

# Megan E. Schwamb

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## Education:

Postgraduate Certification in Higher Education Teaching - Queen's University Belfast	December 2021
Ph.D., Planetary Science - California Institute of Technology Thesis: 'Beyond Sedna: Probing the Distant Solar System' Advisor: Michael E. Brown	June 2011
M.S., Astrophysics - California Institute of Technology	June 2008
B.A., Physics - University of Pennsylvania Summa Cum Laude with Distinction in Physics	May 2006

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## Employment & Positions Held:

Senior Lecturer, Queen's University Belfast (as of August 2023)	8/2023-present
Lecturer (confirmed in post), Queen's University Belfast	2019-2023
Assistant Scientist, Gemini Observatory, Northern Operations Center	2016-2019
Postdoctoral Fellow, Institute of Astronomy & Astrophysics, Academia Sinica	2013-2016
Postdoctoral Fellow, Yale University	2010-2013
Graduate Teaching Assistant, California Institute of Technology	2009
Graduate Research Assistant, California Institute of Technology	2006-2010

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## Awards & Honors:

AURA Science Award	2019
Carl Sagan Medal for Excellence in Public Communication in Planetary Science (American Astronomical Society, Division for Planetary Sciences)	2017
WIRED Innovation Fellowship	2015
Academia Sinica Postdoctoral Fellowship	2013-2015
Kavli Fellow, Kavli Frontiers of Science Japanese-American Symposium	2012
NSF Astronomy and Astrophysics Postdoctoral Fellowship	2010-2013
NASA Earth and Space Sciences Fellowship	2009
Reed Fellowship, California Institute of Technology	2006
Barry M. Goldwater Scholarship	2005
University Scholar Honors, University of Pennsylvania	2002-2006

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## Observing Experience:

70+ nights observing experience with both small (24-inch, 48-inch, and 60-inch) telescopes and large meter class telescopes, including 3.4-m NTT, 3.5-m WIYN, Hale 5-m, 8-m Subaru, 8-m Gemini North, 10-m Keck, 10-m Caltech Submillimeter Observatory, and 15-m James Clerk Maxwell Telescope. Fully trained in performing queue observing for the Gemini North Telescope.

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## Professional Activities:

Liverpool Telescope Time Allocation Committee Member	2022-present
QUB School of Mathematics and Physics Gender Equality Committee Co-Chair/Juno Champion	2021-present
QUB Leverhulme Interdisciplinary Network on Algorithmic Solutions (LINAS) Doctoral Training Program Faculty Core Team Member and Events Coordinator	2021-present
Next-Generation Transit Survey Science Collaboration Member	2020-present
STFC Isaac Newton Group Time Allocation Committee Member	2020-2022
Rubin Observatory Survey Cadence Optimization Committee (SCOC)	2020- 2022
Mikulski Archive for Space Telescopes (MAST) User Group Member	2020-2022
LSST:UK Solar System Science Point of Contact	2020-present
LSST:UK Affiliate PI	2020-present
LSST:UK Board Member (Queen's University Belfast Representative)	2019-present
Comet Interceptor (ESA F-Class mission) Pre-Mission Adoption Target Selection Team Member	2019-2022
Rubin Observatory International In-kind Contribution Evaluation Committee	2020-2021
Rubin Observatory Science Advisory Committee Member	2018-2023
Gemini Observatory Time Domain Advisory Committee Member	2018-2021
Rubin Observatory Legacy Survey of Space and Time (LSST) Solar System Science Collaboration (SSSC) Co-Chair – the SSSC is one of the eight active LSST Science Collaborations	2017-present
AAS World Wide Telescope Steering Committee Member	2017-2019
Gemini Observatory GNIRS (Near InfraRed Spectrograph) instrument team member	2017-2019
Gemini Observatory NIRI (Near InfraRed Imager and spectrograph) instrument scientist and instrument team lead	2017-2019
Outer Solar System Origins Survey (OSSOS) Light curves Working Group Team Lead	2016-2017
Member of the LSST Solar System Science Collaboration	2016-present

