Savvas Raptis

Space & Plasma Physics | Data Science | Machine Learning

PERSONAL DETAILS

₩ Washington DC-Baltimore Area, MD, U	JSA
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 $\Box \qquad (+1)4435839049, (+30)697872889$

Savvas.raptis@jhuapl.edu, savvasraptis@pm.me, savvasraptis@gmail.com

% savvasraptis.github.io

in savvas-raptis

RG Savvas_Raptis

b 0000-0002-4381-3197

O SavvasRaptis

Savvas Raptis

P AAZ-9063-2020

RESEARCH EXPERIENCE

Jun 2023 - Associate Professional Staff II

Now Johns Hopkins University Applied Physics Laboratory, Laurel, Maryland, USA

Jan 2023 - Visiting Researcher

Apr 2023 European Space Agency (ESA) - ESTEC, Leiden, Netherlands

Nov 2022 - Postdoctoral Researcher

May 2023 KTH Royal Institute of Technology, Stockholm, Sweden

Oct 2018 - PhD. Researcher

Nov 2022 KTH Royal Institute of Technology, Stockholm, Sweden

EDUCATION

2022 PhD. Space and Plasma Physics

KTH Royal Institute of Technology, Stockholm, Sweden

Thesis: "High-speed jets and related phenomena at Earth's bow shock and magnetosheath" Download (English):

2018 MSc. Astronomy and Astrophysics

KU Leuven, Leuven, Belgium

<u>Thesis</u>: "Processing Solar Images to Forecast Coronal Mass Ejections using Artificial Intelligence"

Download (English): 🚨

2016 BSc. (Hons.) Physics

National and Kapodistrian University of Athens, Athens, Greece

<u>Thesis</u>: "Solar Energetic Particles: A study of their properties through measurements from ESA's SREM instrument."

Download (Greek):

TEACHING EXPERIENCE

Full Description & Examples: %

2019 – 2023 Teaching Assistant (TA) & Lecturer

KTH, Royal Institute of Technology

2022: Guest Lecturer | Collisionless Shocks | PhD course

2022: Guest Lecturer | Space Physics I | Master course (EF2240)

2021 - 2022: Guest Lecturer & TA | Space Physics I | Master course (EF2240) %

2020 - 2022: TA | Electrical Circuit Analysis | Bachelor course (EI1110) %

2020 - 2021: TA | Space Physics I | Master course (EF2240)

2019 - 2022: TA | IATEXworkshop | Bachelor course 🗞

2019: TA | Electrodynamics | Bachelor course (EI2405) %

2013 - 2015 Teacher - Mechanics/Oscillations/Waves (High School)

City of Athens, Social Tuition Center of City of Athens

Assisting High school students with their studies in school and preparation for the Panhellenic National examinations to proceed to higher education.

SUPERVISION & MANAGEMENT EXPERIENCE

2025 - 2029 GEM Focus Group Leader

- Main organizer and leader of NSF Geospace Environment Modeling (GEM) focus group %
- The topic is Multiscale Dayside Transients and their Effect on Earth's Magnetosphere and our team is planning to organize for 4 years, a series of meetings, sessions, and activities to integrate dayside phenomena into our magnetospheric modelling efforts. More information can be found online on the Wiki page

2023 – Now Convener & Chair

- Primary convener, and chair of the session "Collisionless Shocks in Heliospheric and Astrophysical Plasmas and their Effects on Planetary Magnetospheres" at American Geophysical Union (AGU) general assembly 2024 %
- Co-convener, of the session "Collisionless shocks and associated transient phenomena at Earth and beyond" at European Geophysical Union (EGU) general assembly 2024 %
- Co-convener, of the session "Dayside mesoscale transients and their impact on the magnetosphere and ionosphere" at American Geophysical Union (AGU) general assembly 2023 %
- Primary convener, and chair of the session "Dayside transient phenomena and their effects on planetary magnetospheres" at European Geophysical Union (EGU) general assembly 2023 %

2023 - Now Mentoring & Supervision

- Mentor for the European Geophysical Union (EGU) general assembly 2023 %
- Mentor of the summer internship program CIRCUIT of Johns Hopkins University %

2022 - Now Early Career Leadership Advisory Committee

American Geophysical Union (AGU)

