Sensing, National Observatory of Athens, Greece	Greece	1
Francesco Malara	Dipartimento di Fisica, Università della Calabria, 87036 Rende CS, Italy	Italy	1
I. Mann	Department of Physics and Technology, Postboks 6050 Langnes, 9037, Tromsø, Norway	Norway	1
Maria Federica Mar- cucci	IAPS—INAF Istituto di Astrofisica e Planetologia Spaziali, 00133 Roma, Italy	Italy	1
Lorenzo Matteini	Department of Physics, Imperial College London, South Kensington Campus, SW7 2AZ, London, UK	United Kingdom	6
Jean Morris	Department of Physics, Imperial College London, London, SW7 2BW, UK	United Kingdom	1
Richard J. Morton	School of Engineering, Physics & Mathematics, Northumbria University, Newcastle upon Tyne, NE2 3RA, UK	United Kingdom	1
Pablo S. Moya	Departamento de Física, Facultad de Ciencias, Universidad de Chile, Las Palmeras 3425, Ñuñoa 7800003, Santiago, Chile	Chile	1
Christian Möstl	Austrian Space Weather Office, GeoSphere Austria, Graz, Austria	Austria	1
R. Nakamura	Space Research Institute, Austrian Academy of Sciences, Graz, Austria;	Austria	2
Y. Narita	Institute of Theoretical Physics, Technical University of Braunschweig, Braunschweig, Germany;	Germany	3
Georgios Nicolaou	Mullard Space Science Laboratory, University College London, Dorking, RH5 6NT, UK	United Kingdom	1
Cecilia Norgren	IRF Swedish Institute of Space Physics, Uppsala, Sweden;	Sweden	1
Helen O'Brien	Department of Physics, Imperial College London, London, SW7 2BW, UK	United Kingdom	2
Christopher J. Owen	Mullard Space Science Laboratory, University College London, Holmbury St. Mary, Dorking, Surrey, RH5 6NT, UK	United Kingdom	5
Sanchita Pal	Centre for Space Science and Technology, Indian Institute of Technology Roorkee, Uttarakhand, 247667, India	India	1
M. Palmroth	Department of Physics, University of Helsinki, Helsinki, Finland; Finnish Meteorological Institute, Helsinki, Finland;	Finland	1
Oreste Pezzi	Institute for Plasma Science and Technology, National Research Council of Italy, G. Amendola 122/D, Bari, I-70126, Italy;	Italy	2

Name	Institution / Organization	Country	Papers
Viviane Pierrard	Royal Belgian Institute for Space Aeronomy (BIRA-IASB), Space Physics, Solar-Terrestrial Center of Excellence, Brussels, Belgium; Center for Space Radiation (CSR), Earth and Life Institute—Climate Sciences (ELI-C), Université Catholique de Louvain, Louvain-la-Neuve, Belgium	Belgium	4
F. Plaschke	Institute of Geophysics and Extraterrestrial Physics, Technische Universität Braunschweig, Braunschweig, Germany	Germany	1
Stefaan Poedts	Centre for Mathematical Plasma Astrophysics, Department of Mathematics, KU Leuven, Celestijnenlaan 200B, B-3001, Leuven, Belgium; Institute of Physics, University of Maria Curie-Skłodowska, ul. Radziszewskiego 10, 20-031, Lublin, Poland	Belgium	1
Francesco Pucci	Istituto per la Scienza e Tecnologia dei Plasmi, Consiglio Nazionale delle Ricerche (ISTP-CNR), 70126 Bari, Italy	Italy	1
Hao Ran	Mullard Space Science Laboratory, University College London, Dorking, RH5 6NT, UK	United Kingdom	1
Alessandro Retinò	Laboratoire de Physique des Plasmas, CNRS/Sorbonne Université/Université Paris-Saclay/Observatoire de Paris/Ecole Polytechnique Institut Polytechnique de Paris, 75005, Paris, France	France	3
Christopher Reynolds	Institute of Astronomy, University of Cambridge, CB3 0HA, Cambridge, UK	United Kingdom	1
Owen Roberts	Space Research Institute, Austrian Academy of Sciences, Graz, Austria	Austria	5
A. P. Rouillard	IRAP, Université de Toulouse, CNRS, CNES, UPS, Toulouse, France	France	1
Alexander Schekochihin	Rudolf Peierls Centre for Theoretical Physics, University of Oxford, OX1 3PU, Oxford, UK	United Kingdom	1
D. Schmid	Space Research Institute, Austrian Academy of Sciences, Graz, Austria;	Austria	1
D. L. Schröder	Institut für Theoretische Physik, Lehrstuhl IV: Plasma-Astroteilchenphysik, Ruhr-Universität Bochum, D-44780 Bochum, Germany;	Germany	1
L. Schulz	Institute of Geophysics and Extraterrestrial Physics, Technische Universität Braunschweig, Braunschweig, Germany;	Germany	2
Jungjoon Seough	Korea Astronomy and Space Science Institute, Daejeon 34055, Republic of Korea;	South Korea	3
Sergio Servidio	Dipartimento di Fisica, Università della Calabria, I-87036 Cosenza, Italy	Italy	2
Munehito Shoda	Department of Earth and Planetary Science, University of Tokyo, Tokyo, Japan	Japan	1
Julia E. Stawarz	Department of Physics, Imperial College London, London SW7 2AZ, United Kingdom; Department of Mathematics, Physics and Electrical Engineering, Northumbria University, Newcastle upon Tyne NE1 8ST, United Kingdom;	United Kingdom	3
Ida Svenningsson	Swedish Institute of Space Physics, Uppsala 751 21, Sweden; Department of Physics and Astronomy, Uppsala University, Uppsala 751 20, Sweden;	Sweden	1
Shi Tao	University of Helsinki, Helsinki, Finland	Finland	1

