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Dr. Marc Pulupa is an Associate Research Physicist at the UC Berkeley Space Sciences Laboratory (SSL). Research interests include: plasma astrophysics, collisionless shocks, electron acceleration, Langmuir waves, electric field antenna modeling, solar wind electron thermodynamics, collisionless reconnection, solar radio bursts, development of spacecraft instrumentation.

Education

- 2010** PhD in Physics, University of California, Berkeley (UCB)
- 2005** MS in Physics, UCB
- 2003** BS in Physics and Mathematics, University of Maryland, College Park (UMCP)

Employment

- 2020-** Associate Research Physicist, UCB SSL
- 2012-2020** Assistant Research Physicist, UCB SSL
- 2010-2012** Postdoctoral Researcher, UCB SSL
- 2004-2010** Graduate Student Researcher, UCB SSL
- 2003-2007** Graduate Student Instructor, UCB
- 2001-2003** Undergraduate Researcher, Space Physics Research Group, UMCP
- 1998-2000** Undergraduate Researcher, NIST, Gaithersburg, MD

Awards and Honors

- 2019** *NASA Silver Achievement Medal*
Awarded to the Parker Solar Probe Team
- 2018** Named as one of *Diablo Magazine 40 Under 40 in the East Bay*
- 2003-2004** *Berkeley Edge Fellowship*
University of California, Berkeley
- 2001** *James A. Yorke Young Scientist Award*
University of Maryland, College Park, College of Computer, Mathematical, and Physical Sciences

Project Experience and Roles (for projects with external funding sources)

- 2019-** Radio Frequency Spectrometer Lead Scientist and Science Operations Center Lead for the *LuSEE* lunar lander experiment
- 2017-** Co-Investigator on the *Solar Probe Plus* FIELDS Experiment
- 2017-2021** Co-Investigator (Instrument Lead) for the Cubesat Radio Interferometry Experiment (CURIE) (*NASA Heliophysics Technology and Instrument Development for Science*)
- 2016-2018** Co-Investigator, “Role of Electron Microphysics in the Evolution of the Solar Wind” (*NASA Heliophysics Guest Investigators*)
- 2013-2016** Principal Investigator, “Core Electron Heating in Solar Wind Reconnection Exhausts” (*NASA Heliophysics Guest Investigators*)
- 2012-** Radio Frequency Spectrometer Lead Scientist and Science Operations Center Lead for the *Parker Solar Probe* FIELDS Experiment
- 2005-2006** Preflight calibration of the STEREO/WAVES electric field antennas

Publications

Refereed

- [1] M. I. Desai, D. G. Mitchell, D. J. McComas, J. F. Drake, T. Phan, J. R. Szalay, E. C. Roelof, J. Giacalone, M. E. Hill, E. R. Christian, N. A. Schwadron, R. L. McNutt, M. E. Wiedenbeck, C. Joyce, C. M. S. Cohen, A. J. Davis, S. M. Krimigis, R. A. Leske, W. H. Matthaeus, O. Malandraki, R. A. Mewaldt, A. Labrador, E. C. Stone, S. D. Bale, J. Verniero, A. Rahmati, P. Whittlesey, R. Livi, D. Larson, M. Pulupa, R. J. MacDowall, J. T. Niehof, J. C. Kasper, and T. S. Horbury. “Suprathermal Ion Energy Spectra and Anisotropies near the Heliospheric Current Sheet Crossing Observed by the Parker Solar Probe during Encounter 7.” *Astrophysical Journal* 927.1, 62 (Mar. 2022), p. 62.
DOI: [10.3847/1538-4357/ac4961](https://doi.org/10.3847/1538-4357/ac4961).