- 2024 Now: Co-Chair of the Early Career Leadership Advisory Committee (EC-LAC) of the Physics and Aeronomy (SPA) section %
- 2022 2024: Member of the Early Career Leadership Advisory Committee (EC-LAC) of the Physics and Aeronomy (SPA) section %

SCIENTIFIC REVIEWING, EDITING & COMMUNITY SERVICE

2021 - Now Science Working Teams

- SMILE Mission (ESA/CAS) Member of Science Working Team & The Modeling Working Group (2023 Now)
- MMS Mission (NASA) Member of Science Working Team & the Energetic Particle Detector (EPD) instrument team (2023 - Now)
- MMS Mission (NASA) Member of the Electric Double Probe (EDP) instrument team (2023)

2022 - Now Grant Proposal Reviewer

- NASA Heliophysics Heliophysics Supporting Research (HSR) program
- NASA Heliophysics Guest Investigator Open (HGIO) program
- NASA Heliophysics Living with a Star Science (LWS) program

2021 - Now Journal Reviewer

- \bullet Science Advances AAAS
- Journal of Geophysical Research (JGR): Space Physics AGU/Willey
- AGU Advances AGU/Willey
- Journal of Geophysical Research (JGR): Machine Learning and Computation AGU/Willey
- Geophysical Research Letters (GRL) AGU/Willey
- Radio Science AGU/Willey
- Annales Geophysicae EGU/Copernicus Publications
- The Astrophysical Journal (ApJ) Institute of Physics (IOP)
- Astronomy and Astrophysics EDP Sciences
- Frontiers in Astronomy and Space Sciences Frontiers
- Journal of Plasma Physics Cambridge Press
- Astrophysics and Space Science Springer
- Advances in Space Research Elsevier
- \bullet Remote Sensing MDPI
- Universe MDPI
- Journal of Experimental & Theoretical Artificial Intelligence Taylor & Francis

More information: Web of Science Profile %

2024 – Now Poster Judge

- American Geophysical Union (AGU) meeting, held 9-13 December 2024 in Washington, DC,
 US Outstanding Student Presentation Awards (OSPA) Judge
- The Triennial Earth-Sun Summit (TESS), held 7-12 April 2024 in Dallas, TX, US Student Poster Judge
- Geospace Environment Modeling (GEM) workshop, held 23-28 July 2024 in Fort Collins, CO, US Student Poster Judge

2021 - Now MMS Scientist In The Loop (SITL)

SITL service work for the NASA MMS team for orbits: 1181 - 1183, 1204 - 1206, 1248 - 1250, 1284 - 1285, 1314 - 1315, 1364 - 1365, 1404 - 1407, 1600 - 1603

PUBLICATIONS

2025 [27] Raptis, S., Ahmad, L., Lindberg, M., Turner, D. L., Caprioli, D., & Burch, L. J. (2025). Revealing an unexpectedly low electron injection threshold via reinforced shock acceleration. 16(1), 488 https://doi.org/10.1038/s41467-024-55641-9 | %

- NASA HQ highlight 1-page summary: %
- Press Coverage: Northumbria University &, phys.org &, sciencedaily.com &

- Behind The Paper: Nature Portfolio %
- [26] Krämer, E., Koller, F., Suni, J., LaMoury T. A., Pöppelwerth, A., Glebe, G., Mohammed-Amin, T., **Raptis, S.**, Vuorinen, L., Weiss, S., Xirogiannopoulou, N., Archer, M., Bianco-Cano, X., Gunell. H., Hietala, H., Karlsson, T., Plaschke, F., Preisser, L., Roberts, O., Wedlund, S. C., Temmer, M., & Vörös, Z. (2025). Jets Downstream of Collisionless Shocks: Recent Discoveries and Challenges. Space Science Reviews, 221(1), 1-59 | %
- 2024 [25] Osmane, A. & **Raptis**, S. (2024). On the Formation of Super-Alfvénic Flows Downstream of Collisionless Shocks. The Astrophysical Journal, 976(1), 104. | %
 - [24] Raptis, S., Merkin, V., Ohtani, S., Gkioulidou, M., & Regoli, L. H. (2024). Plasma sheet magnetic flux transport during geomagnetic storms. Geophysical Research Letters, 51, e2024GL110839. https://doi.org/10.1029/2024GL110839 | %
 - NASA HQ highlight 1-page summary: %

