

# PAWEŁ SWACZYNA – CV

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Associate Research Scholar  
Department of Astrophysical Sciences  
Princeton University

Address: 171 Broadmead St | Princeton NJ 08540 | USA  
E-mail: swaczyna@princeton.edu  
Phone: +1 (609) 258-8482

## RESEARCH INTERESTS

Interaction of the solar wind with the very local interstellar medium, structure of the global heliosphere, interstellar neutral atoms in the heliosphere, interstellar pickup ions, energetic neutral atoms from the heliosphere and interstellar medium, interstellar clouds near the Sun.

## EDUCATION

March 2018 **Ph.D. in Physical Sciences** in the branch of Geophysics  
Space Research Centre of the Polish Academy of Sciences (CBK PAN), Warsaw, Poland

July 2013 **M.Sc. in Physics** with major in Theoretical physics, *summa cum laude*  
Faculty of Physics, University of Warsaw, Poland

September 2011 **B.Sc. in Physics**  
Faculty of Physics, University of Warsaw, Poland

## RESEARCH EXPERIENCE

2020 – present **Associate Research Scholar**  
Department of Astrophysical Sciences, Princeton University, USA

2018 – 2020 **Postdoctoral Research Associate**  
Department of Astrophysical Sciences, Princeton University, USA

2016 – 2018 **Research Assistant**  
Space Research Centre of the Polish Academy of Sciences (CBK PAN), Warsaw, Poland

2011 – 2016 **Graduate Student Researcher**  
Space Research Centre of the Polish Academy of Sciences (CBK PAN), Warsaw, Poland

## SHORT-TERM RESEARCH VISITS

February 2022 University of New Hampshire, Durham, NH, USA

March 2022 Southwest Research Institute, San Antonio, TX, USA

## RESEARCH PROJECTS

2021 – 2024 **Co-I**, *Mapping the Heliospheric Termination Shock with IBEX Observations and Modeling*  
(Grant No. 80NSSC21K1686, PI: Eric J. Zirnstein)  
NASA Heliophysics Supporting Research Program (ROSES-2020)

2021 – 2023 **Team Leader**, International Space Science Institute (ISSI) International Team #541,  
*Distribution of Interstellar Neutral Hydrogen in the Sun's Neighborhood*

2021 – 2023 **PI**, *Separation and Time-evolution of the Ribbon ENA Source Observed by IBEX*  
(Grant No. 80NSSC21K0582)  
NASA Heliophysics Guest Investigator "Open" Program (ROSES-2020)

2020 – 2023 **PI**, *Angular Scattering of Neutral Atoms: Observations and Interpretation from IBEX and Consequences for IMAP* (Grant No. 80NSSC20K0781)  
NASA Outer Heliosphere Guest Investigators Program (ROSES-2019)

## MISSION AND INSTRUMENT EXPERIENCE

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- Interstellar Boundary Explorer (IBEX): IBEX-Lo
- New Horizons: Solar Wind Around Pluto (SWAP)
- Interstellar Mapping and Acceleration Probe (IMAP): IMAP-Lo, Solar Wind and Pickup Ions (SWAPI)

## AWARDS AND HONORS

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- The START stipend from the Foundation for Polish Science (FNP) with distinction from the Prof. Adam Sobiczewski Fund, Warsaw, May 2017
- Outstanding Student Paper Award for the talk presented at the 2015 AGU Fall Meeting, San Francisco, December 2016
- The Polish Physical Society Arkadiusz Piekara Award for an outstanding master's thesis, Warsaw, December 2014
- Outstanding Student Poster Award for the poster presented at the European Geosciences Union 2014 General Assembly, Vienna, October 2014
- The Joanna and Jerzy Glazer Award for the best master's thesis prepared in the academic year 2012/2013 at the Faculty of Physics, University of Warsaw, March 2014
- The Minister of Science and Higher Education Scholarship for outstanding achievement for the academic year 2012/2013, Warsaw, December 2012

## SERVICE AND OTHER ACTIVITIES

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- Primary convenor of session SH016 *Interstellar Medium Traces in the Time-Varying Heliosphere* at AGU Fall Meeting 2022.
- Chair of the Ph.D. Students' Government in SRC PAS (Oct. 2014 – Sept. 2016).
- Voluntary tutor on science workshops in Astronomy and Physics for gifted high school students organized by the Polish Children's Fund.
- Reviewer for *The Astrophysical Journal*, *The Astrophysical Journal Letters*, and *The European Physical Journal Plus*, *Astronomy* (ISSN 2674-0346).
- Reviewer and member for NASA ROSES panels.