Name	Institution / Organization	Country	Papers
K. Torkar	Space Research Institute, Austrian Academy of Sciences, Graz, Austria	Austria	1
L. Turc	Departement of Physics, University of Helsinki, Helsinki, Finland;	Finland	1
Daniel Verscharen	Mullard Space Science Laboratory, University College London, Holmbury St. Mary, Dorking, Surrey, RH5 6NT, UK	United Kingdom	10
Nicolás Villarroel-Sepúlveda	Departamento de Física, Facultad de Ciencias, Universidad de Chile, Las Palmeras 3425, Ñuñoa 7800003, Santiago, Chile; Mullard Space Science Laboratory, University College London, Dorking RH5 6NT, UK	Chile	1
Z. Vörös	Space Research Institute, Austrian Academy of Sciences, Graz, Austria; Institute of Earth Physics and Space Science, HUN-REN, Sopron, Hungary	Austria	2
Chi Wang	State Key Laboratory of Space Weather, National Space Science Center, Chinese Academy of Sciences, Beijing 100190, People's Republic of China; Key Laboratory of Solar Activity and Space Weather, National Space Science Center, Chinese Academy of Sciences, Beijing 100190, People's Republic of China; University of Chinese Academy of Sciences, Beijing, People's Republic of China	China	1
Joseph H. Wang	Department of Physics, Imperial College London, London, SW7 2BW, UK	United Kingdom	2
Yang Wang	Deep Space Exploration Laboratory, Institute of Deep Space Sciences, Hefei, China; CAS Key Laboratory of Geospace Environment, Department of Geophysics and Planetary Sciences, University of Science and Technology of China, Hefei, China	China	2
Eva Weiler	Austrian Space Weather Office, GeoSphere Austria, Graz, Austria; Institute of Physics, University of Graz, Graz, Austria	Austria	1
Robert T. Wicks	Department of Mathematics, Physics and Electrical Engineering, Northumbria University, Newcastle Upon Tyne, UK	United Kingdom	1
L. D. Woodham	Department of Physics, Imperial College London, South Kensington Campus, SW7 2AZ, London, UK	United Kingdom	1
T. Woolley	Department of Physics, Imperial College London, South Kensington Campus, SW7 2AZ, London, UK	United Kingdom	1
Han Wu	Department of Earth and Space Sciences, Southern University of Science and Technology, People's Republic of China	China	1
Tao Wu	Institute of Deep Space Sciences, Deep Space Exploration Laboratory, Hefei 230026, People's Republic of China	China	2
Xiangyu Wu	Mullard Space Science Laboratory, University College London, Dorking, RH5 6NT, UK	United Kingdom	1
Huasheng Xie	Hebei Key Laboratory of Compact Fusion, Langfang 065001, People's Republic of China; ENN Science and Technology Development Co., Ltd., Langfang 065001, People's Republic of China;	China	1

