Laboratory for Atmospheric and Space Physics,
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# Dr. Alexandros Chasapis

## Curriculum Vitae

## Education

**Ph.D., Physics** 2015
*Laboratoire de Physique des Plasmas, Univiversité Paris-Sud*
*Doctoral School of Astronomy & Astrophysics, Observatoire de Paris*

- Title: *Study of magnetic reconnection in turbulent plasma using satellite data*
- Supervisors: Alessandro Retinò, Fouad Sahraoui, Patrick Canu

**Master 2, Astronomy & Astrophysics** 2012
*Observatoire de Paris - Univiversité Pierre & Marie Curie*

**B.S., Physics** 2011
*Deptartment of Physics, Aristotle University of Thessaloniki*

## Professional Experience

**Research Scientist II** 2019 - Present
*Laboratory of Atmospheric and Space Physics, University of Colorado Boulder*

- Developed an independent research program, engaged in teaching & supervision of students, contributed in laboratory administration and academic community leadership.
- Maintains an externally funded research program since 2021. Initial support by the Magnetospheric MultiScale and Parker Solar Probe missions.

**Postdoctoral Researcher** 2016 - 2019
*Department of Physics & Astronomy, University of Delaware*

- Expertise in multi-spacecraft techniques & *in situ* instrument data analysis. Carried out novel studies of plasma turbulence & energy dissipation in the heliosphere as a part of the Magnetospheric MultiScale mission science team.

## Scientific Publications

**Peer-reviewed publications: 66,** index: 30 (*google scholar*). Published work includes 6 first author publications, 2 undergraduate student research publications, 4 doctoral student research publications. Served as guest editor on special issue on multi-spacecraft studies of kinetic processes.

Complete list of publications & impact metrics available *here*

## Spacecraft Missions

**Plasma Observatory**

Co-Lead, Multi-point Data Analysis Methods Working Group, 2024 - 2026
Phase A Study for ESA M7 Call, *Mission Lead: Maria Federica Marcucci (INAF)*

**Parker Solar Probe**

FIELDS/DFB, *PI: David Malaspina (LASP)*, DFB data production & analysis 2018 - Present

**Magnetospheric MultiScale**

| | |
|---|---|
| FIELDS/EDP, *PI: Robert Ergun (LASP)*, scientific data analysis | 2019 - Present |
| MMS Theory & Modelling Team, *PI: William Matthaeus (U Delaware)* | 2016 - 2019 |
| FIELDS/SCM, *PI: Olivier LeContel (LPP)*, search-coil magnetometer support | 2015 - 2016 |

**CLUSTER**

| | |
|---|---|
| STAFF, *PI: Patrick Canu (LPP)*, scientific data analysis | 2012 - 2015 |

## Student Mentoring

- Developed and supervised research projects for undergraduate and doctoral students, leading to several student-authored peer-reviewed publications.
- Research Experience for Undergraduates - Boulder Solar Alliance: Mentor, 8 Week research project supervision hosted at LASP, Summer 2022

## Teaching

- ASTR 1200: *Stars & Galaxies*: Instructor of Record, 40 hours of classroom instructuon & 12 hours of obseravtory instruction, Fall 2021
- ASTR 5300: *Introduction to Magnetospheres*: Guest lecturer on Earth's Magnetosheath for Prof. David Malaspina, 2 hours of classroom instruction, March 2021
- ASTR 5140: *Astrophysical and Space Plasma*: Guest lecturer on Plasma Turbulence for Prof. Robert Ergun, 2 hours of classroom instruction, October 2019

## Academic Service

- Chaired research scientist promotion committee, served in laboratory committees on staff evaluation, acting as science representative on the diversity & climate committee as of Fall 2024.
- Member of the Local Organizing Committee for the 9th MMS Community Workshop, in Boulder, Colorado, 6-8 June 2023
- Served as convener and organizer for conference sessions & scientific workshops. Organized bi-weekly seminar series on turbulence from January 2020 to December 2022.
- Served at review panels for NASA Heliophysics Programs.
- Refereed manuscripts for high impact factor academic journals: Physical Review Letters, Geophysical Research Letters, Astrophysical Journal, Astrophysical Journal Letters, Journal of Geophysical Research: Space Physics, & Frontiers in Astronomy and Space Sciences.