## INVITED TALKS

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- *Interstellar Neutral Atom Observations from 1 au to the Very Local Interstellar Medium*, **AGU Fall Meeting 2021**, 13 – 17 Dec 2021, New Orleans, LA, USA
- *Local Interstellar Medium Probed by Neutral Atom Observations*, **40<sup>th</sup> Polish Astronomical Society Meeting**, 13 – 17 Sept 2021, Virtual, Szczecin, Poland
- *The heliosphere and the very local interstellar medium revealed by neutral atom observations with IBEX*, **43<sup>rd</sup> COSPAR Assembly**, 28 Jan – 4 Feb 2021, Hybrid, Sydney, Australia
- *SWAP Measurement of Interstellar Hydrogen Density from Pickup Ion Observations*, **New Horizons Science Team Meeting #45**, 19 May 2020, Virtual

- *Helium Energetic Neutral Atoms – a New Perspective for Heliospheric and Extraheliospheric Observations with IMAP*, **AGU Fall Meeting 2015**, 14–18 Dec 2015, San Francisco, CA, USA

## MEDIA HIGHLIGHTS

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- *New Evidence Our Neighborhood in Space Is Stuffed With Hydrogen* (October 30, 2020)  
<https://www.nasa.gov/feature/goddard/2020/new-evidence-our-neighborhood-in-space-is-stuffed-with-hydrogen>
- *Tajemnicza Ciepła Bryza potwierdza deformację heliosfery* (April 27, 2016)  
(in Polish, *Mysterious Warm Breeze Confirms Deformation of the Heliosphere*)  
<https://naukawpolsce.pap.pl/aktualnosci/news%2C409418%2Ctajemnicza-ciepła-bryza-potwierdza-deformacje-heliosfery.html>

## PUBLICATIONS

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– in press –

- [46] E. J. Zirnststein, B. L. Shrestha, D. J. McComas, M. A. Dayeh, J. Heerikhuisen, D. B. Reisenfeld, J. M. Sokół, P. Swaczyna, *Oblique and rippled heliosphere structures from the Interstellar Boundary Explorer*, **Nat. Astron.**, in press

– 2022 –

- [45] E. J. Zirnststein, T. K. Kim, M. A. Dayeh, J. S. Rankin, D. J. McComas, P. Swaczyna, *Explanation of Heliospheric Energetic Neutral Atom Fluxes Observed by the Interstellar Boundary Explorer*, **Astrophys. J. Lett.**, 937 (2022), L38
- [44] P. Swaczyna, N. A. Schwadron, E. Möbius, M. Bzowski, P. C. Frisch, J. L. Linsky, D. J. McComas, F. Rahmanifard, S. Redfield, R. M. Winslow, B. E. Wood, G. P. Zank, *Mixing Interstellar Clouds Surrounding the Sun*, **Astrophys. J. Lett.**, 937 (2022), L32
- [43] A. Galli, P. Wurz, N. A. Schwadron, K. Fairchild, D. Heirtzler, E. Möbius, H. Kucharek, R. Winslow, M. Bzowski, M. A. Kubiak, I. Kowalska-Leszczyńska, S. A. Fuselier, J. M. Sokół, P. Swaczyna, D. J. McComas, *One Solar Cycle of Heliosphere Observations with the Interstellar Boundary Explorer: Energetic Neutral Hydrogen Atoms Observed with IBEX-Lo from 10 eV to 2 keV*, **Astrophys. J. Suppl. Ser.**, 261 (2022), 18
- [42] D. J. McComas, B. L. Shrestha, P. Swaczyna, J. S. Rankin, S. E. Weidner, E. J. Zirnststein, H. A. Elliott, K. N. Singer, J. Spencer, S. A. Stern, H. A. Weaver, *First High-resolution Observations of Interstellar Pickup Ion Mediated Shocks in the Outer Heliosphere*, **Astrophys. J.**, 934 (2022), 147
- [41] A. Galli, I. I. Baliukin, M. Bzowski, V. V. Izmodenov, M. Kornbleuth, H. Kucharek, E. Möbius, M. Opher, D. Reisenfeld, N. A. Schwadron, P. Swaczyna, *The Heliosphere and Local Interstellar Medium from Neutral Atom Observations at Energies Below 10 keV*, **Space Sci. Rev.**, 218 (2022), 31
- [40] E. J. Zirnststein, E. Möbius, M. Zhang, J. Bower, H. A. Elliott, D. J. McComas, N. V. Pogorelov, P. Swaczyna, *In Situ Observations of Interstellar Pickup Ions from 1 au to the Outer Heliosphere*, **Space Sci. Rev.**, 218 (2022), 28
- [39] P. Swaczyna, M. A. Kubiak, M. Bzowski, J. Bower, S. A. Fuselier, A. Galli, D. Heirtzler, D. J. McComas, E. Möbius, F. Rahmanifard, N. A. Schwadron, *Very Local Interstellar Medium Revealed by Complete Solar Cycle of Interstellar Neutral Helium Observations with IBEX*, **Astrophys. J. Suppl. Ser.**, 259 (2022), 42
- [38] N. A. Schwadron, E. Möbius, D. J. McComas, J. Bower, M. Bzowski, S. A. Fuselier, D. Heirtzler, M. A. Kubiak, M. A. Lee, F. Rahmanifard, J. M. Sokół, P. Swaczyna, R. Winslow, *Interstellar Neutral He Parameters from*