 - [22] Toy-Edens, V., Mo, W., **Raptis, S.**, & Turner, D. L. (2024). Classifying 8 years of MMS dayside plasma regions via unsupervised machine learning. Journal of Geophysical Research: Space Physics, 129, e2024JA032431. https://doi.org/10.1029/2024JA032431 |
 - [21] Regoli, L. H., Gkioulidou, M., Ohtani, S., **Raptis, S.**, Mouikis, C. G., Kistler, L. M., et al. (2024). Temporal evolution of O+ population in the near-Earth plasma sheet during geomagnetic storms as observed by the magnetospheric multiscale mission. Journal of Geophysical Research: Space Physics, 129, e2023JA032203. https://doi.org/10.1029/2023JA032203
 - [20] Koller, F., **Raptis, S.**, Temmer, M., & Karlsson, T. (2024). The Effect of Fast Solar Wind on Ion Distribution Downstream of Earth's Bow Shock. The Astrophysical Journal Letters, 964(1), L5. https://doi.org/10.3847/2041-8213/ad2ddf | %
 - [19] Lindberg, M., Vaivads, A., Amano, T., Raptis, S., & Joshi, S. (2023). Electron Acceleration at Earth's Bow Shock Due to Stochastic Shock Drift Acceleration. Geophysical Research Letters, 51, e2023GL106612. https://doi.org/10.1029/2023GL106612 | %
 - [18] Zhou, Y., Raptis, S., Wang, S., Shen, C., Ren, N., & Ma, L. (2024). Magnetosheath jets at Jupiter and across the solar system. Nature Communications, 15, 4, https://doi.org/10.1038/s41467-023-43942-4 | %
 - Press Coverage: phys.org &, Astronomy Magazine &
- [17] Collinson, G., Hietala, H., Plaschke, F., Karlsson, T., Wilson, B. L., Archer, M., Battarbee, M., Bianco-Cano, X., Bertucci, C., Long, D., Opher, M., Sergis, N., Gasque, C., Liu, T., Raptis, S., Burne, S., Frahm, R., Zhang, T., & Futaana, Y. (2023). Shocklets and Short Large Amplitude Magnetic Structures (SLAMS) in the high Mach foreshock of Venus. Geo-

- physical Research Letters, 50, e2023GL104610, https://doi.org/10.1029/2023GL104610 | \upshappa
- [16] Trollvik, H., Karlsson, T., & Raptis, S. (2023). Velocity of magnetic holes in the solar wind from Cluster multipoint measurements. Ann. Geophys., 41, 327–337, https://doi.org/10.5194/angeo-41-327-2023 | %
- [15] Lindberg, M., Vaivads, A., **Raptis, S.**, & Karlsson, T. (2023). MMS observation of two-step electron acceleration at Earth's bow shock. Geophysical Research Letters, 50, e2023GL104714. https://doi.org/10.1029/2023GL104714 | %
- 2022 [14] Karlsson, T., Trollvik, H., **Raptis, S.**, Nilsson, H., & Hadi Madanian (2022). Solar wind magnetic holes can cross the bow shock and enter the magnetosheath. Ann. Geophys., 40, 687–699, doi:10.5194/angeo-40-687-2022 | %
 - [13] Pollock, C., Chen, L-J., Schwartz, S., Wang, S., Avanov, L. A., Burch, J. L., Gershman, D. J., Giles, B. L., **Raptis**, S., & Russell, C. T. (2022). Dynamics of Earth's bow shock under near-radial interplanetary magnetic field conditions. Physics of Plasmas 29, 112902 (2022) https://doi.org/10.1063/5.0089937 | %
 - [12] Raptis, S., Karlsson, T., Vaivads, A., Lindberg, M., Johlander, A., & Trollvik, H. (2022). On magnetosheath jet kinetic structure and plasma properties. Geophysical Research Letters, 49, e2022GL100678. https://doi.org/10.1029/2022GL100678 | %
 - NASA HQ highlight 1-page summary: %
 - [11] Lindberg, M., Vaivads, A., **Raptis, S.**, Lindqvist, P.-A., Giles, B. L., & Gershman, D. J. (2022). Electron kinetic entropy across quasi-perpendicular shocks. Entropy 24, 745. https://doi.org/10.3390/e24060745 | %
 - [10] Raptis, S., Karlsson, T., Vaivads, A., Pollock, C., Plaschke, F., Johlander, A., Trollvik, H., & Lindqvist, P.-A. (2022). Downstream high-speed plasma jet generation as a direct consequence of shock reformation. Nature Communications. 13, 598 https://doi.org/10.1038/s41467-022-28110-4 | & 🖺
 - Springer 2022 Highlight: Breakthrough Research Highlights: Astronomy: %
 - Editor Highlighted: Focus Astronomy and planetary science: %
 - Press Coverage: KTH , phys.org , spacedaily.com
 - Behind The Paper: Nature Portfolio %
- [9] Aminalragia-Giamini, S., **Raptis, S.**, Anastasiadis, A. A., Tsigkanos, A., Sandberg, I., Papaioannou, A., Papadimitrioy, C., Jiggens, P., Aran, A., & Daglis, I.A. (2021). Solar Energetic Particle Event occurrence prediction using Solar Flare Soft X-ray measurements with Machine Learning. Journal of Space Weather and Space Climate (JSWSC), 11, 59 https://doi.org/10.1051/swsc/2021043 |
 - [8] Karlsson, T., Raptis, S., Trollvik, H., & Nilsson, H. (2021). Classifying the magnetosheath behind the quasi-parallel and quasi-perpendicular bow shock by local measurements. Journal of Geophysical Research: Space Physics, 126, e2021JA029269. doi: 10.1029/2021JA029269 | & 🖺