AAS World Wide Telescope Advisory Board Member	2016-2017
Comet Hunters Project Scientist	2015-2017
Comet Hunters Science Team Member	2015-2017
Col-OSSOS (Colours of the Outer Solar System Origins Survey) Optical Team Manager	2015-present
Member of the Zooniverse collaboration – the Zooniverse builds and hosts the largest collection of online citizen science projects	2014-present
Member of the Colours of the Outer Solar System Origins Survey (Col-OSSOS) collaboration	2014-present
Collaboration member of the Outer Solar System Origins Survey (OSSOS) (member of Surfaces and Light Curves working groups)	2014-2022
Planet Four Project Science Team Member	2013-present
Member of Various Time Allocation Committees including Las Cumbres Observatory Global Telescope (LCOGT), NASA Keck Timeshare, Taiwan Canada-France Hawaii Allocation, and Yale University	2011-2018
Planet Hunters Project Scientist	2011-2015
Planet Hunters Science Team Member	2010-2015
Member of the La Silla-QUEST Kuiper belt Survey	2010-2013
Member of the Palomar Distant Solar System Survey	2006-2009

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### Research Interests:

- Probing the Solar System's Small Body Populations focusing in particular on the Kuiper belt, Centaur region, and Inner Oort Cloud
- Utilizing crowdsourcing/citizen science to tackle big data challenges in planetary astronomy
- Studying the seasonal winds and atmosphere/surface interactions of Mars' South Pole
- Exploring the inventory of extrasolar planets

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### Selected Recent Outreach Activities:

February 2023: Co-organizer of Queen's Astronomy Day for Northern Ireland Science Festival

May 2022: Served as master of ceremonies/compère for the Our Solar System and Beyond from Hawaii and Belfast event. (~80-100 people in attendance)

February 2019: Co-organizer of Northern Ireland Science Festival Events: Queen's Astronomy Day and An Evening of Astronomy At Queen's: Astronomy Question Time & Star Watch (~300 people in attendance)

2016-2019: Organizing Gemini Observatory blog series: Get to Know Gemini, a monthly blog series to highlight the different types of jobs and people behind Gemini observatory, and

Gemini's 12 Days of Solstice Advent Calendar.

Contributor to the blogs for the Planet Four projects (<http://blog.planetfour.org/>) previously for the Planet Hunters (<http://blog.planethunters.org/>) and Comet Hunters (<http://www.comethunters.org>) projects, communicating to the public the progress and science resulting from these citizen projects.

Co-Founder of Astronomy On Tap (<http://www.astronomyontap.org>) public astronomy lecture series consisting of short talks by astronomers and planetary scientists held in local bars. Branches of this series now exist including: New York City, Washington DC, Columbus, Chicago, Seattle, Lansing, Rochester, and Austin, USA; Toronto, Canada;

Co-founder and co-curator (from 2014-2019) of the curated twitter account Astrotweeps ([www.astrotweeps.org](http://www.astrotweeps.org)), launched in January 2014, where each week a different astronomer or planetary scientist takes hosts the account engaging with over 7600+ followers.

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### Relevant Formal Education/Teaching Training:

September 22, 2022: Attended the virtual University College Union (UCU) Continuing Professional Development (CPD) workshop Running Climate Learning Events.

January 2020-October 2021: Queen's University Belfast Postgraduate Certificate in Higher Education Teaching – This program is comprised of three courses that introduce concepts about curriculum, module design, formative and summative assessments, and methods of teaching. Participants analyze and compare different approaches to teaching, learning, and assessment in higher education. The latest theories on student learning and motivation are presented including discussions on the different approaches and styles that students may adopt to their learning.

January 2018: Attended Introducing Current Research Into Your Classroom with Astrobites Workshop focusing on best practices utilizing science journal papers and Astrobites summaries in classroom.

January 2017: Attended New Methods for Teaching about Exoplanets Workshop, a one-day workshop focusing on best practices in implementing active learning strategies to the topic of exoplanets in the undergraduate classroom

January 3-4 2016: Attended Center for Astronomy Education's Tier I Teaching Excellence Workshop focusing on best practices in implementing active learning strategies.