*Crossing Parameter Tubes with the Interstellar Mapping and Acceleration Probe Informed by 10 yr of Interstellar Boundary Explorer Observations*, **Astrophys. J. Suppl. Ser.**, 258 (2022), 7

- [37] P. Swaczyna, T. J. Eddy, E. J. Zirnstein, M. A. Dayeh, D. J. McComas, H. O. Funsten, N. A. Schwadron, *IBEX Ribbon Separation Using Spherical Harmonic Decomposition of the Globally Distributed Flux*, **Astrophys. J. Suppl. Ser.**, 258 (2022), 6

- 2021 -

- [36] D. J. McComas, P. Swaczyna, J. R. Szalay, E. J. Zirnstein, J. S. Rankin, H. A. Elliott, K. Singer, J. Spencer, S. A. Stern, H. Weaver, *Interstellar Pickup Ion observations halfway to the Termination Shock*, **Astrophys. J. Suppl. Ser.**, 254 (2021), 19
- [35] P. Swaczyna, F. Rahmanifard, E. J. Zirnstein, D. J. McComas, J. Heerikhuisen, *Slowdown and Heating of Interstellar Neutral Helium by Elastic Collisions beyond the Heliopause*, **Astrophys. J. Lett.**, 911 (2021), L36
- [34] E. J. Zirnstein, M. A. Dayeh, J. Heerikhuisen, D. J. McComas, P. Swaczyna, *Heliosheath Proton Distribution in the Plasma Reference Frame*, **Astrophys. J. Suppl. Ser.**, 252 (2021), 26

- 2020 -

- [33] P. Swaczyna, D. J. McComas, E. J. Zirnstein, J. M. Sokół, H. A. Elliott, M. Bzowski, M. A. Kubiak, J. D. Richardson, I. Kowalska-Leszczynska, S. A. Stern, H. A. Weaver, C. B. Olkin, K. N. Singer, J. R. Spencer, *Density of Neutral Hydrogen in the Sun's Interstellar Neighborhood*, **Astrophys. J.**, 903 (2020), 48

- 2019 -

- [32] P. Swaczyna, D. J. McComas, E. J. Zirnstein, J. Heerikhuisen, *Angular Scattering in Charge Exchange: Issues and Implications for Secondary Interstellar Hydrogen*, **Astrophys. J.**, 887 (2019), 223
- [31] D. J. McComas, J. S. Rankin, N. A. Schwadron, P. Swaczyna, *Termination Shock Measured by Voyagers and IBEX*, **Astrophys. J.**, 884 (2019), 145
- [30] M. Bzowski, A. Czechowski, P. C. Frisch, S. A. Fuselier, A. Galli, J. Grygorczuk, J. Heerikhuisen, M. A. Kubiak, H. Kucharek, D. J. McComas, E. Möbius, N. A. Schwadron, J. Slavin, J. M. Sokół, P. Swaczyna, P. Wurz, E. J. Zirnstein, *Interstellar Neutral Helium in the Heliosphere from IBEX Observations. VI. The He<sup>+</sup> Density and the Ionization State in the Very Local Interstellar Matter*, **Astrophys. J.**, 882 (2019), 60
- [29] E. J. Zirnstein, P. Swaczyna, D. J. McComas, J. Heerikhuisen, *Parallax of the IBEX Ribbon Indicates a Spatially-Retained Source*, **Astrophys. J.**, 879 (2019), 106
- [28] E. J. Zirnstein, D. J. McComas, N. A. Schwadron, M. A. Dayeh, J. Heerikhuisen, P. Swaczyna, *Strong Scattering of ~keV Pickup Ions in the Local Interstellar Magnetic Field Draped Around Our Heliosphere: Implications for the IBEX Ribbon's Source and IMAP*, **Astrophys. J.**, 876 (2019), 92
- [27] P. Swaczyna, D. J. McComas, E. J. Zirnstein, *He<sup>+</sup> Ions Co-moving with the Solar Wind in the Outer Heliosphere*, **Astrophys. J.**, 875 (2019), 36
- [26] P. Swaczyna, D. J. McComas, N. A. Schwadron, *Non-equilibrium Distributions of Interstellar Neutrals and the Temperature of the Local Interstellar Medium*, **Astrophys. J.**, 871 (2019), 254
- [25] A. Galli, P. Wurz, F. Rahmanifard, E. Möbius, N. A. Schwadron, H. Kucharek, D. Heirtzler, K. Fairchild, M. Bzowski, M. A. Kubiak, I. Kowalska-Leszczynska, J. M. Sokół, S. A. Fuselier, P. Swaczyna, D. J. McComas, *Model-free maps of interstellar neutral hydrogen measured with IBEX between 2009 and 2018*, **Astrophys. J.**, 871 (2019), 52