- [7] Katsavrias, C., **Raptis, S**., Daglis, I. A., Karlsson, T., Georgiou, M., & Balasis, G. (2021). On the generation of Pi2 pulsations due to plasma flow patterns around magnetosheath jets. Geophysical Research Letters, 48, e2021GL093611. doi:10.1029/2021GL093611 | & 🕒
- [6] Kajdič, P., **Raptis, S.**, Blanco-Cano, X., & Karlsson, T. (2021). Causes of jets in the quasi-perpendicular magnetosheath. Geophysical Research Letters, 48, e2021GL093173. doi:10.1029/2021GL093173 | %
- [5] Palmroth, M., Raptis, S., Suni, J., Karlsson, T., Turc, L., et al., (2020). Magnetosheath jet evolution as a function of lifetime: global hybrid-Vlasov simulations compared to MMS observations. Ann. Geophys, doi: 10.5194/angeo-2020-49 | %
- Battarbee, M., Blanco-Cano, X., Turc, L., Kajdič, P., Johlander, A., Tarvus, V., Fuselier, S., Trattner, K., Alho, M., Brito, T., Ganse, U., Pfau-Kempf, Y., Akhavan-Tafti, M., Karlsson, T., **Raptis, S.**, Dubart, M., Grandin, M., Suni, J., and Palmroth, M. (2020), Helium in the Earth's foreshock: a global Vlasiator survey. Ann. Geophys., 38, 1081–1099, doi: 10.5194/angeo-38-1081-2020 | &
 - [3] Raptis, S., Karlsson, T., Plaschke, F., Kullen, A., & Lindqvist, P.-A. (2020). Classifying magnetosheath jets using MMS: Statistical properties. Journal of Geophysical Research: Space Physics, 125, e2019JA027754. doi:10.1029/2019JA027754 | %
 - [2] Raptis, S., Aminalragia-Giamini, S., Karlsson, T., & Lindberg, M. (2020). Classification of Magnetosheath Jets using Neural Networks and High Resolution OMNI (HRO) data. *Machine Learning in Heliophysics* Front. Astron. Space Sci. Space Physics, doi: 10.3389/fspas.2020.00024 | % 💆
 - [1] Yordanova, E., Vörös, Z., **Raptis, S.**, & Karlsson T. (2020). Current Sheet Statistics in the Magnetosheath. Front. Astron. Space Sci. Space Physics, doi: 10.3389/fspas.2020.00002

SEMINARS

Collisionless Shocks and Shock Generated Transients: Recent Advancements and Implications, LASP Magnetosphere Seminars - The Friends of the Magnetosphere (FOM) , 10 Sep 2024.