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### Student and Postdoc Mentoring Experience:

PhD Students Supervised: Laura Buchanan (successfully defended in August 2023 and submitted thesis in September 2023, graduation in December 2023), Matthew Dobson (expected graduation 2024), Sean O'Brien (expected graduation 2025), Joe Murtagh (expected graduation date 2026)

Postdoc Supervision: Grigori Fedorets (2019-2023 currently a postdoctoral fellow at the Finnish Centre for Astronomy with ESO), Steph Merritt (2022-present)

Queen's University Belfast MSci Students Supervised (September 2019 to date): 6  
Students perform a research project over the Autumn semester and write up MSci thesis report that is submitted in the next semester.

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### **Selected Recent Teaching Experience:**

2023 – taught 6-hour Planet Formation graduate student training course. The aim of the course was to introduce students to planet formation and the key stages in the evolution of a planetary system from the condensing molecular clouds to planetesimals to planets and debris disks.

2020/2023 – Level 2 Black Body Laboratory Experiment – Year 2 Undergraduate Laboratory experiment where students spend 2 days measuring the relationship between temperature of a lamp and the energy outputted to test and explore the  $T^4$  black body relationship. Students fit blackbody curves to measured spectra from the lamp to measure the temperature at a given current and voltage. Students then submit a written report summarizing their results and lessons learned.

2022 – taught 8-hour Outreach and Communication Skills graduate student training course. The purpose of this short course is to introduce students to the breadth of outreach and communication tools and techniques available to researchers. Students develop and practice their oral and written communication skills throughout the course through interactive activities in each lecture.

2019-present: Taught first half of PHY2003 Astrophysics I (Introduction to modern astrophysics for undergraduate physics majors) - The purpose is to introduce students to the breadth of current astrophysical knowledge, and to become familiar with the range of bodies and environments observed in our Universe. As our understanding is based on current physics, many subjects will be studied in a quantitative manner, including the derivation of relevant formulae and the calculation of astrophysical parameters.

2019-present: Level 3 Research Projects – serving as primary and secondary supervisor for Year 3 undergraduate students research projects. These involve an open-ended experimental or computational investigation of a specific area of physics and astronomy providing hands-on data analysis and computation experience for undergraduate physics majors. I have developed an exoplanet project where students explore and search through NASA TESS data using the lightkurve python package.

2019-present: PHY1001 Foundation Physics First Year Undergraduate Tutorials –Leading a recitation section for 4-5 first year undergraduate Physics majors. This includes grading weekly homework assignments and reviewing with the students the solutions to the problem sets.

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### **Selected Recent Organized Conferences & Workshops:**

What was that? – Planning ESO Follow up for transients, variables, and Solar System Objects in the Era of LSST, Taiwan (Science organizing committee) Garching, Germany, January 2024	2023-present
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TNO2024, Taipei, Taiwan (Science organizing committee)	2023-present
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Unveiling the Dynamic Universe: Cosmic Streams in the Era of Rubin Science (Science organizing committee), Puerto Varas, Chile, December 2023	2023-present
UK National Astronomy Meeting (Science organizing committee), Cardiff, UK, July 2023	2022-2023
LSST@Europe4 Solar System Session Co-organizer	2022
Reproducibility and Open Science in Astronomy (Science organizing committee)	2021-2022
Irish National Astronomy Meeting (Science/Local Organizing Committee)	2021
LSST:UK All Hands Meeting (Science Organizing Committee)	2021
LSST and the Solar System workshops at the American Astronomical Society's Division for Planetary Sciences Meeting (Co-organizer)	2017-2018
LSST Solar System Readiness Sprints (yearly Co-organizer)	2018-present
Hack Day/Hack Together Day at the winter American Astronomical Society Meeting (Co-Founder & Co-organizer)	2013-2018

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### Selected Recent Invited Talks:

*London Mathematical Society/IMA/British Society for the History of Mathematics Joint Women in Astronomy Meeting Invited Speaker*, London, UK – September 16, 2022

*ADASS Invited Remote Speaker*, Virtual/South Africa – November 2021

*UCL Mullard Space Science Laboratory Seminar*, Virtual – April 13, 2021

*University Edinburgh Astronomy Seminar*, Virtual – April 8, 2020

*Hot-wiring the Transient Universe VI Meeting Invited Remote Speaker*, Evanston, IL, USA, August 20, 2019