- 2018 -

- [24] N. A. Schwadron, F. Allegrini, M. Bzowski, E. R. Christian, M. A. Dayeh, M. I. Desai, K. Fairchild, P. C. Frisch, H. O. Funsten, S. A. Fuselier, A. Galli, P. Janzen, M. A. Kubiak, D. J. McComas, E. Moebius, D. B. Reisenfeld, J. M. Sokół, P. Swaczyna, J. R. Szalay, P. Wurz, E. J. Zirnstein, *Time Dependence of the IBEX Ribbon and the Globally Distributed Energetic Neutral Atom Flux Using the First 9 Years of Observations*, **Astrophys. J. Suppl. Ser.**, 239 (2018), 1
- [23] D. J. McComas, E. R. Christian, N. A. Schwadron, N. Fox, J. Westlake, F. Allegrini, D. N. Baker, D. Biesecker, M. Bzowski, G. Clark, C. M. S. Cohen, I. Cohen, M. A. Dayeh, R. Decker, G. A. de Nolfo, M. I. Desai, R. W. Ebert, H. A. Elliott, H. Fahr, P. C. Frisch, H. O. Funsten, S. A. Fuselier, A. Galli, A. B. Galvin, J. Giacalone, M. Gkioulidou, F. Guo, M. Horanyi, P. Isenberg, P. Janzen, L. M. Kistler, K. Korreck, M. A. Kubiak, H. Kucharek, B. A. Larsen, R. A. Leske, N. Lugaz, J. Luhmann, W. Matthaeus, D. Mitchell, E. Möbius, K. Ogasawara, D. B. Reisenfeld, J. D. Richardson, C. T. Russell, J. M. Sokół, H. E. Spence, R. Skoug, Z. Sternovsky, P. Swaczyna, J. R. Szalay, M. Tokumaru, M. E. Wiedenbeck, P. Wurz, G. P. Zank, E. J. Zirnstein, *Interstellar Mapping and Acceleration Probe (IMAP): A New NASA Mission*, **Space Sci. Rev.**, 214 (2018), 116
- [22] P. Swaczyna, M. Bzowski, M. A. Kubiak, J. M. Sokół, S. A. Fuselier, A. Galli, D. Heirtzler, H. Kucharek, D. J. McComas, E. Möbius, N. A. Schwadron, P. Wurz, *Interstellar neutral helium in the heliosphere from IBEX observations. V. Observations in IBEX-Lo ESA steps 1, 2, & 3*, **Astrophys. J.**, 854 (2018), 119

- 2017 -

- [21] P. Swaczyna & M. Bzowski, *Modeling Emission of Heavy Energetic Neutral Atoms from the Heliosphere*, **Astrophys. J.**, 846 (2017), 128
- [20] P. Swaczyna, S. Grzedzielski, M. Bzowski, *Helium Energetic Neutral Atoms from the Heliosphere: Perspectives for Future Observations*, **Astrophys. J.**, 840 (2017), 75

- 2016 -

- [19] P. Swaczyna, M. Bzowski, J. M. Sokół, *The Energy-dependent Position of the IBEX Ribbon Due to the Solar Wind Structure*, **Astrophys. J.**, 827 (2016), 71
- [18] P. Swaczyna, M. Bzowski, E. R. Christian, H. O. Funsten, D. J. McComas, N. A. Schwadron, *Distance to the IBEX Ribbon Source Inferred from Parallax*, **Astrophys. J.**, 823 (2016), 119
- [17] M. A. Kubiak, P. Swaczyna, M. Bzowski, J. M. Sokół, S. A. Fuselier, A. Galli, D. Heirtzler, H. Kucharek, T. W. Leonard, D. J. McComas, E. Möbius, J. Park, N. A. Schwadron, P. Wurz, *Interstellar Neutral Helium in the Heliosphere from IBEX Observations. IV. Flow Vector, Mach Number, and Abundance of the Warm Breeze*, **Astrophys. J. Suppl. Ser.**, 223 (2016), 25

- 2015 -

- [16] A. Galli, P. Wurz, J. Park, H. Kucharek, E. Möbius, N. A. Schwadron, J. M. Sokół, M. Bzowski, M. A. Kubiak, P. Swaczyna, S. A. Fuselier, D. J. McComas, *Can IBEX Detect Interstellar Neutral Helium or Oxygen from Anti-ram Directions?*, **Astrophys. J. Suppl. Ser.**, 220 (2015), 30
- [15] J. M. Sokół, M. Bzowski, M. A. Kubiak, P. Swaczyna, A. Galli, P. Wurz, E. Möbius, H. Kucharek, S. A. Fuselier, D. J. McComas, *The Interstellar Neutral He Haze in the Heliosphere: What Can We Learn?*, **Astrophys. J. Suppl. Ser.**, 220 (2015), 29
- [14] M. Bzowski, P. Swaczyna, M. A. Kubiak, J. M. Sokół, S. A. Fuselier, A. Galli, D. Heirtzler, H. Kucharek, T. W. Leonard, D. J. McComas, E. Möbius, N. A. Schwadron, P. Wurz, *Interstellar Neutral Helium in the Heliosphere from IBEX Observations. III. Mach Number of the Flow, Velocity Vector, and Temperature from the First Six Years of Measurements*, **Astrophys. J. Suppl. Ser.**, 220 (2015), 28

