

# Orlando M. Romeo

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## EDUCATION

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12/2024 **University of California, Berkeley, CA**

*Doctor of Philosophy*, Earth and Planetary Science

05/2020 **University of Maryland, College Park, MD**

*Bachelor of Science (Honors)*, Physics - Magna Cum Laude

*Bachelor of Science (Honors)*, Astronomy - Magna Cum Laude

## RESEARCH INTERESTS

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**Heliophysics:** Solar wind dynamics, Coronal mass ejections, Wave-particle interactions

**Planetary Science:** Crustal magnetization, Planetary magnetospheres, Planetary surfaces

**Geospace:** Space physics, Space weather prediction, Radiation belt modeling

**Instrumentation:** Electrostatic analyzers, X-ray optics, Magnetometers, Space mission design

**Data Methods:** Machine learning, Time series analysis, Scientific modeling

## RESEARCH EXPERIENCE

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01/2025 **Postdoctoral Researcher**, University of California Berkeley/SSL

– Present **Parker Solar Probe (PSP) SWEAP Team**, Advisor: Dr. Davin Larson

- Producing solar wind electron parameters from the SPAN-E ESA on PSP
- Studying Coronal Mass Ejections with in situ measurements close to the Sun
- Developing 3D ray-tracing numerical algorithms for plasma instrument simulations

08/2020 **Graduate Student Researcher**, University of California Berkeley/SSL

– 12/2024 **Parker Solar Probe (PSP) SWEAP Team**, Advisor: Dr. Davin Larson

- Calibrated SPAN-E ESA on PSP to produce solar wind electron parameters
- Studied electron strahl scattering under varying solar wind conditions
- Collaborated with other instrument teams to produce additional data products

**FOXSI-4 Sounding Rocket Mission**, Advisor: Dr. Juan Camilo Buitrago-Casas

- Assembled, tested, and integrated the Solar Aspect and Alignment System (SAAS)
- Performed laser and X-ray alignment tests and simulations for the optics modules
- Supported multiple stages of rocket integration at SSL, WSMR, & PFRR
- Monitored solar conditions to capture real-time observations of an M-class solar flare

**InSight & Zhurong Surface Magnetometers**, Advisor: Dr. Michael Manga

- Conducted Monte Carlo simulations of crustal magnetic fields on Mars
- Determined probable magnetic coherence scales and depths below each landing site
- Developed geological magnetization models to study the Martian geodynamo history

**SWFO-L1 STIS Team**, Advisor: Dr. Davin Larson

- Characterized magnetic field emission from the STIS solid-state telescope
- Tested Amptek pre-amps on the electronics board for each detector channel
- Performed detector calibration tests with high-energy ion beams and radioactive sources to validate instrument performance
- Monitored STIS conditions during spacecraft Thermal Vacuum Chamber testing