- [2] O. V. Agapitov, J. F. Drake, M. Swisdak, S. D. Bale, T. S. Horbury, J. C. Kasper, R. J. MacDowall, F. S. Mozer, T. D. Phan, M. Pulupa, N. E. Raouafi, and M. Velli. “Flux Rope Merging and the Structure of Switchbacks in the Solar Wind.” *Astrophysical Journal* 925.2, 213 (Feb. 2022), p. 213. DOI: [10.3847/1538-4357/ac4016](https://doi.org/10.3847/1538-4357/ac4016).
- [3] B. van der Holst, J. Huang, N. Sachdeva, J. C. Kasper, I. Manchester W. B., D. Borovikov, B. D. G. Chandran, A. W. Case, K. E. Korreck, D. Larson, R. Livi, M. Stevens, P. Whittlesey, S. D. Bale, M. Pulupa, D. M. Malaspina, J. W. Bonnell, P. R. Harvey, K. Goetz, and R. J. MacDowall. “Improving the Alfvén Wave Solar Atmosphere Model Based on Parker Solar Probe Data.” *Astrophysical Journal* 925.2, 146 (Feb. 2022), p. 146. DOI: [10.3847/1538-4357/ac3d34](https://doi.org/10.3847/1538-4357/ac3d34).
- [4] R. Bandyopadhyay, W. H. Matthaeus, D. J. McComas, R. Chhiber, A. V. Usmanov, J. Huang, R. Livi, D. E. Larson, J. C. Kasper, A. W. Case, M. Stevens, P. Whittlesey, O. M. Romeo, S. D. Bale, J. W. Bonnell, T. Dudok de Wit, K. Goetz, P. R. Harvey, R. J. MacDowall, D. M. Malaspina, and M. Pulupa. “Sub-Alfvénic Solar Wind Observed by the Parker Solar Probe: Characterization of Turbulence, Anisotropy, Intermittency, and Switchback.” *Astrophysical Journal Letters* 926.1, L1 (Feb. 2022), p. L1. DOI: [10.3847/2041-8213/ac4a5c](https://doi.org/10.3847/2041-8213/ac4a5c).
- [5] C. Cattell, A. Breneman, J. Dombeck, E. Hanson, M. Johnson, J. Halekas, S. D. Bale, T. Dudok de Wit, K. Goetz, K. Goodrich, D. Malaspina, M. Pulupa, T. Case, J. C. Kasper, D. Larson, M. Stevens, and P. Whittlesey. “Parker Solar Probe Evidence for the Absence of Whistlers Close to the Sun to Scatter Strahl and to Regulate Heat Flux.” *Astrophysical Journal Letters* 924.2, L33 (Jan. 2022), p. L33. DOI: [10.3847/2041-8213/ac4015](https://doi.org/10.3847/2041-8213/ac4015).
- [6] S. Musset, M. Maksimovic, E. Kontar, V. Krupar, N. Chrysaphi, X. Bonnin, A. Vecchio, B. Cecconi, A. Zaslavsky, K. Issautier, S. D. Bale, and M. Pulupa. “Simulations of radio-wave anisotropic scattering to interpret type III radio burst data from Solar Orbiter, Parker Solar Probe, STEREO, and Wind.” *Astronomy & Astrophysics* 656, A34 (Dec. 2021), A34. DOI: [10.1051/0004-6361/202140998](https://doi.org/10.1051/0004-6361/202140998).
- [7] C. M. S. Cohen, E. R. Christian, A. C. Cummings, A. J. Davis, M. I. Desai, G. A. de Nolfo, J. Giacalone, M. E. Hill, C. J. Joyce, A. W. Labrador, R. A. Leske, W. H. Matthaeus, D. J. McComas, R. L. McNutt, R. A. Mewaldt, D. G. Mitchell, J. G. Mitchell, J. S. Rankin, E. C. Roelof, N. A. Schwadron, E. C. Stone, J. R. Szalay, M. E. Wiedenbeck, A. Vourlidas, S. D. Bale, M. Pulupa, and R. J. MacDowall. “PSP/IS \odot IS observations of the 29 November 2020 solar energetic particle event.” *Astronomy & Astrophysics* 656, A29 (Dec. 2021), A29. DOI: [10.1051/0004-6361/202140967](https://doi.org/10.1051/0004-6361/202140967).