- [13] J. M. Sokół, M. A. Kubiak, M. Bzowski, P. Swaczyna, *Interstellar Neutral Helium in the Heliosphere from IBEX Observations. II. The Warsaw Test Particle Model (WTPM)*, **Astrophys. J. Suppl. Ser.**, 220 (2015), 27
- [12] P. Swaczyna, M. Bzowski, M. A. Kubiak, J. M. Sokół, S. A. Fuselier, D. Heirtzler, H. Kucharek, T. W. Leonard, D. J. McComas, E. Möbius, N. A. Schwadron, *Interstellar Neutral Helium in the Heliosphere from IBEX Observations. I. Uncertainties and Backgrounds in the Data and Parameter Determination Method*, **Astrophys. J. Suppl. Ser.**, 220 (2015), 26
- [11] N. A. Schwadron, E. Möbius, T. Leonard, S. A. Fuselier, D. J. McComas, D. Heirtzler, H. Kucharek, F. Rahmanifard, M. Bzowski, M. A. Kubiak, J. M. Sokół, P. Swaczyna, P. Frisch, *Determination of Interstellar He Parameters Using Five Years of Data from the IBEX – Beyond Closed Form Approximations*, **Astrophys. J. Suppl. Ser.**, 220 (2015), 25
- [10] E. Möbius, M. Bzowski, P. C. Frisch, S. A. Fuselier, D. Heirtzler, M. A. Kubiak, H. Kucharek, M. A. Lee, T. Leonard, D. J. McComas, N. A. Schwadron, J. M. Sokół, P. Swaczyna, P. Wurz, *Interstellar Flow and Temperature Determination with IBEX: Robustness and Sensitivity to Systematic Effects*, **Astrophys. J. Suppl. Ser.**, 220 (2015), 24
- [9] D. J. McComas, M. Bzowski, S. A. Fuselier, P. C. Frisch, A. Galli, V. V. Izmodenov, O. A. Katushkina, M. A. Kubiak, M. A. Lee, T. W. Leonard, E. Möbius, N. A. Schwadron, J. M. Sokół, P. Swaczyna, B. E. Wood, P. Wurz, *Local Interstellar Medium: Six Years of Direct Sampling by IBEX*, **Astrophys. J. Suppl. Ser.**, 220 (2015), 22
- [8] J. M. Sokół, P. Swaczyna, M. Bzowski, M. Tokumaru, *Reconstruction of heliolatitudinal structure of the solar wind proton speed and density*, **Sol. Phys.**, 290 (2015) 9, 2589
- [7] D. J. McComas, M. Bzowski, P. Frisch, S. A. Fuselier, M. A. Kubiak, H. Kucharek, T. Leonard, E. Möbius, N. A. Schwadron, J. M. Sokół, P. Swaczyna, M. Witte, *Warmer Local Interstellar Medium: a possible resolution of the Ulysses-IBEX enigma*, **Astrophys. J.**, 801 (2015), 28
- 2014 -
- [6] M. A. Kubiak, M. Bzowski, J. M. Sokół, P. Swaczyna, S. Grzedzielski, D. B. Alexashov, V. V. Izmodenov, E. Möbius, T. Leonard, S. Fuselier, P. Wurz, D. J. McComas, *Warm Breeze from the starboard bow: a new population of neutral helium in the heliosphere*, **Astrophys. J. Suppl. Ser.**, 213 (2014), 29
- [5] S. Grzedzielski, P. Swaczyna, A. Czechowski, M. Hilchenbach, *Solar wind He pickup ions as source of tens-of-keV/n neutral He atoms observed by the HSTOF/SOHO detector*, **Astron. Astrophys.**, 563 (2014), A134
- [4] P. Swaczyna, S. Grzedzielski, M. Bzowski, *Assessment of energetic neutral He atom intensities expected from the IBEX Ribbon*, **Astrophys. J.**, 782 (2014), 106
- 2013 -
- [3] M. Krawczyk, D. Sokołowska, P. Swaczyna, B. Świeżewska, *Constraining Inert Dark Matter by R<sub>γ</sub> and WMAP data*, **J. High Energy Phys.**, 09 (2013), 055
- [2] S. Grzedzielski, P. Swaczyna, M. Bzowski, *Heavy coronal ions in the heliosphere: II. Expected fluxes of energetic neutral He atoms from the heliosheath*, **Astron. Astrophys.**, 549 (2013), A76
- 2012 -
- [1] I. S. Stachlewska, M. Piątlowski, S. Migacz, A. Szkop, A. J. Zielińska, P. Swaczyna, *Ceilmeter observations of the boundary layer over Warsaw, Poland*, **Acta Geophys.**, 60 (2012) 5, 1386