- 05/2019 **Planetary Undergraduate Researcher**, NASA Goddard Space Flight Center  
– 09/2020 **MAVEN Proton Cyclotron Waves (PCWs)**, *Advisor: Dr. Norberto Romanelli*
  - Identified PCWs near Mars using Fourier and minimum variance analysis on MAVEN magnetometer data
  - Characterized PCWs and shock processes upstream of the Martian bow shock based on solar wind and planetary properties derived from the MAG and SWIA instruments
- 08/2017 **Plasma Physics Undergraduate Researcher**, University of Maryland  
– 06/2020 **Machine Learning Space Weather Forecasting**, *Advisor: Dr. Surjalal Sharma*
  - Adapted detrending fluctuation analysis on Advanced Composition Explorer (ACE) space weather data to detect long-range correlations over several days
  - Forecasted space weather parameters using nonlinear and data-derived techniques (delay embedding, singular value decomposition, and nearest neighbor tree search)
- Magnetic Nanoparticle Antennas**, *Advisor: Dr. Dennis Papadopoulos*
  - Simulated magnetization dynamics for nanoparticles in ferro-fluid antennas from the Stoner-Wohlfarth Model, including effects of magnetization precession, hysteresis, and quantum tunneling
  - Calculated nanoparticle magnetization states to determine energy efficient materials for CubeSat antennas in plasma environments
- 05/2017 **Space Physics Undergraduate Researcher**, Johns Hopkins University APL  
– 08/2018 **RBSP Data-Driven Forecasting**, *Advisor: Dr. Aleksandr Ukhorskiy*
  - Modeled radiation belt electron energy flux (eflux) from Dst index using particle diffusion theory
  - Filtered eflux measurements based on adiabatic invariants from the MagEIS and REPT instruments on the Van Allen Probes (RBSP) to calculate electron Phase Space Density (PSD)
  - Forecasted PSD from geomagnetic parameters and geosynchronous satellite observations, implementing nonlinear and data-derived techniques, such as delay embedding, singular value decomposition, and nearest neighbor tree search
- 01/2017 **Seismology Undergraduate Researcher**, University of Maryland  
– 06/2017 **Seismic Wave Travel Times of Varying Frequencies**, *Advisor: Dr. Vedan Lekic*
  - Cross-correlated observed travel times of seismic waves during the 2013 Sea of Okhotsk Earthquake with seismograms from the Preliminary Reference Earth Model (PREM) and Generalized Seismological Data Functionals (GSDF) method
  - Adapted Fourier and Gaussian wavelet analysis to filter the correlograms based on varying levels of frequency to calculate phase arrival times
  - Developed new framework for earthquake predictions with error bound estimation using significant deviations from PREM to characterize Earth's interior structure
- 09/2015 **Space Physics Intern**, Johns Hopkins University APL  
– 12/2016 **Solar Wind and IMF Activity on SAA Intensity**, *Advisor: Dr. Robert Schaefer*
  - Filtered UV spectrographic imaging from the Defense Meteorological Satellite Program (DMSP) based on photon counts and geographical, lunar and solar positions
  - Fitted photon counts in the South Atlantic Anomaly (SAA) region of Earth to a spherical harmonics model for daily SAA intensity
  - Correlated SAA intensity with solar wind speed and IMF activity from ACE

## TEACHING EXPERIENCE

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### Academic Courses

**University of California Berkeley, Department of Earth & Planetary Science (EPS)**

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|----------------|---|
| Fall<br>2021   | <b>EPS Graduate Student Grader, EPS150 – Case Studies in Earth Systems</b>  |
|                | <ul style="list-style-type: none"> <li>• Reviewed weekly manuscripts related to Earth's carbon cycle and Martian hydrology</li> <li>• Graded weekly student abstracts summarizing each research paper</li> </ul>  |
| Spring<br>2021 | <b>EPS Graduate Student Instructor, EPS50 – The Planet Earth</b>  |
|                | <ul style="list-style-type: none"> <li>• Instructed students during weekly three-hour lab sections on the study of minerals, rocks, geologic maps, and geological processes</li> <li>• Designed weekly lab assignments and created questions for midterm and final exams</li> <li>• Assisted students during weekly three-hour office hours and exam review sessions</li> </ul> |

**University of Maryland, College Park, Department of Astronomy**

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|--------------|---|
| Fall<br>2019 | <b>Astronomy Teaching Assistant, ASTR310 – Observational Astronomy</b>  |
|              | <ul style="list-style-type: none"> <li>• Directed weekly two-hour research labs on image processing and data analysis</li> <li>• Aided students during two-hour office hours with programming troubleshooting</li> <li>• Graded weekly quizzes, lab activities, exams, and research projects</li> </ul> |