Name	Institution / Organization	Country	Papers
Xianghui Xue	CAS Key Laboratory of Geospace Environment, Department of Geophysics and Planetary Sciences, University of Science and Technology of China, Hefei, People's Republic of China	China	3
Yao Yao	Institute of Deep Space Sciences, Deep Space Exploration Laboratory, Hefei 230026, People's Republic of China	China	1
Emiliya Yordanova	Swedish Institute of Space Physics, Uppsala 751 21, Sweden;	Sweden	1
Bingkun Yu	Institute of Deep Space Sciences, Deep Space Exploration Laboratory, Hefei, 230026, People's Republic of China; CAS Key Laboratory of Geospace Environment, Department of Geophysics and Planetary Sciences, University of Science and Technology of China, Hefei, People's Republic of China	China	3
Jinsong Zhao	Purple Mountain Observatory, Chinese Academy of Sciences, Nanjing 210023, People's Republic of China	China	1
Xianming Zheng	Shenzhen Key Laboratory of Nuclear and Radiation Safety, Institute for Advanced Study in Nuclear Energy & Safety, College of Physics and Optoelectronic Engineering, Shenzhen University, Shenzhen 518060, People's Republic of China; Department of Earth and Space Sciences, Southern University of Science and Technology, Shenzhen, People's Republic of China	China	4

Awarded Grants and Contracts During Time in Rank

Federal

2023–2026

- “Tracing the Flow of Energy that Heats and Accelerates Solar-Wind Streams that Originate in Coronal Holes,” PI Benjamin Chandran. (\$1,452,000 total)
Percent Credit: Award Crd: 100 / F&A Revenue: 100
FTE/Percent Effort: 0.10 FTE / 10%
Role: Co-Investigator
Co-PIs: None (UA)
Source of Funding/Agency: University of New Hampshire (NASA Prime - NNH22ZDA001N-HTMS: B.3 Heliophysics Theory, Modeling and Simulations)
Period of Performance: 10/19/2023 - 10/18/2026
Project Budget Total: \$126,313
Project Budget, Direct: \$82,288
Project Budget, Indirect: \$44,025

- 2024–2026
- “Study of Ion Velocity Distributions and Kinetic Wave Activity Observed in the Acceleration Region of the Solar Wind with Theory, Modeling, and Machine Learning,” PI Leon Ofman. (\$457,000 total)
Percent Credit: Award Crd: 40 / F&A Revenue: 40
FTE/Percent Effort: .09 FTE / 9%
Role: Co-Investigator
Co-PIs: Mihailo Martinovic (UA PI/Project Co-I)
Source of Funding/Agency: The Catholic University of America (NASA Prime - NNH22ZDA001N-HTMS: B.3 Heliophysics Theory, Modeling and Simulations)
Period of Performance: 02/27/2024 - 02/26/2026
Project Budget Total: \$67,729
Project Budget, Direct: \$44,123
Project Budget, Indirect: \$23,606
- 2022–2030
- “HelioSwarm: The Nature of Turbulence in Space Plasma,” NASA Medium Class Explorer Mission, 2022–2030.
Deputy Principal Investigator, Total Mission Cost Cap \$250 million.
Principal Investigator: Harlan Spence (UNH/SWRI)
Project Manager: Butler Hines (NASA Ames)
Project System Engineer: Zion Young (NASA Ames)
**HelioSwarm award was initiated in 2022 and since it has been established under two UA accounts for different mission phases. The continuation into phase C/D is listed in pending grants.*
- 2022–2024
- “HelioSwarm,” University of New Hampshire (NASA Prime).
Percent Credit: Award Crd: 100 / F&A Revenue: 100
FTE/Percent Effort: .07 FTE / 7%
Role: Co-Investigator
Co-PIs: None (UA)
Source of Funding/Agency: University of New Hampshire (NASA Prime)
Period of Performance: 04/01/2022 - 10/31/2024
Project Budget Total: \$219,736
Project Budget, Direct: \$148,639
Project Budget, Indirect: \$71,097
- 2024–2026
- “HelioSwarm Phase B Prep Extension,” University of New Hampshire (NASA Prime).
Percent Credit: Award Crd: 100 / F&A Revenue: 100
FTE/Percent Effort: .17 FTE / 17%
Role: Co-Investigator
Co-PIs: None (UA)
Source of Funding/Agency: University of New Hampshire (NASA Prime)
Period of Performance: 11/01/2024 - 05/15/2026
Project Budget Total: \$54,923
Project Budget, Direct: \$35,543
Project Budget, Indirect: \$19,380