## CONFERENCE TALKS AND POSTERS – PRESENTING AUTHOR

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– 2022 –

P. Swaczyna, H. O. Funsten, N. A. Schwadron, M. A. Dayeh, E. J. Zirnstein, D. J. McComas, *Spherical Harmonic Decomposition of Energetic Neutral Atom Sources Observed by IBEX*, talk D1.4-0004-22, **44<sup>th</sup> COSPAR Assembly**, 16 – 24 July 2022, Athens, Greece

P. Swaczyna, N. A. Schwadron, E. Möbius, M. Bzowski, P. C. Frisch, J. L. Linsky, D. J. McComas, F. Rahmanifard, S. Redfield, R. M. Winslow, B. E. Wood, G. P. Zank, *Mixed interstellar clouds surrounding the Sun*, talk, **IBEX/IMAP Science Team Meeting**, 13 – 17 June 2022, Laurel, MD, USA

P. Swaczyna, et al., *Spherical harmonic representation and decomposition of ENA flux maps*, talk, **IBEX/IMAP Science Team Meeting**, 13 – 17 June 2022, Laurel, MD, USA

P. Swaczyna, M. Bzowski, S. A. Fuselier, A. Galli, J. Heerikhuisen, M. A. Kubiak, D. J. McComas, E. Möbius, F. Rahmanifard, N. A. Schwadron, E. J. Zirnstein, *Filtration and Scattering of Interstellar Neutral Helium beyond the Heliopause*, talk EGU22-6502, **EGU General Assembly 2022**, 23 – 27 May 2022, Vienna, Austria

– 2021 –

P. Swaczyna, J. Bower, M. Bzowski, S. A. Fuselier, A. Galli, J. Heerikhuisen, D. Heertzler, M. A. Kubiak, D. J. McComas, E. Möbius, F. Rahmanifard, N. A. Schwadron, E. J. Zirnstein, *Complete Solar Cycle Observations of Interstellar Neutral Helium with IBEX: Consequences of Modulation in Heliospheric Boundaries*, talk SH21B-07, **AGU Fall Meeting 2021**, 13 – 17 Dec 2021, New Orleans, LA, USA

P. Swaczyna, *Interstellar Neutral Atom Observations from 1 au to the Very Local Interstellar Medium*, invited talk SH11B-03, **AGU Fall Meeting 2021**, 13 – 17 Dec 2021, New Orleans, LA, USA

P. Swaczyna, *Local Interstellar Medium Probed by Neutral Atom Observations*, invited talk, **40<sup>th</sup> Polish Astronomical Society Meeting**, 13 – 17 Sept 2021, Virtual

P. Swaczyna, T. J. Eddy, E. J. Zirnstein, M. A. Dayeh, D. J. McComas, H. O. Funsten, N. A. Schwadron, *The Ribbon Separation with Spherical Harmonic Decomposition of the GDF*, talk, **IBEX/IMAP Science Team Meeting**, 17 – 18 Aug 2021, Laurel, MD, USA

P. Swaczyna, J. Bower, M. Bzowski, S. A. Fuselier, A. Galli, J. Heerikhuisen, D. Heertzler, M. A. Kubiak, D. J. McComas, E. Möbius, F. Rahmanifard, N. A. Schwadron, E. J. Zirnstein, *Observations of Interstellar Neutral Helium over the Full Solar Cycle*, talk, **IBEX/IMAP Science Team Meeting**, 17 – 18 Aug 2021, Laurel, MD, USA

P. Swaczyna, *Interstellar Neutrals Atoms from the Very Local Interstellar Medium to 1 au*, talk, **Outer Heliosphere Workshop**, 21 – 23 July 2021, Hybrid, Boulder, CO, USA

P. Swaczyna, *Helium Energetic Neutral Atoms as a Tool to Study the Structure of the Heliosphere and the Local Interstellar Medium*, poster C.23, **Heliophysics 2050 Workshop**, 3 – 7 May 2021, Virtual

P. Swaczyna, *The heliosphere and the very local interstellar medium revealed by neutral atom observations with IBEX*, invited talk D1.2-0007-21, **43<sup>rd</sup> COSPAR Assembly 2021**, 28 Jan. – 4 Feb. 2021, Hybrid

P. Swaczyna, D. J. McComas, J. M. Sokół, E. J. Zirnstein, *Interstellar hydrogen density from pickup ion observations in the outer heliosphere*, talk D1.3-0002-21, **43<sup>rd</sup> COSPAR Assembly 2021**, 28 Jan. – 4 Feb. 2021, Hybrid