**University of Maryland, College Park, Department of Physics**

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|----------------|---|
| Spring<br>2020 | <b>Physics Teaching Assistant, PHYS121 – Fundamentals of Physics I</b>  |
|                | <ul style="list-style-type: none"> <li>• Graded weekly quizzes/exams for 120 students focused on introductory physics</li> <li>• Held weekly one-hour discussion classes and two-hour office hours</li> <li>• Led two-hour lab sections using Microsoft Excel, Logger Pro, and physics demos</li> </ul>   |
| Fall<br>2019   | <b>Physics Teaching Assistant, PHYS161 – General Physics</b>  |
|                | <ul style="list-style-type: none"> <li>• Graded quizzes/exams for 120 students focused on mechanics and particle dynamics</li> <li>• Assisted students during weekly two-hour office hours and exam review sessions</li> </ul>  |
| Spring<br>2019 | <b>Python Session Instructor, PHYS205: Developing Essential Research Skills</b>   |
|                | <ul style="list-style-type: none"> <li>• Instructed Python coding sessions over two weeks to undergraduate freshmen</li> <li>• Provided an overall introduction to Python with basics of coding syntax and logic</li> <li>• Presented data science methods to visualize and analyze cosmic ray counts from the Bartol Research Institute Neutron Monitor Program</li> </ul> |
| Summer<br>2018 | <b>Arduino Program Instructor, UMD Physics Summer Girls Outreach Program</b>  |
|                | <ul style="list-style-type: none"> <li>• Led Arduino programming workshop for 60 female high school students</li> <li>• Introduced Arduino code, sensors, and circuits to monitor plant growth over 1 week</li> <li>• Presented methods to extract and visualize data for plant sustainability statistics</li> </ul>  |

### Extracurricular Instruction

**Churchville Martial Arts Academy, Churchville MD**

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|-------------------------|---|
| Spring 2016 – Fall 2019 | <b>Martial Arts Head Sensei/Instructor, Beginner &amp; Advanced Class</b>   |
|                         | <ul style="list-style-type: none"> <li>• Instructed Okinawan Shotokan Karate as a black belt sensei with over 15 years of training to over 200 students aged between 3 and 50 years old</li> <li>• Organized beginner and advanced classes, belt ranking exams, outreach events, martial arts handbooks and various supplies</li> </ul> |

## Student Mentoring

University of California Berkeley, Space Sciences Lab (SSL)

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|-------------|--|
| Spring 2025 | <b>Heliophysics Mentor, Student:</b> <i>Yuqi Zhang</i>   |
| – Present   | <ul style="list-style-type: none"> <li>• Junior undergraduate student (Berkeley International Study Program) developed <i>CME Moss</i>, a public python tool that performs general searches for spacecraft conjunctions with CME trajectories</li> </ul>   |
| Summer 2025 | <b>ASSURE REU Mentor, Student:</b> <i>Joseph Byrnes</i>  |
|             | <ul style="list-style-type: none"> <li>• Junior undergraduate student simulated spacecraft electrostatic charging in various space plasma environments using <i>SPIS</i> to support flight calibration and future mission design</li> </ul>  |
| Summer 2024 | <b>FOXSI-5 SAAS/Optics Mentor, Student:</b> <i>Danny Sun</i>   |
|             | <ul style="list-style-type: none"> <li>• Graduate student improved the SAAS instrument and performed optical alignment tests for the FOXSI-5 sounding rocket mission</li> </ul>  |
| Summer 2023 | <b>ASSURE REU Mentor, Student:</b> <i>Elyas Ahmed</i>  |
|             | <ul style="list-style-type: none"> <li>• Sophomore undergraduate utilized machine learning techniques (PySR) to characterize solar wind electron strahl scattering observed by PSP</li> <li>– Ahmed, E. et al. (2023). Machine Learning for Electron Distributions Observed by PSP. <i>AGU Fall Meeting Abstracts</i>, SH31D-3005.</li> </ul>                            |
| Summer 2022 | <b>ASSURE REU Mentor, Student:</b> <i>Kyla Giron</i>   |
|             | <ul style="list-style-type: none"> <li>• Sophomore undergraduate investigated a potential Earth to Sun connection by studying possible asymmetries in flare and CME production on the Sun</li> <li>– Giron, K. et al. (2022). Investigating a Possible Earth to Sun Connection - Can the Earth Affect the Sun. <i>AGU Fall Meeting Abstracts</i>, ED35D-0579.</li> </ul> |