- 2022–2026
- “Non-linear Solar Wind Turbulent Heating from 0.08 to 5.2 AU,”
PI Mihailo Martinovic (\$965,355 total).
**The project budget total was reduced from original total of \$965,355 due to the relocation of the subcontract/Co-I from SwRI to NASA GSFC and therefore the subcontract does not reside in-house at UA (goes directly to subcontract through NASA)*
Percent Credit: Award Crd: 15 / F&A Revenue: 15
FTE/Percent Effort: .04 FTE / 4%
Role: Co-Investigator
Co-PIs: Mihailo Martinovic (UA PI)
Source of Funding/Agency: NASA - NNH21ZDA001N-LWS: B.5 Living With a Star Science
Period of Performance: 06/01/2022 - 05/31/2026
Project Budget Total: \$743,923
Project Budget, Direct: \$501,709
Project Budget, Indirect: \$242,214
- 2019–2025
- “Improved Characterization of Solar Wind Dissipation, Energization, and Stability,”
Principal Investigator (\$607, 946 total).
Percent Credit: Award Crd: 100 / F&A Revenue: 100
FTE/Percent Effort: .17 FTE/ 17%
Role: Principal Investigator
Co-PIs: None
Source of Funding/Agency: NASA - NNH18ZDA001N-ECIP: Heliophysics - Early Career Investigator Program
Period of Performance: 06/01/2019 - 10/01/2025
Project Budget Total: \$607,945
Project Budget, Direct: \$420,011
Project Budget, Indirect: \$187,934
- 2020–2026
- “SWEAP Investigation: Wave Particle Correlation,” NASA Parker Solar Probe Phase E Activities, 2020–2026 (under extended mission review) PI Michael Stevens.
(Total Mission Cost ~ \$1.5 Billion)
Co-Is: SWEAP Science Team
Percent Credit: Award Crd: 100 / F&A Revenue: 100
FTE/Percent Effort: .08 FTE / 8%
Role: Co-Investigator
Co-PIs: None (UA)
Source of Funding/Agency: Smithsonian Astrophysical Observatory/JHU APL (NASA Prime)
Period of Performance: 06/01/2020 - 02/28/2026
Project Budget Total: \$ 268,919
Project Budget, Direct: \$175,192
Project Budget, Indirect: \$ 93,728

- 2020–2024
- “Hybrid Kinetic-GRMHD simulations of Black Hole Accretion with Data-Calibrated Electron Physics,” PI Feryal Ozel. (\$470, 310 total.)
Title: Hybrid Kinetic-GRMHD simulations of Black Hole Accretion with Data-Calibrated Electron Physics
Percent Credit: Current Award Crd: 100 (50 LPL; 50 Steward Obs) / F&A Revenue: 100 (50 LPL; 50 Steward Obs) *These are the percent credit numbers after Klein becomes UA PI through the Administrative Change in 2023. Award credit 20 / F&A 20 before the Admin change.
FTE/Percent Effort: .04 FTE / 4%
Role: Co-Investigator - (UA PI after PI Ozel departure/Admin Change in 2023)
Co-PIs: Prof. Dimitrios Psaltis (UArizona) → None (see above)
Source of Funding/Agency: NASA - NNH19ZDA001N-ATP (ROSES 2019: Astrophysics Theory Program)
Period of Performance: 01/07/2020 - 01/06/2024
Project Budget Total: \$470,310
Project Budget, Direct: \$319,898
Project Budget, Indirect: \$150,412
- 2019–2023
- “Vlasov-Maxwell Simulations to Resolve Electron Heating and Dissipation in Quasi-Perpendicular Shocks,” Collaborative Proposal with Princeton University (PI Jason Ten-Barge) and University of Maryland (PI Li-Jen Chen). (\$73, 749 to UA.)
Percent Credit: Award Crd: 100 / F&A Revenue: 100
FTE/Percent Effort: .06 FTE / 6%
Role: Co-Principal Investigator (UA PI)
Co-PIs: None (UA)
Source of Funding/Agency: Department of Energy (DOE)
Period of Performance: 09/01/2019 - 08/31/2023
Project Budget Total: \$73,749
Project Budget, Direct: \$48,045
Project Budget, Indirect: \$25,704