*Building the NASA Citizen Science Community Invited Speaker*, Tucson, AZ, USA, June 20, 2019

*DECam Community Science Workshop 2018 Invited Speaker*, Tucson, AZ, USA – May 22, 2018

*University of Auckland Astronomy Seminar*, Auckland, New Zealand - October 9, 2017

*Canada-France-Hawaii Telescope Seminar*, Waimea, Hawaii, USA - July 24, 2017

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### Selected Recent Funding & Grants Awarded:

LINCC (LSST Interdisciplinary Network for Collaboration and Computing) Frameworks Incubator, Optimizing an LSST Solar System Simulator, 2023, **\$22,000 + 3 months 1 FTE of software engineer time**

UKRI (UK Research and Innovation) STFC (Science and Technology Facilities Council) PPRP (Projects Peer Review Panel) UK Involvement in LSST: Phase C, Contribution for the software development of Adler, a Solar System transient classifier for Lasair, the UK's Rubin Observatory transient alert broker, 2023, **~£180,000** contribution

Preparing for Astrophysics with LSST Kickstarter Grant (Heising-Simmons Foundation via Las Cumbres Observatory), Making the Community LSST Solar System Survey Simulator a True Community-Wide Resource, 2021, **\$20,000**

Large Synoptic Survey Telescope Corporation (LSSTC) 2020 Enabling Science Grant, Going from Thousands to Millions: Visualizing the Solar System in the Era of the Rubin Observatory,' 2021, **\$2,913**

Co-I on Preparing for Astrophysics with LSST- a 1-year program to provide support to science collaboration members from the LSST Solar System Science Collaboration, Transients and Variable Stars (TVS) Science Collaboration, and Stars, Milky Way, and Local Volume (SMWLVS) Science Collaboration to enable preparatory LSST science, foster software development, and reduce the barriers to participation. PI: R. Street, 2021, Heising-Simons Foundation, **\$0.8 million**

UKRI STFC Astronomy Consolidated Grant, 'New Applicant Scheme Consolidated Grant Application in Solar System Studies- Towards the Solar System's Edge: Exploring the Inner Oort Cloud', 2021-2024, **£225,556**

Large Synoptic Survey Telescope Corporation 2020 Enabling Science Grant, 'Preparing for LSST Solar System Follow-up,' 2020 , **\$8000.0**

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## Publications:

### Submitted Publications

### Peer Reviewed Publications

1. M. Marsset, W. C. Fraser, **M. E. Schwamb**, L. E. Buchanan, R. E. Pike, N. Peixinho, S. Benecchi, M. T. Bannister, N. J. Tan, & J. J. Kavelaars, 2023, *Col-OSSOS: Evidence for a compositional gradient inherited from the protoplanetary disk?*, PSJ, in press
2. R. E. Pike, W. C. Fraser, K. Volk, J. J. Kavelaars, M. Marsset, N. Peixinho, **M. E. Schwamb**, M. T. Bannister, L. E. Buchanan, S. Benecchi, & N. Tan, 2023, *Col-OSSOS: The Distribution of Surface Classes in Neptune's Resonances*, PSJ, in press
3. W. C. Fraser, M. Marsset, R. E. Pike, **M. E. Schwamb**, M. T. Bannister, L. E. Buchanan, J. J. Kavelaars, S. Benecchi, N. Peixinho, N. J. Tan, S. D. J. Gwyn, Y.-T. Chen, B. Gladman, K. & Volk, 2023, *Col-OSSOS: The Two Types of Kuiper Belt Surfaces*, PSJ, 4, 80
4. M. M. Dobson, **M. E. Schwamb**, S. D. Benecchi, A. J. Verbiscer, A. Fitzsimmons, L. J. Shingles, L. Denneau, A. N. Heinze, K. W. Smith, J. L. Tonry, H. Weiland, & D. R. Young, 2023, *Phase Curves of Kuiper Belt Objects, Centaurs, and Jupiter Family Comets from the ATLAS Survey*, PSJ, 4, 75
5. **M. E. Schwamb**, R. L. Jones, P. Yoachim, K. Volk, R. C. Dorsey, C. Opitom, S. Greenstreet, T. Lister, C. Snodgrass, B. T. Bolin, L. Inno, M. T. Bannister, S. Eggl, M. Solontoi, M. S. P. Kelley, M. Jurić, H.-W. Lin, D. Ragozzine, P.H. Bernardinelli, S. R. Chesley, T. Daylan, J. Āurech, W. C. Fraser, M. Granvik, M. M. Knight, R. Malhotra, W. J. Oldroyd, A. Thirouin, &