University of California Berkeley, Department of Earth & Planetary Science (EPS)

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|-------------------------|---|
| Fall 2023 – Spring 2024 | <b>EPS Graduate Student Mentor, EPS Graduate Mentoring Program</b>  |
|                         | <ul style="list-style-type: none"> <li>• Mentored three first-year graduate students in the EPS department</li> <li>• Established and tracked short/long term goals for students over academic year</li> <li>• Advised on navigating graduate school, research, and networking</li> </ul> |

## SELECT AWARDS & CERTIFICATIONS

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|-------------|---|
| 2024        | <b>Certification of Heliophysics Mission Design School – NASA/JPL</b>             |
| 2023        | <b>Group Achievement Award for Parker Solar Probe Team – NASA</b>                 |
| 2023        | <b>Certification of Heliophysics Summer School – NASA/UCAR</b>                    |
| 2022        | <b>FINESST Fellowship Award (Heliophysics Division) – NASA</b>                    |
| 2022        | <b>Certification of Solar Orbiter Summer School – ESA/CNES</b>                    |
| 2022        | <b>SSL Robert P. Lin Graduate Fellowship – University of California, Berkeley</b> |
| 2022        | <b>Travel Award for SHINE 2022 Workshop – SHINE</b>                               |
| 2019        | <b>William M. MacDonald Physics Scholarship – University of Maryland</b>          |
| 2017 – 2020 | <b>Group Award for SPS Outstanding Chapter (Annual) – AIS SPS</b>                 |
| 2016 – 2020 | <b>JHU APL Academic Merit Scholarship (Annual) – JHU APL</b>                      |
| 2016 – 2020 | <b>Angelo Bardasis Physics Scholarship (Annual) – University of Maryland</b>      |

## PUBLICATIONS

37. Goodwill, J., ..., **Romeo, O. M.**, et al. (2026). Parker Solar Probe Analysis Across the Alfvénic Transition: Velocity Shear, Magnetic Deflection and Switchback Formation. *Monthly Notices of the Royal Astronomical Society*, stag242.
36. Adhikari, S., ..., **Romeo, O. M.**, et al. (2026). Characterization of the Alfvén Transition in the Young Solar Wind Using Parker Solar Probe Observations Approaching Solar Maximum. *The Astrophysical Journal*, 997(2), 259.