Reinforced Shock Acceleration of Relativistic Electrons, SolO WG IR/RS meeting, Online, 20 June 2024.

High-speed jets and related phenomena at Earth's bow shock, 40th SMILE MWG meeting, Online, 12 September 2023.

High-speed jets and related phenomena in Earth's bow shock and magnetosheath, Johns Hopkins University Applied Physics Laboratory (JHU/APL), Online, 19 August 2022.

Downstream high-speed plasma jet generation as a direct consequence of shock reformation, IRF Uppsala Seminars & Uppsala University, Uppsala, Sweden, 16 March 2022.

Magnetosheath Jets: Simulations, Data Analysis & Machine Learning, SpaceCoffee Meetings National and Kapodistrian University of Athens, Athens, Greece, 29 January 2020.

Classifying Magnetosheath Jets Using MMS: Quasi parallel & Quasi perpendicular Jets, *Third International Vlasiator Science Hackathon* University of Helsinki, Helsinki, Finland, 21 August 2019.

Forecasting CMEs using Image Processing & Neural Networks, SpaceCoffee Meetings National and Kapodistrian University of Athens, Athens, Greece, 19 December 2018.

SCIENTIFIC PRESENTATIONS

2025

"Advancements on AI for Heliophysics and Space Weather" AI for Space Applications, ASAP project meeting Stockholm, Sweden, January 28, 2025. (Invited talk) |

2024

- "Advances in Understanding Stormtime Magnetotail Dynamics" GU 2024 Fall meeting Washington DC. US December 8 13 2024 (**Invited** talk) |
- "Relativistic Electrons Energized by Reinforced Shock Acceleration" COSPAR 24 Busan, South Korea, July 14 19, 2024. (talk) | 🖹 🗗
- "Plasma Sheet Magnetic Flux Transport During Geomagnetic Storms" *GEM 24* Fort Collins, CO, US, June 23 28, 2024. (talk) |
- "Modeling Earth's Plasma Sheet Using Machine Learning" *GEM 24* Fort Collins, CO, US, June 23 28, 2024. (talk) |
- "Reinforced Shock Acceleration of Relativistic Electrons" GEM 24 Fort Collins, CO, US, June 23 28, 2024. $(talk) \mid \nearrow$
- "Evaluating the magnetic flux transport in the plasma sheet during geomagnetic storms using MMS and Geotail" EGU2024 Vienna, Austria, April 14 19, 2024. (talk) |
- "Heliophysics Education and Research using Cloud Computing" EGU2024 Vienna, Austria, April 14 19, 2024. (talk) | \square
- "Magnetic flux transport in the plasma sheet during geomagnetic storms using MMS" TESS2024 Dallas, TX, US, April 07 12, 2024. (talk) | \square \square

2023

"Transient phenomena in foreshock, shock, and magnetosheath – Expectations from large separation campaign" MMS SWT 23 Washington DC, US October 22 - 26, 2023. (talk) |

2021

"Discovering patterns, imbalanced classification & boundary surfaces in Heliophysics with artificial neural networks" DASH23 Johns Hopkins University Applied Physics Laboratory (JHU/APL), MD, US October 9 - 11, 2023. (talk) |

"Characterizing Earth's Magnetosheath and High-Speed Downstream Jets using Machine Learning" *LMAG23* Johns Hopkins University Applied Physics Laboratory (JHU/APL), MD, US August 21 - 24, 2023. (*talk*) |

"High-speed downstream jets: relevance to bow shock dynamics & evolution" IAGA23 Messe Berlin – City Cube, Berlin, Germany, July 11 - 20, 2023. (invited talk)

"Multi-mission observations of a high speed jet associated to a solar wind discontinuity" EGU2023 Vienna, Austria, April 23 - 28, 2023. (poster) | \square

"High-speed jets at Earth's magnetosheath & more" CGS weekly meetings Laurel, US, January 18, 2023. $(talk) \mid \square$