- Q. Ye, 2023, *Tuning the Legacy Survey of Space and Time (LSST) Observing Strategy for Solar System Science*, ApJS, 266, 22
6. L. E. Mc Keown, S. Diniega, M. C. Bourk, & **M. E. Schwamb**, 2023, *Morphometric Trends and Implications for the Formation of Araneiform Clusters*, Earth and Planetary Science Letters, 607
  7. M. D. McDonnell, E. Jones, **M. E. Schwamb**, K.-M. Aye, G. Portyankina, & C.J. Hansen, 2023, *Planet Four: A Neural Network's Search For Polar Spring-time Fans On Mars*, Icarus, 391
  8. T. Lister, M. S. P. Kelley, C. E. Holt, H. H. Hsieh, M. T. Bannister, A.A Verma, M. M. Dobson, M. M., Knight, Y. Moulane, **M. E. Schwamb**, D. Bodewits, J. Bauer, J. Chatelain, E. Fernández-Valenzuela, D. Gardener, G. Gyuk, M. Hammergren, K. Huynh, E. Jehin, R. Kokotanekova, E. Lilly, M.-T Hui, A. McKay, C. Opitom, S. Protopapa, R. Ridden-Harper, C. Schambeau, C. Snodgrass, C. Stoddard-Jones, H. Usher, K. Wierzchos, P. A. Yanamandra-Fisher, Q. Ye, E. Gomez, & S. Greenstreet, 2022, *The LCO Outbursting Objects Key Project: Overview and Year 1 Status*, PSJ, 3, 173
  9. A. R. Khuller, L. Kerber, **M. E. Schwamb**, S. Beer, F. E. Nogal, R. Perry, W. Hood, K-M Aye, G. Portyankina, & C. J. Hansen, 2022, *Irregular polygonal ridge networks in ancient Noachian terrain on Mars*, Icarus, 374
  10. G. Portyankina, T. I. Michaels, K.-M. Aye, **M.E. Schwamb**, C. J. Hansen, & C. J. Lintott, 2022, *Planet Four: Derived South Polar Martian Winds Interpreted Using Mesoscale Modeling*, PSJ, 3, 31
  11. L. E. Buchanan, **M. E. Schwamb**, W. C. Fraser, M. T. Bannister, M. Marsset, R. E. Pike, D. Nesvorný, J. J. Kavelaars, S. D. Benecchi, M. J. Lehner, S-Y Wang, N. Peixinho, K. Volk, M. Alexandersen, Y-T Chen, B. Gladman, S. Gwyn, and J-M Petit, 2022, *Col-OSSOS: Probing Ice Line/Color Transitions within the Kuiper Belt's Progenitor Populations*, PSJ, 3, 9
  12. F. B. Bianco, Ž. Ivezić, R. L. Jones, M. L. Graham, P. Marshall, A. Saha, M. A. Strauss, P. Yoachim, T. Ribeiro, T. Anguita, A. E. Bauer, F. E. Bauer, E. C. Bellm, R. D. Blum, W. N. Brandt, S. Brough, M. Catelan, W. I. Clarkson, A. J. Connolly, E. Gawiser, J. E. Gizis, R. Hložek, S. Kaviraj, C. T. Liu, M. Lochner, A. A. Mahabal, R. Mandelbaum, P. McGehee, E. H. Nielsen Jr., K. A. G. Olsen, H. V. Peiris, J. Rhodes, G. T. Richards, S. Ridgway, **M. E. Schwamb**, D. Scolnic, O. Shemmer, C. T. Slater, A. Slosar, S. J. Smartt, J. Strader, R. Street, D. E. Trilling, A. Verma, A. K. Vivas, R. H. Wechsler, & B. Willman, 2021, *Optimization of the Observing Cadence for the Rubin Observatory Legacy Survey of Space and Time: A Pioneering Process of Community-focused Experimental Design*, ApJS, 258, 1
  13. R. E. Pike, J. Kanwar, M. Alexandersen, Y.-T. Chen, & **M. E. Schwamb**, 2021, *Characterizing the Discovery of a New Trans-Neptunian Object Binary in a Trailed Point-spread Function Search*, PSJ, 2, 159
  14. W.C. Fraser, S. D. Benecchi, J. J. Kavelaars, M., Marsset, R. Pike, M. T. Bannister, **M. E. Schwamb**, K. Volk, D. Nesvorný, M. Alexandersen, Y-T, Chen, S. Gwyn, M. J. Lehner, & S-Y Wang, 2021, *Col-OSSOS: The Distinct Colour Distribution of Single and Binary Cold Classical KBOs*, PSJ, 2, 90