35. Mozer, F. S., ..., **Romeo, O. M.**, et al. (2026). On the Origin of the Dominant Waves in the Extended Solar Corona. *The Astrophysical Journal*, 997(2), 355.
34. Zaslavsky, A., **Romeo, O. M.**, Cherier, E., Larson, D. E. (2025). Radial Evolution of the Strahl Pitch-angle Width. *Astronomy & Astrophysics*, 703, A283.
33. **Romeo, O. M.**, et al. (2025). Scales of Martian crustal magnetization constrained by MAVEN, InSight, and Zhurong. *Journal of Geophysical Research: Planets*, 130, e2025JE008986.
32. Ervin, T., ..., **Romeo, O. M.**, et al. (2025). The Impact of Alfvénic Shear Flow on Magnetic Reconnection and Turbulence. *The Astrophysical Journal Letters*, 992(1), L11.
31. Pulupa, M., ..., **Romeo, O. M.**, et al. (2025). Highly Polarized Type III Storm Observed with Parker Solar Probe. *The Astrophysical Journal Letters*, 987(2), L34.
30. Phan, T., **Romeo, O. M.**, et al. (2025). Parker Solar Probe Observations of a Highly Energetic and Asymmetric Reconnecting Heliospheric Current Sheet during Encounter 13. *The Astrophysical Journal*, 986(2), 209.
29. Huang, J., ..., **Romeo, O. M.**, et al. (2025). The Temperature Anisotropy and Helium Abundance Features of Alfvénic Slow Solar Wind Observed by Parker Solar Probe, Helios, and Wind Missions. *The Astrophysical Journal Letters*, 986(2), L28.
28. Alnussirat, S. T., ..., **Romeo, O. M.**, et al. (2025). Impulsive Solar Flares in the Parker Solar Probe Era. I. Low-energy Electron, Proton, and Alpha Beams. *The Astrophysical Journal Letters*, 985(1), 19.
27. Riley, P., ..., **Romeo, O. M.**, et al. (2025). Understanding the global structure of the September 5, 2022, coronal mass ejection using sunRunner3D. *Journal of Space Weather and Space Climate*, 15, 17.
26. Muro, G. D., ..., **Romeo, O. M.**, et al. (2025). Radial Dependence of Ion Fluences in the 2023 July 17 Solar Energetic Particle Event from Parker Solar Probe to STEREO and ACE. *The Astrophysical Journal Letters*, 981(1), 8.
25. Ruffolo, D., ..., **Romeo, O. M.**, et al. (2024). Observed Fluctuation Enhancement and Departure from WKB Theory in Sub-Alfvénic Solar Wind. *The Astrophysical Journal Letters*, 977(1), L19.
24. Shaver, S. R., ..., **Romeo, O. M.**, et al. (2024). Exploring Observational Heliophysics Across All Scales: Reflections and Insights From the 2023 NASA Heliophysics Summer School. *Perspectives of Earth and Space Scientists*, 5(1), e2023CN000217.
23. Ervin, T., ..., **Romeo, O. M.**, et al. (2024). Near Subsonic Solar Wind Outflow from an Active Region. *The Astrophysical Journal*, 972(1), 129.
22. Phan, T. D., ..., **Romeo, O. M.**, et al. (2024). Multiple Subscale Magnetic Reconnection Embedded inside a Heliospheric Current Sheet Reconnection Exhaust: Evidence for Flux Rope Merging. *The Astrophysical Journal Letters*, 971(2), L42.
21. Ervin, T., ..., **Romeo, O. M.**, et al. (2024). Compositional Metrics of Fast and Slow Alfvénic Solar Wind Emerging from Coronal Holes and Their Boundaries. *The Astrophysical Journal*, 969(2), 83.
20. Cohen, C. M. S., ..., **Romeo, O. M.**, et al. (2024). Observations of the 2022 September 5 Solar Energetic Particle Event at 15 Solar Radii. *The Astrophysical Journal*, 966(2), 148.
19. Zaslavsky, A., ..., **Romeo, O. M.**, et al. (2024). Probing Turbulent Scattering Effects on Suprathermal Electrons in the Solar Wind: Modeling, Observations, and Implications. *The Astrophysical Journal*, 966(1), 60.
18. Huang, J., ..., **Romeo, O. M.**, et al. (2024). Erratum: “Parker Solar Probe Observations of High Plasma  $\beta$  Solar Wind From the Streamer Belt.” *The Astrophysical Journal Supplement Series*, 271(2), 66.
17. Eriksson, S., ..., **Romeo, O. M.**, et al. (2024). Parker Solar Probe Observations of Magnetic Reconnection Exhausts in Quiescent Plasmas near the Sun. *The Astrophysical Journal*, 965(1), 76.
16. Palmerio, E., ..., **Romeo, O. M.**, et al. (2024). On the Mesoscale Structure of Coronal Mass Ejections at Mercury’s Orbit: BepiColombo and Parker Solar Probe Observations. *The Astrophysical Journal*, 963(2), 108.
15. McManus, M. D., ..., **Romeo, O. M.**, et al. (2024). Proton- and Alpha-driven Instabilities in an Ion Cyclotron Wave Event. *The Astrophysical Journal*, 961(1), 142.
14. Mozer, F. S., ..., **Romeo, O. M.**, et al. (2023). Density Enhancement Streams in The Solar Wind. *The Astrophysical Journal Letters*, 957(2), L33.
13. Alnussirat, S. T., ..., **Romeo, O. M.**, et al. (2023). Dispersive Suprathermal Ion Events Observed by the Parker Solar Probe Mission. *The Astrophysical Journal Letters*, 954(1), L32.
12. **Romeo, O. M.**, et al. (2023). Near-Sun in situ and remote-sensing observations of a Coronal Mass Ejection and its effect on the Heliospheric Current Sheet. *The Astrophysical Journal*, 954(2), 168.