- [8] J. C. Kasper, K. G. Klein, E. Lichko, J. Huang, C. H. K. Chen, S. T. Badman, J. Bonnell, P. L. Whittlesey, R. Livi, D. Larson, M. Pulupa, A. Rahmati, D. Stansby, K. E. Korreck, M. Stevens, A. W. Case, S. D. Bale, M. Maksimovic, M. Moncuquet, K. Goetz, J. S. Halekas, D. Malaspina, N. E. Raouafi, A. Szabo, R. MacDowall, M. Velli, T. Dudok de Wit, and G. P. Zank. “Parker Solar Probe Enters the Magnetically Dominated Solar Corona.” *Physical Review Letters* 127.25, 255101 (Dec. 2021), p. 255101. DOI: [10.1103/PhysRevLett.127.255101](https://doi.org/10.1103/PhysRevLett.127.255101).
- [9] D. A. Gurnett, W. S. Kurth, L. F. Burlaga, D. B. Berdichevsky, N. V. Pogorelov, M. Pulupa, and S. D. Bale. “Origin of the Weak Plasma Emission Line Detected by Voyager 1 in the Interstellar Medium: Evidence for Suprathermal Electrons.” *Astrophysical Journal* 921.1, 62 (Nov. 2021), p. 62. DOI: [10.3847/1538-4357/ac1c7a](https://doi.org/10.3847/1538-4357/ac1c7a).
- [10] L. Berčić, M. Maksimović, J. S. Halekas, S. Landi, C. J. Owen, D. Verscharen, D. Larson, P. Whittlesey, S. T. Badman, S. D. Bale, A. W. Case, K. Goetz, P. R. Harvey, J. C. Kasper, K. E. Korreck, R. Livi, R. J. MacDowall, D. M. Malaspina, M. Pulupa, and M. L. Stevens. “Ambipolar Electric Field and Potential in the Solar Wind Estimated from Electron Velocity Distribution Functions.” *Astrophysical Journal* 921.1, 83 (Nov. 2021), p. 83. DOI: [10.3847/1538-4357/ac1f1c](https://doi.org/10.3847/1538-4357/ac1f1c).
- [11] D. Telloni, V. Andretta, E. Antonucci, A. Bemporad, G. E. Capuano, S. Fineschi, S. Giordano, S. Habbal, D. Perrone, R. F. Pinto, L. Sorriso-Valvo, D. Spadaro, R. Susino, L. D. Woodham, G. P. Zank, M. Romoli, S. D. Bale, J. C. Kasper, F. Auchère, R. Bruno, G. Capobianco, A. W. Case, C. Casini, M. Casti, P. Chioetto, A. J. Corso, V. Da Deppo, Y. De Leo, T. Dudok de Wit, F. Frassati, F. Frassetto, K. Goetz, S. L. Guglielmino, P. R. Harvey, P. Heinzl, G. Jerse, K. E. Korreck, F. Landini, D. Larson, A. Liberatore, R. Livi, R. J. MacDowall, E. Magli, D. M. Malaspina, G. Massone, M. Messerotti, J. D. Moses, G. Naletto, G. Nicolini, G. Nisticò, O. Panasenco, M. Pancrazzi, M. G. Pelizzo, M. Pulupa, F. Reale, P. Romano, C. Sasso, U. Schühle, M. Stangalini, M. L. Stevens, L. Strachan, T. Straus, L. Teriaca, M. Uslenghi, M. Velli, D. Verscharen, C. A. Volpicelli, P. Whittlesey, L. Zangrilli, G. Zimbardo, and P. Zuppella. “Exploring the Solar Wind from Its Source on the Corona into the Inner Heliosphere during the First Solar Orbiter-Parker Solar Probe Quadrature.” *Astrophysical Journal Letters* 920.1, L14 (Oct. 2021), p. L14. DOI: [10.3847/2041-8213/ac282f](https://doi.org/10.3847/2041-8213/ac282f).
- [12] A. Pusack, D. M. Malaspina, J. R. Szalay, S. D. Bale, K. Goetz, R. J. MacDowall, and M. Pulupa. “Dust Directionality and an Anomalous Interplanetary Dust Population Detected by the Parker Solar Probe.” *The Planetary Science Journal* 2.5, 186 (Oct. 2021), p. 186. DOI: [10.3847/PSJ/ac0bb9](https://doi.org/10.3847/PSJ/ac0bb9).