## Research Projects & Grants

NASA Heliophysics Guest Investigator 2024
*Unraveling the Role of Magnetic Reconnection in Earth's Turbulent Magnetosheath*
Co-Investigator, Principal Investigator: Yi Qi (LASP)

NASA Living with a Star 2023
*The Alfvénic Slow Solar Wind Over Multiple Solar Cycles*
Co-Investigator, Principal Investigator: Jia Huang (SSL, UC Berkeley)

NASA Heliophysics Theory & Modeling 2023
*Fundamentals of Energy Conversion: The Role of Pressure-Strain Interaction in Magnetic Reconnection*
Co-Investigator, Principal Investigator: Paul Cassak, (Clemson University)

NASA Heliophysics Guest Investigator 2022
*Quantifying Energy Transfer Rates from Electromagnetic Fields to Protons and Electrons in Earth's Magnetosphere*
Principal Investigator (Formerly Co-I)

NASA Early Career Investigator Program 2021
*Comparison of Kinetic Alfvén and Whistler Turbulence in Space Plasmas with a Robust Wave Mode Identification Technique*
Principal Investigator (Former PI: Daniel Vech)

NASA MMS Early Career Award 2021
*Analysis of MMS observations of turbulence in Earth's magnetosheath*
Principal Investigator

NASA MMS Early Career Award 2020
*Study of turbulence in the solar wind using MMS observations*
Principal Investigator

NASA MMS Early Career Award 2019
*Analysis of the MMS Observations in the Solar Wind*
Principal Investigator

## Selected Publications

***Mediation of collisionless turbulent dissipation through cyclotron resonance***
T.A. Bowen, S.D. Bale, B.D.G. Chandran, A. Chasapis, et al., Nature Astronomy 8, 482–490 (2024).

***Small-scale Current Sheets and Associated Switchback Activity in the Inner Heliosphere***
S. Furman, A. Chasapis, D. Malaspina, et al., The Astrophysical Journal Letters, Volume 976, Number 1 (2024).

***Inhomogeneous Kinetic Alfvén Waves in the Near-Sun Solar Wind***
D. Malaspina, A. Chasapis, P. Tatum, et al., The Astrophysical Journal, 936:128 (2022).

***On the Solar Wind Proton Temperature Anisotropy at Mars' Orbital Location***
C. L. Lentz, A. Chasapis, R. A. Qudsi, et al., Journal of Geophysical Research: Space Physics, 126, e2021JA029438 (2021).

***Energy dissipation in turbulent reconnection***
R. Bandyopadhyay, A. Chasapis, W. H. Matthaeus, et al,. Physics of Plasmas 28 (11), 112305, (2021).

***Scaling and Anisotropy of Solar Wind Turbulence at Kinetic Scales during the MMS Turbulence Campaign***
A. Chasapis, W. H. Matthaeus, R. Bandyopadhyay, et al., The Astrophysical Journal 903 (2), 127 (2020)

***In Situ Observation of Intermittent Dissipation at Kinetic Scales in Earth's Magnetosheath***
A. Chasapis, W. H. Matthaeus, T. N. Parashar, et al., The Astrophysical Journal Letters, 856, L19, (2018).

***Energy Conversion and Collisionless Plasma Dissipation Channels in the Turbulent Magnetosheath Observed by the Magnetospheric Multiscale Mission***
A. Chasapis, Y. Yang, W. H. Matthaeus, et al., The Astrophysical Journal, 862, 32, (2018).

***Electron Heating at Kinetic Scales in Magnetosheath Turbulence***
A. Chasapis, W. H. Matthaeus, T. N. Parashar, et al., The Astrophysical Journal, 836, 247, (2017).

***High-resolution Statistics of Solar Wind Turbulence at Kinetic Scales Using the Magnetospheric Multiscale Mission***
A. Chasapis, W. H. Matthaeus,T. N.Parashar, et al., The Astrophysical Journal Letters, 844, L9, (2017).

***Thin Current Sheets and Associated Electron Heating in Turbulent Space Plasma***
A. Chasapis, A. Retinò, F. Sahraoui, et al. The Astrophysical Journal Letters, 804, L1, (2015).

## Selected Invited Oral Presentations

**The PO Multi Point and Advanced Data Analysis Methods Working Group (Invited)**
*First Plasma Observatory Community Workshop*, Agenzia Spaziale Italiana, Rome, Italy, 14 November 2024

**Understanding Collisionless Turbulent Dissipation in Earth's Magnetosheath (Invited)**
*Turbulent Energy Transfer in Space Plasmas*, Ecole Centrale de Lyon, Ecully, France, 30 August 2023

**Observations of turbulent dissipation and particle energization in near-Earth space (Invited)**
*Royal Society Theo Murphy Meeting on Turbulent Dissipation in Space Plasmas*, UK, 30 May 2023

**Scene Setting Talk for Session 3: Energy dissipation processes in space plasmas (Invited)**
*SHINE*, Honolulu, United States, July 2022

**Multi-point observations of solar wind turbulence during the MMS solar wind turbulence campaign (Invited)**, *American Geophysical Union Fall Meeting*, San Francisco, US, 19 December 2019

**Properties of Turbulence in the near-Earth Environment (Invited)**, *Particle Acceleration and Transport: from the Sun to Extragalactic Sources*, Università della Calabria, Italy, 12-16 November 2018