- 2020 -

P. Swaczyna, D. J. McComas, E. J. Zirnstein, J. M. Sokół, H. A. Elliott, M. Bzowski, M. A. Kubiak, J. D. Richardson, I. Kowalska-Leszczynska, S. A. Stern, H. A. Weaver, C. B. Olkin, K. N. Singer, J. R. Spencer, *Higher Density of Interstellar Hydrogen from Pickup Ion Observations in the Outer Heliosphere*, talk SH026-03, **AGU Fall Meeting 2020**, 1 – 17 Dec. 2020, Virtual

P. Swaczyna, *Imaging heliotail and Local Interstellar Medium with Helium ENAs*, poster, **3<sup>rd</sup> Interstellar Probe Workshop**, 15 – 20 Nov. 2020, Virtual

P. Swaczyna, D. J. McComas, E. J. Zirnstein, J. M. Sokół, H. A. Elliott, M. Bzowski, M. A. Kubiak, J. D. Richardson, I. Kowalska-Leszczynska, S. A. Stern, H. A. Weaver, C. B. Olkin, K. N. Singer, J. R. Spencer, *SWAP Measurement of Interstellar Hydrogen Density from Pickup Ion Observations*, invited talk, **New Horizons Science Team Meeting #45**, 19 May 2020, Virtual

- 2019 -

P. Swaczyna, D. J. McComas, E. Zirnstein, J. Heerikhuisen, *Angular Scattering in Charge Exchange: Issues and Implications for Secondary Interstellar Hydrogen*, poster SH51C-3344, **AGU Fall Meeting 2019**, 9 – 13 Dec. 2019, San Francisco, CA, USA

P. Swaczyna, *Angular Scattering in Charge Exchange Collisions: Consequences for Interstellar Neutral Atoms Produced in the Outer Heliosheath*, talk, **23<sup>rd</sup> IBEX / 2<sup>nd</sup> IMAP Science Working Team Meeting**, 18 – 20 June 2018, Santa Fe, NM, USA

P. Swaczyna, D. J. McComas, N. A. Schwadron, *Temperature and Non-equilibrium Distributions of Interstellar Neutrals*, talk, **18<sup>th</sup> Annual International Astrophysics Conference**, 18 – 22 Feb. 2019, Pasadena, CA, USA

- 2018 -

P. Swaczyna, D. J. McComas, E. Zirnstein, *Population of He<sup>+</sup> Ions Co-moving with the Solar Wind in the Outer Heliosphere*, poster SH13C-2963, **AGU Fall Meeting 2018**, 10 – 14 Dec. 2018, Washington, DC, USA

P. Swaczyna, *Prospect for observations of heavy ENAs from the heliosphere and the LISM on IMAP*, talk, **22<sup>nd</sup> IBEX / 1<sup>st</sup> IMAP Science Working Team Meeting**, 28 – 29 Aug. 2018, Princeton, NJ, USA

M. Bzowski, A. Czechowski, P. C. Frisch, S.A. Fuselier, A. Galli, J. Grygorczuk, J. Heerikhuisen, D. Heirtzler, M. A. Kubiak, H. Kucharek, D. J. McComas, E. Möbius, N. A. Schwadron, J. Slavin, J. M. Sokół, P. Swaczyna, P. Wurz, E. Zirnstein, *The Local Interstellar Medium revealed by IBEX observations of interstellar neutral atoms*, talk D1.2-0011-18, **42<sup>nd</sup> COSPAR Assembly**, 14 – 22 July 2018, Pasadena, CA, USA

P. Swaczyna, M. Bzowski, J. M. Sokół *Modeling the time evolution of the IBEX Ribbon over the solar cycle*, talk D1.2-0009-18, **42<sup>nd</sup> COSPAR Assembly**, 14 – 22 July 2018, Pasadena, CA, USA

P. Swaczyna, M. Bzowski, J. M. Sokół, *Modeling the Evolution of the IBEX Ribbon's Position due to the Solar Cycle Variation of the Solar Wind Structure*, talk, **17<sup>th</sup> Annual International Astrophysics Conference**, 5 – 9 Mar. 2018, Santa Fe, NM, USA

- 2017 -

P. Swaczyna, M. Bzowski, J. M. Sokół, *Time-dependent models of ENA emission and comparison to the IBEX observations*, poster SH51D-2526, **AGU Fall Meeting 2017**, 11 – 15 Dec. 2017, New Orleans, LA, USA

P. Swaczyna, M. Bzowski, M. A. Kubiak, J. M. Sokół, S. A. Fuselier, A. Galli, D. Heirtzler, H. Kucharek, D. J. McComas, E. Möbius, N. A. Schwadron, P. Wurz, *Interstellar neutrals observed by IBEX-Lo in ESA 1-3*, talk, **21<sup>st</sup> IBEX Science Working Team Meeting**, 28 – 30 June 2017, Warsaw, Poland