11. Huang, J., ..., **Romeo, O. M.**, et al. (2023). The Temperature, Electron, and Pressure Characteristics of Switchbacks: Parker Solar Probe Observations. *The Astrophysical Journal*, 954(2), 133.
10. Huang, J., ..., **Romeo, O. M.**, et al. (2023). The Structure and Origin of Switchbacks: Parker Solar Probe Observations. *The Astrophysical Journal*, 952(1), 33.
9. Bowen, T. A., ..., **Romeo, O. M.** (2023). Constraining Collisionless Processes in Planetary Magnetospheres. *Uranus Flagship: Investigations and Instruments for Cross-Discipline Science Workshop*, 2808, 8170.
8. Mozer, F. S., Bale, S. D., Kellogg, P., **Romeo, O. M.**, et al. (2023). Arguments for the physical nature of the triggered ion-acoustic waves observed on the Parker Solar Probe. *Physics of Plasmas*, 30(6), 062111.
7. Mozer, F. S., ..., **Romeo, O. M.**, et al. (2023). Direct observation of solar wind proton heating from in situ plasma measurements. *Astronomy & Astrophysics*, 673, L3.
6. Huang, J., ..., **Romeo, O. M.**, et al. (2023). Parker Solar Probe Observations of High Plasma  $\beta$  Solar Wind from the Streamer Belt. *The Astrophysical Journal Supplement Series*, 265(2), 47.
5. Short, B., Malaspina, D. M., Halekas, J., **Romeo, O. M.**, et al. (2022). Observations of Quiescent Solar Wind Regions with Near- $f_{ce}$  Wave Activity. *The Astrophysical Journal*, 940(1), 45.
4. McManus, M. D., ..., **Romeo, O. M.**, et al. (2022). Density and Velocity Fluctuations of Alpha Particles in Magnetic Switchbacks. *The Astrophysical Journal*, 933(1), 43.
3. Mozer, F. S., ..., **Romeo, O. M.** (2022). An Improved Technique for Measuring Plasma Density to High Frequencies on the Parker Solar Probe. *The Astrophysical Journal*, 926(2), 220.
2. Bandyopadhyay, R., ..., **Romeo, O. M.**, et al. (2022). Sub-Alfvénic Solar Wind Observed by the Parker Solar Probe: Characterization of Turbulence, Anisotropy, Intermittency, and Switchback. *The Astrophysical Journal*, 926(1), L1.
1. **Romeo, O. M.**, et al. (2021). Variability of Upstream Proton Cyclotron Wave Properties and Occurrence at Mars Observed by MAVEN. *Journal of Geophysical Research: Space Physics*, 126(2), e28616.

## PRESENTATIONS (First Author)

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### International – Oral

- 2025 American Geophysical Union Fall Meeting, *Cold Electron Distributions Observed By PSP During the March 13, 2023 CME*, New Orleans, LA, USA
- 2025 Parker Heliophysics Scholars 10th Meeting, *Cold Electron Distributions Observed By PSP During the March 13, 2023 CME*, Virtual
- 2024 American Geophysical Union Fall Meeting, *Overview of PSP Electron Observations from 10 to 100 Solar Radii*, Washington D.C., USA
- 2024 45th COSPAR Scientific Assembly, *Near-Sun In Situ & Remote Sensing Observations of a CME and its Effect on the HCS*, Busan, South Korea