- [13] N. Fargette, B. Lavraud, A. P. Rouillard, V. Réville, T. Dudok De Wit, C. Froment, J. S. Halekas, T. D. Phan, D. M. Malaspina, S. D. Bale, J. C. Kasper, P. Louarn, A. W. Case, K. E. Korreck, D. E. Larson, M. Pulupa, M. L. Stevens, P. L. Whittlesey, and M. Berthomier. “Characteristic Scales of Magnetic Switchback Patches Near the Sun and Their Possible Association With Solar Supergranulation and Granulation.” *Astrophysical Journal* 919.2, 96 (Oct. 2021), p. 96.
DOI: [10.3847/1538-4357/ac1112](https://doi.org/10.3847/1538-4357/ac1112).
- [14] J. S. Halekas, L. Berčič, P. Whittlesey, D. E. Larson, R. Livi, M. Berthomier, J. C. Kasper, A. W. Case, M. L. Stevens, S. D. Bale, R. J. MacDowall, and M. P. Pulupa. “The Sunward Electron Deficit: A Telltale Sign of the Sun’s Electric Potential.” *Astrophysical Journal* 916.1, 16 (July 2021), p. 16.
DOI: [10.3847/1538-4357/ac096e](https://doi.org/10.3847/1538-4357/ac096e).
- [15] C. Shi, M. Velli, O. Panasenco, A. Tenerani, V. Réville, S. D. Bale, J. Kasper, K. Korreck, J. W. Bonnell, T. Dudok de Wit, D. M. Malaspina, K. Goetz, P. R. Harvey, R. J. MacDowall, M. Pulupa, A. W. Case, D. Larson, J. L. Verniero, R. Livi, M. Stevens, P. Whittlesey, M. Maksimovic, and M. Moncuquet. “Alfvénic versus non-Alfvénic turbulence in the inner heliosphere as observed by Parker Solar Probe.” *Astronomy & Astrophysics* 650, A21 (June 2021), A21.
DOI: [10.1051/0004-6361/202039818](https://doi.org/10.1051/0004-6361/202039818).
- [16] M. Liu, K. Issautier, N. Meyer-Vernet, M. Moncuquet, M. Maksimovic, J. S. Halekas, J. Huang, L. Griton, S. Bale, J. W. Bonnell, A. W. Case, K. Goetz, P. R. Harvey, J. C. Kasper, R. J. MacDowall, D. M. Malaspina, M. Pulupa, and M. L. Stevens. “Solar wind energy flux observations in the inner heliosphere: first results from Parker Solar Probe.” *Astronomy & Astrophysics* 650, A14 (June 2021), A14. DOI: [10.1051/0004-6361/202039615](https://doi.org/10.1051/0004-6361/202039615).
- [17] J. S. Halekas, P. L. Whittlesey, D. E. Larson, D. McGinnis, S. D. Bale, M. Berthomier, A. W. Case, B. D. G. Chandran, J. C. Kasper, K. G. Klein, K. E. Korreck, R. Livi, R. J. MacDowall, M. Maksimovic, D. M. Malaspina, L. Matteini, M. P. Pulupa, and M. L. Stevens. “Electron heat flux in the near-Sun environment.” *Astronomy & Astrophysics* 650, A15 (June 2021), A15.
DOI: [10.1051/0004-6361/202039256](https://doi.org/10.1051/0004-6361/202039256).
- [18] A. Larosa, V. Krasnoselskikh, T. Dudok de Wit, O. Agapitov, C. Froment, V. K. Jagarlamudi, M. Velli, S. D. Bale, A. W. Case, K. Goetz, P. Harvey, J. C. Kasper, K. E. Korreck, D. E. Larson, R. J. MacDowall, D. Malaspina, M. Pulupa, C. Revillet, and M. L. Stevens. “Switchbacks: statistical properties and deviations from Alfvénicity.” *Astronomy & Astrophysics* 650, A3 (June 2021), A3.
DOI: [10.1051/0004-6361/202039442](https://doi.org/10.1051/0004-6361/202039442).