Submitted Grants & Contracts

Federal: Pending Applications

- 2026–2027
- HelioSwarm Continuation, Phase C/D:
Percent Credit: Award Crd: 100 / F&A Revenue: 100
FTE/Percent Effort: .17 FTE / 17%
Role: Deputy Principal Investigator/Co-I (UA PI)
Co-PIs: None (UA)
Source of Funding/Agency: Southwest Research Institute (NASA Ames Research Center Prime)
Period of Performance: 11/01/2026 - 10/31/2027 (award continuation submission)
Project Budget Total: \$357,722
Project Budget, Direct: \$ 230,046
Project Budget, Indirect: \$127,676

- 2026
- SWEAP Continuation, Extended Mission:
Percent Credit: Award Crd: 100 / F&A Revenue: 100
FTE/Percent Effort: .08 FTE / 8%
Role: Deputy Principal Investigator/Co-I (UA PI)
Co-PIs: None (UA)
Source of Funding/Agency: Smithsonian Astrophysical Observatory/JHU APL (NASA Prime)
Period of Performance: 03/01/2026 - 09/30/2026 (award continuation submission)
Project Budget Total: \$34,225
Project Budget, Direct: \$22,073
Project Budget, Indirect: \$12,152
- Submitted
- “How Kinetic Processes Coupling Particles and Waves Govern Heliospheric Plasmas,” NASA HFR 2025.
PI Mihailo Martinovic (U. Arizona)
Step One, no budget requested until Step Two
UArizona Co-Investigator, responsible for 10% of overall collaborative proposal.
Percent Credit: Award Crd: / F&A Revenue:
FTE/Percent Effort: —
Role: Co-Investigator
Co-Is: Mihailo Martinovic (UA PI)
Source of Funding/Agency: NASA NNH25ZDA001N-HFR
Period of Performance: 2026-2030
Project Budget Total: \$—
Project Budget, Direct: \$—
Project Budget, Indirect: \$—
- 2026–2029
- “In-situ Measurements of Plasma Parameters and Waves in The Ionosphere of Earth,” PI Mihailo Martinovic (U. Arizona)
Step One submitted, Total Budget \$1,588,945
Percent Credit: Award Crd: 12 / F&A Revenue: 12
FTE/Percent Effort: .04 FTE / 4%
Role: Co-Investigator
Co-Is: Mihailo Martinovic (UA PI)
Source of Funding/Agency: NASA - NNH25ZDA001N-HTIDS: B.6 Heliophysics Technology and Instrument Development for Science
Period of Performance: 10/15/2026 - 10/14/2029
Project Budget Total: \$1,556,179
Project Budget, Direct: \$1,100,461
Project Budget, Indirect: \$455,718

- 2026–2027
- “Real-time Prediction of Ion-Driven Instabilities in Solar Wind In Situ Measurements,”
PI Mihailo Martinovic (U. Arizona) Co-I Benjamin Alterman (GSFC)
Percent Credit: Award Crd: 15 / F&A Revenue: 15
FTE/Percent Effort: .04 FTE / 4%
Role: Co-Investigator
Co-PIs: Mihailo Martinovic (UA PI)
Source of Funding/Agency: NASA - NNH25ZDA001N-RADIANT: B.5 Research and Development of Initiatives for Advanced New Technologies
Period of Performance: 10/01/2026 - 09/30/2027
Project Budget Total: \$135,237
Project Budget, Direct: \$86,969
Project Budget, Indirect: \$48,268
- Submitted
- “Electromagnetic Wave Propagation in the Martian Ionosphere: Combining MAVEN Observations with Linear Hot Plasma Dispersion Relations,” NASA SCUBED 2025.
PI Christopher Fowler (WVU) Step One; No Finalized Budget
Sole UArizona Investigator, responsible for 45% of overall proposal.
Step 1 therefore no record in UAR
Title:
Percent Credit: Award Crd: / F&A Revenue:
FTE/Percent Effort: —
Role: Co-Investigator
Co-PIs: None (UA)
Source of Funding/Agency: NASA NNH25ZDA001N-SCUBED
Period of Performance: 2026-2030
Project Budget Total: \$—
Project Budget, Direct: \$—
Project Budget, Indirect: \$—
- 2026–2029
- “Stellar flares and their Impact on Exoplanet Atmospheres,” NASA XRP 2025.
PI Travis Barman (U. Arizona) Sarah Peacock (UMD)
\$542,619 total
UArizona Co-Investigator, responsible for 15% of overall proposal.
Percent Credit: Award Crd: 0 / F&A Revenue: 0
FTE/Percent Effort: .04 FTE / 4%
Role: Co-Investigator
Co-PIs: Travis Barman (UA PI)
Source of Funding/Agency: NASA - NNH25ZDA001N-XRP: F.3 Exoplanets Research
Period of Performance: 08/01/2026 - 07/31/2029
Project Budget Total: \$542,619
Project Budget, Direct: \$366,911
Project Budget, Indirect: \$175,708