### International – Poster

- 2023 American Geophysical Union Fall Meeting, *Determination and Calibration of Solar Wind Electron Moments Observed by PSP*, San Francisco CA, USA
- 2023 16th International Solar Wind Conference, *Determining the Anatomy of an ICME by Relating Remote Sensing and In Situ Observations Within 13 Rs*, Pacific Grove CA, USA
- 2022 American Geophysical Union Fall Meeting, *Characterization of Solar Wind Strahl Electron Scattering Observed by PSP*, Chicago IL, USA
- 2022 44th COSPAR Scientific Assembly, *Characterization of Strahl Electron Scattering in the Solar Wind Observed by PSP*, Athens, Greece
- 2022 Solar Orbiter Summer School, *Solar Wind Electron Distributions as Observed by PSP*, Sète, France
- 2021 American Geophysical Union Fall Meeting, *Characterization of Strahl Electron Scattering in the Solar Wind Observed by PSP*, New Orleans LA, USA
- 2019 American Geophysical Union Fall Meeting, *Solar Longitudinal Variability of Waves at the Local Proton Cyclotron Frequency*, San Francisco CA, USA

### National – Oral

- 2025 JHU/APL Parker Solar Probe Fourth Annual Conference, *Evolution of Electron Distributions During the March 13, 2023, ICME Observed by PSP*, Laurel MD, USA  
 2023 JHU/APL Parker Sixteenth Science Working Group Meeting, *CME Anatomy from Remote Sensing Observations and In-situ Measurements near 13 Rs*, Pasadena CA, USA

### National – Poster

- 2022 JHU/APL Parker Solar Probe Second Annual Conference, *Characterization of Strahl Electron Scattering in the Solar Wind Observed by PSP*, Laurel MD, USA  
 2019 AIP/Sigma Pi Sigma Physics Congress, *Seasonal Variability of Waves near the Proton Cyclotron Frequency Upstream from Mars*, Providence RI, USA  
 2019 MAVEN Project Science Group Meeting, *Seasonal Variability of Waves near the Proton Cyclotron Frequency Upstream from Mars*, Boulder CO, USA

### Institutional – Oral

- 2025 University of California, Berkeley Center for Integrative Planetary Science Seminar, *Constraining Crustal Coherence Scales of Martian Magnetism*, Berkeley CA, USA  
 2025 University of California, Berkeley Space Sciences Seminar, *Exploring the Inner Heliosphere with Novel in situ Measurements*, Berkeley CA, USA  
 2025 Parker Solar Probe Electron Working Group Meeting, *Calibration of the SPAN-E Instruments on Parker Solar Probe*, Virtual  
 2022 Space Sciences Lab Robert P. Lin Fellowship Seminar, *Electron Distribution Evolution near the Sun Observed by PSP*, Berkeley CA, USA  
 2018 University of Maryland Astronomical Observatory Open House, *Changes in Brightness for Cataclysmic Variables in Different Galactic Regions*, College Park MD, USA  
 2018 Johns Hopkins University APL Student Expo, *Data Driven Forecasting Model of Radiation Belt Intensities*, Laurel MD, USA

### Institutional – Poster

- 2019 NASA Goddard Space Flight Center Student Poster Expo, *Seasonal Variability of Waves near the Proton Cyclotron Frequency Upstream from Mars*, Greenbelt MD, USA  
 2017 University of Maryland Physics Research Showcase, *Seismic Wave Travel Times at Varying Frequencies*, College Park MD, USA  
 2016 Science and Math Academy Symposium, *Correlation of Solar Wind and IMF Activity on SAA Intensity*, Aberdeen MD, USA

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## GRANTS & CONTRACTS

### Funded

- 09/2025 – 09/2027 **The Superhalo Enigma: Characterizing Energetic Electrons in the Inner Heliosphere** (Funded by ISSI Teams) – Trotta (PI), Romeo (Collaborator)  
 08/2022 – 08/2025 **Determination of Processes that Control Electron Distribution Evolution near the Sun as Observed by PSP** (Funded by NASA FINESST) – Larson (PI), Romeo (Future Investigator)