"On the discrepancies of magnetosheath jet identification and statistical properties due to different temporal resolution and plasma moment derivation" 44th COSPAR Scientific Assembly (COSPAR2022) Athens, Greece, July 16 - 24, 2022. (talk)

"Magnetosheath Jets using MMS" Swedish Space Plasma Meeting 2019 Umeå, Sweden, June 8 - 9, 2022. (talk) |

"High-speed plasma jets generated by the cyclic behavior of the Earth's bow shock" Solar Orbiter School 2022 Sete, France, May 30 - June 3, 2022. (poster) |

"Shock Reformation Generating High-speed Magnetosheath Jets" EGU2022 Vienna, Austria, May 23 - 27, 2022. (talk) |

"High-speed Downstream Plasma Jet Generated due to Shock Reformation" 8th MMS Community Workshop Daytona Beach, FL, US, May 9-13, 2022. (talk) | 🖹 🗗

"Characterization of the Earth's Magnetosheath and its Fast Plasma Flows Using Upstream Measurements and Machine Learning" Asia Oceania Geosciences Society (AOGS) 18th Anual Meeting Online, August 1-8, 2021. (virtual talk)

"Fast Plasma Flows Downstream of the Bow Shock Using MMS: Correlations and Generation Mechanisms" *EGU2021* Vienna, Austria, April 19 - 30, 2021. (*Virtual PICO*)

- "Differentiating Between Convective and Nested Structures With a Single Spacecraft" Swedish Space Plasma Meeting 2021 Kiruna, Sweden, February 1 2, 2021. (talk)
- "Magnetosheath jets using MMS: classification and generation mechanisms" 43rd COSPAR Scientific Assembly (COSPAR2021) Sydney, Australia, January 28 February 04, 2021. (talk)
- "Magnetosheath Jets Close to the Bow Shock | Generation Scenarios using MMS" mini-GEM - Collisionless Shock Group Online January 19, 2021. (invited virtual talk) | 🔁 🖻
- "Jets Downstream of Quasi-parallel and Quasi-perpendicular Bow Shock" MMS FALL SWT 2020 Online October 08, 2020. (Virtual talk) |
- "Classification of Magnetosheath Jets using Neural Networks, Solar Wind Observations and High-resolution IMF Measurements" Sixteenth European Space Weather Week (ESWW16) Liege, Belgium, November 18-22, 2019. (poster)
- "Creation & Classification of Magnetosheath Jet Database using Magnetospheric Multiscale (MMS) mission" Sixteenth European Space Weather Week (ESWW16) Liege, Belgium, November 18-22, 2019. (poster)
- "Classification of Magnetosheath Jets using Neural Networks and High Resolution OMNI (HRO) data" *Machine Learning in Heliophysics* Amsterdam, Netherlands, September 16-20, 2019. (talk) | 量 译
- "Deep Learning Applications in Space & Solar Physics" Solar Physics Summer School at Raman Science Center Leh, India, June 10-16, 2019. (poster)
- "Investigation of Quasi-parallel & Quasi-perpendicular Magnetosheath Jets Using Magnetospheric Multiscale (MMS)" EGU General Assembly 2019 Vienna, Austria, April 7-12, 2019. (talk) |
- "Difference between Quasi-parallel & Quasi-perpendicular Magnetosheath Jets Using MMS" SRS (Svenska Rymdforskares Samarbetsgrupp) 2019 Gothenburg, Sweden, March 14-15, 2019. (poster)
- "Quasi-parallel & Quasi-perpendicular Magnetosheath Jets Using MMS" Swedish Space Plasma Meeting 2019 Uppsala, Sweden, February 7-8, 2019. (talk) |
- "Processing Solar Images to forecast Coronal Mass Ejections using Artificial Intelligence" Fifteenth European Space Weather Week (ESWW15) Leuven, Belgium, November 5-9, 2018. (poster)

2020

2019

2018

SUMMER SCHOOLS & WORKSHOPS

2022 Solar Orbiter School

2021

CCSD, Sète, France

Course - Summer School | 30 May - 03 June 2022.

 $\underline{ \text{Presentation topic: } \textit{High-speed plasma jets generated by the cyclic behavior of the Earth's bow} \\ \underline{ \textit{shock}}$

Polar Magnetospheric Substorms

UNIS, Svalbarad, Norway

Course - Winter School | 26 November - 07 December 2021.