Federal: Unawarded Applications

- 2025
- “Comprehensive Analysis of Spatio-temporal Plasma Emissions and Resonances (CASPER) CubeSat Mission Study,”
PI Mihailo Martinovic
\$223,658 total
Percent Credit: Award Crd: 5 / F&A Revenue: 17
FTE/Percent Effort: .02 FTE / 2%
Role: Co-Investigator
Co-PIs: Mihailo Martinovic (UA PI)
Source of Funding/Agency: NASA - NNH22ZDA001N-HFOS: B.10 Heliophysics Flight Opportunities Studies
Period of Performance: 04/01/2025 - 09/30/2025
Project Budget Total: \$223,658
Project Budget, Direct: \$150,916
Project Budget, Indirect: \$72,742
- 2025–2029
- “Phase Space in Your Web Browser: The Next Generation of Kinetic Analysis Tools,”PI Jason TenBarge(\$2,346,356 total)
Percent Credit: Award Crd: 100 / F&A Revenue: 100
FTE/Percent Effort: .02 FTE / 2%
Role: Co-Investigator
Co-PIs: None (UA)
Source of Funding/Agency: Princeton University (NASA Prime - NNH24ZDA001N-OSTFL: F.7 Support for Open-Source Tools, Frameworks, and Libraries)
Period of Performance: 01/01/2025 - 12/31/2029
Project Budget Total: \$400,001
Project Budget, Direct: \$288,363
Project Budget, Indirect: \$111,638
- 2025–2027
- “Stellar flares and their Impact on Exoplanet Atmospheres,” PI Travis Barman \$504,336 total
Percent Credit: Award Crd: 10 / F&A Revenue: 10
FTE/Percent Effort: .04 FTE / 4%
Role: Co-Investigator
Co-PIs: Travis Barman (UA PI)
Source of Funding/Agency: NASA - NNH24ZDA001N-XRP: F.3 Exoplanets Research
Period of Performance: 01/01/2025 - 12/31/2027
Project Budget Total: \$504,336
Project Budget, Direct: \$342,019
Project Budget, Indirect: \$162,317

- 2025–2028
- “Statistical Properties of Electrons in the Solar Wind,” PI Lynn Wilson (GSFC) (\$515,197 total)
Percent Credit: Award Crd: 100 / F&A Revenue: 100
FTE/Percent Effort: .08 FTE / 8%
Role: Co-Investigator
Co-PIs: None (UA)
Source of Funding/Agency: NASA Goddard Space Flight Center (NASA Prime - NNN24ZDA001N-HGIO: B.4 Heliophysics Guest Investigators)
Period of Performance: 04/01/2025 - 03/31/2028
Project Budget Total: \$106,879
Project Budget, Direct: \$68,842
Project Budget, Indirect: \$38,037
- 2025–2028
- “The Evolution and Heating of Switchbacks in the Inner Heliosphere,” PI Jia Huang \$523,726 total
Percent Credit: Award Crd: 25 / F&A Revenue: 25
FTE/Percent Effort: .04 FTE / 4%
Role: Co-Investigator
Co-Is: Mihailo Martinovic (UA PI)
Source of Funding/Agency: University of California, Berkeley (NASA Prime - NNN24ZDA001N-HGIO: B.4 Heliophysics Guest Investigators)
Period of Performance: 04/01/2025 - 03/31/2028
Project Budget Total: \$238,099
Project Budget, Direct: \$153,358
Project Budget, Indirect: \$84,741
- 2024–2027
- “Connecting Plasma Waves, non-Parametric VDFs, and Turbulent Dissipation using Solar Orbiter,” PI Trevor Bowen (\$758,000 total)
Percent Credit: Award Crd: 40 / F&A Revenue: 50
FTE/Percent Effort: .04 FTE / 4%
Role: Co-Investigator
Co-Is: Mihailo Martinovic
Source of Funding/Agency: University of California, Berkeley (NASA Prime - NNN23ZDA001N-SOGI: B.23 Solar Orbiter Guest Investigators)
Period of Performance: 04/01/2024 - 03/31/2027
Project Budget Total: \$130,728
Project Budget, Direct: \$85,165
Project Budget, Indirect: \$45,563

Last updated: October 12, 2026