### Under Review

- 04/2026 – 04/2028 **Multi-Scale Coherence of Martian Crustal Fields: Constraints on Dynamo History and Surface Evolution** (Funded by NASA) – Romeo (PI)  
 01/2026 – 01/2029 **Investigation of Particle Acceleration in Impulsive Solar Flares using Solar Orbiter and Parker Solar Probe Observations** (Funded by NSF) – Alnussirat (PI), Romeo (Postdoc)

06/2025 Student Electron Electrostatic analyzer (SEE): The Student Collaboration  
 – 03/2031 Instrument for HelioSwarm (Funded by NASA) – Whittlesey (PI), Romeo (Co-I)

## SERVICE & OUTREACH

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### Professional

2025	NASA ROSES Solicitation, <i>External Reviewer</i>
2024	NASA ROSES Solicitation, <i>Executive Secretary</i>
2024	The Astrophysical Journal, <i>Reviewer of 1 manuscript</i>
2024	Geophysical Research Letters, <i>Reviewer of 1 manuscript</i>
2022	The Astrophysical Journal, <i>Reviewer of 1 manuscript</i>
2022	Heliophysics 2050 Workshop: Space Physics, <i>Executive Secretary</i>
2021	AGU Fall Meeting Parker Solar Probe Session, <i>Volunteer Chair</i>
2020	Intersect: The Stanford Journal of STS, <i>Reviewer of 1 manuscript</i>

### Community

2025 – Present	California Academy of Sciences, <i>Data Analysis Volunteer</i>
2025	SSL ASSURE REU Program, <i>Poster Judge</i>
2024	California Academy of Sciences SuperNatural Event, <i>Science Volunteer</i>
2024	SSL ASSURE REU Program, <i>Poster Judge</i>
2023	SSL ASSURE REU Program, <i>Guest Speaker on Planetary Environments</i>
2022	SSL ASSURE REU Program, <i>Student Application Reviewer</i>
2022, 2023	California Academy of Sciences, <i>Science Volunteer</i>
2020	UMD SPS Group Meeting: Python Basics, <i>Lead Python Workshop Instructor</i>
2019	UMD Society of Physics Students, <i>President</i>
2019	Sigma Pi Sigma Physics Congress, <i>UMD Booth Volunteer</i>
2019	UMBC SPS National Zone 4 Meeting, <i>Lead Python Workshop Instructor</i>
2018	UMD SPS National Zone 4 Meeting, <i>Lead Arduino Workshop Instructor</i>
2017, 2018	UMD Society of Physics Students, <i>Vice President</i>

### Media Outreach

2024	Science Article Author, <i>UCB/SSL article on FOXSI-4 rocket launch</i>
2023	Press Release on <i>Romeo et al. 2023, JHU/APL article and multiple news outlets</i>

## PROFESSIONAL SKILLS

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### Programming & Software

- Python
- MATLAB
- IDL
- Julia
- Arduino
- Java
- UNIX
- Git
- HTML/CSS

### Data Methods

- Data Pipelines
- Data Visualization
- Time Series Analysis
- Signal Processing
- Machine Learning & AI
- Scientific Modeling
- Numerical & Monte Carlo Simulations
- Algorithm Development
- Statistical Methods
- Code Optimization
- Parallel Processing

### Instrumentation & Lab Experience

- Electrostatic Analyzers
- Magnetometers
- Solid State Telescopes
- Observatory Telescopes
- Oscilloscopes
- Raspberry Pi
- Vacuum Chambers
- 3D Printing
- Circuit Design & Testing
- Optics Alignment
- Magnetic Characterization
- Radioactive Sources

### **Soft Skills**

- Public Speaking
- Community Outreach
- Team Collaborations
- Team Leadership
- Student Mentorship
- Project Management
- Event Coordination
- Scientific Writing

### **Languages**

- English (Native)
  - Italian (Proficient)
  - Spanish (Beginner)
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