- [19] L. Harra, D. H. Brooks, S. D. Bale, C. H. Mandrini, K. Barczynski, R. Sharma, S. T. Badman, S. Vargas Dominguez, and M. Pulupa. “The active region source of a type III radio storm observed by Parker Solar Probe during encounter 2.” *Astronomy & Astrophysics* 650, A7 (June 2021), A7. doi: [10.1051/0004-6361/202039514](https://doi.org/10.1051/0004-6361/202039514).
- [20] L. L. Zhao, G. P. Zank, Q. Hu, D. Telloni, Y. Chen, L. Adhikari, M. Nakanotani, J. C. Kasper, J. Huang, S. D. Bale, K. E. Korreck, A. W. Case, M. Stevens, J. W. Bonnell, T. Dudok de Wit, K. Goetz, P. R. Harvey, R. J. MacDowall, D. M. Malaspina, M. Pulupa, D. E. Larson, R. Livi, P. Whittlesey, K. G. Klein, and N. E. Raouafi. “Detection of small magnetic flux ropes from the third and fourth Parker Solar Probe encounters.” *Astronomy & Astrophysics* 650, A12 (June 2021), A12. doi: [10.1051/0004-6361/202039298](https://doi.org/10.1051/0004-6361/202039298).
- [21] J. F. Drake, O. Agapitov, M. Swisdak, S. T. Badman, S. D. Bale, T. S. Horbury, J. C. Kasper, R. J. MacDowall, F. S. Mozer, T. D. Phan, M. Pulupa, A. Szabo, and M. Velli. “Switchbacks as signatures of magnetic flux ropes generated by interchange reconnection in the corona.” *Astronomy & Astrophysics* 650, A2 (June 2021), A2. doi: [10.1051/0004-6361/202039432](https://doi.org/10.1051/0004-6361/202039432).
- [22] S. T. Badman, S. D. Bale, A. P. Rouillard, T. A. Bowen, J. W. Bonnell, K. Goetz, P. R. Harvey, R. J. MacDowall, D. M. Malaspina, and M. Pulupa. “Measurement of the open magnetic flux in the inner heliosphere down to 0.13 AU.” *Astronomy & Astrophysics* 650, A18 (June 2021), A18. doi: [10.1051/0004-6361/202039407](https://doi.org/10.1051/0004-6361/202039407).
- [23] N. Fargette, B. Lavraud, A. Rouillard, J. P. Eastwood, S. D. Bale, T. Phan, M. Øieroset, J. S. Halekas, J. Kasper, M. Berthomier, A. W. Case, K. E. Korreck, D. E. Larson, P. Louarn, D. Malaspina, M. Pulupa, M. L. Stevens, P. L. Whittlesey, R. J. MacDowall, K. Goetz, P. R. Harvey, T. Dudok de Wit, and J. W. Bonnell. “Magnetic increases with central current sheets: observations with Parker Solar Probe.” *Astronomy & Astrophysics* 650, A11 (June 2021), A11. doi: [10.1051/0004-6361/202039191](https://doi.org/10.1051/0004-6361/202039191).
- [24] D. Vech, M. M. Martinović, K. G. Klein, D. M. Malaspina, T. A. Bowen, J. L. Verniero, K. Paulson, T. Dudok de Wit, J. C. Kasper, J. Huang, M. L. Stevens, A. W. Case, K. Korreck, F. S. Mozer, K. A. Goodrich, S. D. Bale, P. L. Whittlesey, R. Livi, D. E. Larson, M. Pulupa, J. Bonnell, P. Harvey, K. Goetz, and R. MacDowall. “Wave-particle energy transfer directly observed in an ion cyclotron wave.” *Astronomy & Astrophysics* 650, A10 (June 2021), A10. doi: [10.1051/0004-6361/202039296](https://doi.org/10.1051/0004-6361/202039296).
- [25] C. M. S. Cohen, E. R. Christian, A. C. Cummings, A. J. Davis, M. I. Desai, G. A. de Nolfo, J. Giacalone, M. E. Hill, C. J. Joyce, A. W. Labrador, R. A. Leske, W. H. Matthaeus, D. J. McComas, R. L. McNutt, R. A. Mewaldt, D. G. Mitchell, J. G. Mitchell, J. S. Rankin, E. C. Roelof, N. A. Schwadron, E. C. Stone, J. R. Szalay, M. E. Wiedenbeck, A. Vourlidas, S. D. Bale, M. Pulupa, and

- R. J. MacDowall. “Parker Solar Probe observations of He/H abundance variations in SEP events inside 0.5 au.” *Astronomy & Astrophysics* 650, A23 (June 2021), A23. doi: [10.1051/0004-6361/202039299](https://doi.org/10.1051/0004-6361/202039299).
- [26] R. Bandyopadhyay, W. H. Matthaeus, D. J. McComas, C. J. Joyce, J. R. Szalay, E. R. Christian, J. Giacalone, N. A. Schwadron, D. G. Mitchell, M. E. Hill, R. L. McNutt, M. I. Desai, S. D. Bale, J. W. Bonnell, T. Dudok de Wit, K. Goetz, P. R. Harvey, R. J. MacDowall, D. M. Malaspina, M. Pulupa, J. C. Kasper, and M. Stevens. “Energetic particle behavior in near-Sun magnetic field switchbacks from PSP.” *Astronomy & Astrophysics* 650, L4 (June 2021), p. L4. doi: [10.1051/0004-6361/202039800](https://doi.org/10.1051/0004-6361/202039800).
- [27] C. Cattell, B. Short, A. Breneman, J. Halekas, P. Whittesley, D. Larson, J. C. Kasper, M. Stevens, T. Case, M. Moncuquet, S. Bale, J. Bonnell, T. Dudok de Wit, K. Goetz, P. Harvey, R. MacDowall, D. Malaspina, M. Maksimovic, M. Pulupa, and K. Goodrich. “Narrowband oblique whistler-mode waves: comparing properties observed by Parker Solar Probe at <0.3 AU and STEREO at 1 AU.” *Astronomy & Astrophysics* 650, A8 (June 2021), A8. doi: [10.1051/0004-6361/202039550](https://doi.org/10.1051/0004-6361/202039550).
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