P. Swaczyna, M. Bzowski, J. M. Sokół, E. R. Christian, H. O. Funsten, D. J. McComas, N. A. Schwadron, *Position of the IBEX ribbon as a key to understand its origin*, poster EGU2017-687, **EGU General Assembly 2017**, 23 – 28 Apr. 2017, Vienna, Austria

P. Swaczyna, S. Grzedzielski, M. Bzowski, *Imaging heliosphere with energetic neutral atoms of heavy species – perspectives for ENA detectors on IMAP*, talk, **16<sup>th</sup> Annual International Astrophysics Conference**, 6 – 10 Mar. 2017, Santa Fe, NM, USA

– 2016 –

P. Swaczyna, M. Bzowski, J. M. Sokół, E. R. Christian, H. O. Funsten, D. J. McComas, N. A. Schwadron, *The parallax and the energy-dependent position of the IBEX Ribbon – implications for its origin*, poster SH31A-2541, **AGU Fall Meeting 2016**, 10 – 16 Dec. 2016, San Francisco, CA, USA

P. Swaczyna, M. Bzowski, J. M. Sokół, E. R. Christian, H. O. Funsten, D. J. McComas, N. A. Schwadron, *Implications for the origin of the ribbon from parallax and energy-dependent position in the sky*, talk, **20<sup>th</sup> IBEX Science Working Team Meeting**, 9 – 12 Aug. 2016, Princeton, NJ, USA

– 2015 –

P. Swaczyna, S. Grzedzielski, M. Bzowski, *Helium Energetic Neutral Atoms - a New Perspective for Heliospheric and Extraheliospheric Observations with IMAP*, invited talk SH53C-05, **AGU Fall Meeting 2015**, 14 – 18 Dec. 2015, San Francisco, CA, USA

P. Swaczyna et al., *The IBEX Ribbon ridge position in the ram and antiram directions*, talk, **19<sup>th</sup> IBEX Science Working Team Meeting**, 18 – 20 Aug. 2015, Boulder, CO, USA

P. Swaczyna, J. M. Sokół, M. Bzowski, M. A. Kubiak, S. A. Fuselier, D. Heirtzler, H. Kucharek, T. W. Leonard, D. J. McComas, E. Möbius, N. A. Schwadron, *Interstellar neutral helium in the heliosphere from IBEX. Data corrections, uncertainties, and backgrounds, Warsaw Test Particle Model, and fitting method*, talk, **19<sup>th</sup> IBEX Science Working Team Meeting**, 18 – 20 Aug. 2015, Boulder, CO, USA

P. Swaczyna, S. Grzedzielski, M. Bzowski, *Energetic neutral helium atoms as a tool to study the heliosphere and the Local Interstellar Medium*, poster EGU2015-723, **EGU General Assembly 2015**, 12 – 17 Apr. 2015, Vienna, Austria

– 2014 –

P. Swaczyna, S. Grzedzielski, M. Bzowski, *Potential of Energetic Neutral Helium Atoms to Resolve Structure of the Local Interstellar Medium within 0.1 parsec*, talk SH21D-02, **AGU Fall Meeting 2014**, 15 – 19 Dec. 2014, San Francisco, CA, USA

M. Bzowski, M. A. Kubiak, J. M. Sokół, P. Swaczyna, E. Möbius, T. Leonard, D. Heirtzler, M. Hłond, M. Banaszekiewicz, M. Witte, P. Wurz, D. Rodriguez, N. Schwadron, S. Fuselier, D. J. McComas, H. Kucharek, *Interstellar He parameters in front of the heliosphere: view from IBEX and Ulysses*, poster SH11C-4056, **AGU Fall Meeting 2014**, 15 – 19 Dec. 2014, San Francisco, CA, USA

P. Swaczyna, S. Grzedzielski, M. Bzowski, *Expected fluxes of energetic neutral helium atoms from the heliosheath and the IBEX Ribbon*, talk, **18<sup>th</sup> IBEX Science Working Team Meeting**, 14 – 18 July 2014, Durham, NH, USA

P. Swaczyna, M. Bzowski, M. A. Kubiak, *Investigating uncertainties in the IBEX-Lo interstellar neutral helium measurements and including them in the Warsaw Test Particle Model*, talk, **18<sup>th</sup> IBEX Science Working Team Meeting**, 14 – 18 July 2014, Durham, NH, USA

P. Swaczyna, S. Grzedzielski, M. Bzowski, *Fluxes of energetic neutral helium atoms from the heliosheath and the IBEX Ribbon*, poster EGU2014-223, **EGU General Assembly 2014**, 27 Apr. – 2 May 2014, Vienna, Austria

**- 2012 -**

P. Swaczyna, S. Grzedzielski, *Possible source of ENA fluxes from Galactic Center direction*, talk, **14<sup>th</sup> IBEX Science Team Meeting**, 28 – 31 Mar. 2012, Bad Honnef, Germany

*Co-author of more than 60 other talks and posters.*