Presentation topic: Magnetosheath Jets Formation & Basic Properties using MMS

14s Iberian Space Science Summer School

University of Coimbra, Coimbra, Portugal

Summer school | 26 – 30 July 2021.

2020 Solar-Stellar Connection STFC Summer School

University of Warwick, Warwick, UK

Summer school | 14 – 18 September 2020. %

Presentation topic: Magnetosheath Jets

STFC Introductory Solar System Plasmas Summer School

University of Birmingham, Birmingham, UK

Summer school | 24 – 27 August 2020. %

NASA Heliophysics Summer School

UCAR, Boulder, CO, USA

Summer school | 6 - 17 July 2020.

Presentation topic: Magnetosheath Jets using Magnetospheric Multiscale (MMS) Mission

2019 Solar Physics Summer School

Raman Science Center, Indian Institute of Astrophysics, Leh, India

Summer school | 10 - 16 June 2019.

Presentation topic: Deep Learning Applications in Space & Solar Physics

2018 CESRA Summer School

Royal Observatory of Belgium, Brussels, Belgium

Summer school | 10 - 14 September 2018.

Presentation topic: Forecasting Coronal Mass Ejections using Artificial Intelligence

2017 Intensive Week on Numerical Modeling in Astrophysics

University of Cologne, Cologne, Germany

Summer school | 11 - 16 September 2017. %

2016 BCGS Summer School in Physics and Astronomy

BCGS, Bad Honnef, Germany

Summer school | 22 - 26 Aughust 2016. %

Presentation topic: Is there a quantum computer? The D-Wave controversy

2015 Petnica Summer Institute: Astrophysics and Astroparticles

Petnica Science Center, Valjevo, Serbia

Summer school | 24 July - 2 August 2015.

Presentation topic: Limb Darkening

DISTINCTIONS, AWARDS & MERITS

Springer Nature 2022 Astronomy Highlight

Springer Nature, Berlin, Germany

Our work "Downstream high-speed plasma jet generation as a direct consequence of shock reformation" has been featured as one of the nine articles of 2022's highlighted research in Astronomy. \P

2022 – 2024 ISSI International Team 555

International Space Science Institute, Bern, Switzerland

Early-career researcher of ISSI team "Impact of Upstream Mesoscale Transients on the Near-Earth Environment". \S

Outstanding contribution - ESA Cluster mission

European Space Agency (ESA) - ESTEC, Leiden, Netherlands Recognition of outstanding contribution to the Cluster mission

2019 – 2022 ISSI International Team 465

2023

International Space Science Institute, Bern, Switzerland

Early-career researcher of ISSI team "Foreshocks Across the Heliosphere: System Specific or Universal Physical Processes?". %

2016 – 2018 Student Representative – Committee of Msc. Astronomy and Astrophysics KU Leuven, Leuven, Belgium

Student representative in the facility committee of the Master of Astronomy and Astrophysics - Permanente Onderwijscommissie (POC).

SKILLS

Languages Greek (Native), English (Excellent), French (Good) Programming Python, MATLAB, R, C++, IDL, JavaScript, SQL

Software IATEX, git, Inkcape, ParaView, VisIt

ML tools Tensorflow, Keras, Scikit-learn, Pytorch, SciANN

Hobbies Classical guitar, fitness, video games

GRANTS, FUNDINGS & SCHOLARSHIPS

- MMS Early CAREER grant 2025: Kinetic Processes and Particle Energization of Downstream Highspeed Jets using Magnetospheric Multiscale mission (**Pi-I**). Funding Acquisition: \$125,000
- GEM NSF 2022: Explorative Global-To Kinetic-Scale Modeling of Collisionless Shocks Using Physics-Informed Data Mining and Machine Learning (Contributor/Collaborator)

REFERENCES

Drew Turner | Applied Physics Laboratory, Johns Hopkins University, ☑: Drew.Turner@jhuapl.edu
Tomas Karlsson | KTH Royal Institute of Technology, ☑: tomask@kth.se
Slava Merkin | Applied Physics Laboratory, Johns Hopkins University, ☑: Slava.Merkin@jhuapl.edu
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