15. N. L. Eisner, O. Barragán, C. Lintott, S. Aigrain, B. Nicholson, T. S. Boyajian, S. Howell, C. Johnston B. Lakeland, G. Miller, A. McMaster, H. Parviainen, E. J. Safron, **M.E. Schwamb**, L. Trouille, S. Vaughan, N. Zicher, C. Allen, S. Allen, M. Bouslog, C. Johnson, M. N. Simon, Z. Wolfenbarger, E. M. L. Baeten, D. M. Bundy, T. Hoffman, 2021, *Planet Hunters TESS II: findings from the first two years of TESS*, MNRAS, 501, 4
16. G. Fedorets, M. Micheli, R. Jedicke, S. P. Naidu, Shantanu, D. Farnocchia, M. Granvik, N. Moskovitz, **M. E. Schwamb**, R. Weryk, K. Wierzchoś, E. Christensen, T. Pruyne, W. F. Bottke, Q. Ye, R. Wainscoat, M. Devogèle, L. E. Buchanan, A. A. Djupvik, D. M. Faes, D. R. Föhning, J. Roediger, T. Seccull, & A. B. Smith, 2020, *Establishing Earth's Minimoon Population through Characterization of Asteroid 2020 CD3*, AJ, 160, 277
17. D. Nesvorný, D. Vokrouhlický, M. Alexandersen, M. T. Bannister, L. E. Buchanan, Y-T Chen, B. J. Gladman, S. D. J. Gwyn, J. J. Kavelaars, J-M Petit, **M. E. Schwamb**, & K. Volk, 2020, *OSSOS XX: The Meaning of Kuiper Belt Colors*, AJ, 160, 46
18. M. Marsset, W. C. Fraser, M. T. Bannister, **M. E. Schwamb**, R. E. Pike, Susan Benecchi, J. J. Kavelaars, M. Alexandersen, Y.-T. Chen, B. J. Gladman, S. D. J. Gwyn, J.-M. Petit & Kathryn Volk, 2020, *Col-OSSOS: Compositional Homogeneity of Three Kuiper Belt Binaries*, PSJ, 1, 1
19. N. L. Eisner, O. Barragan, S. Aigrain, C. Lintott, G. Miller, N. Zicher, T. S. Boyajian, C. Briceno, E. M. Bryant, J. L. Christiansen, A. D. Feinstein, L. M. Flor-Torres, M. Fridlund, D. Gandolfi, J. Gilbert, N. Guerrero, J. M. Jenkins, K. Jones, M. H. Kristiansen, A. Vanderburg, N. Law, A. R. Lopez-Sanchez, A. W. Mann, E. J. Safron, **M. E. Schwamb**, K. G. Stassun, H. P. Osborn, J. Wang, A. Zic, C. Ziegler, F. Barnet, S. J. Bean, D. M. Bundy, Z. Chetnik, J. L. Dawson, J. Garstone, A. G. Stenner, M. Hutten, S. Larish, L. D. Melanson, T. Mitchell, C. Moore, K. Peltsch, D. J. Rogers, C. Schuster, D. S. Smith, D. J. Simister, C. Tanner, I. Terentev & A. Tsymbal, 2020, *Planet Hunters TESS I: TOI 813, a subgiant hosting a transiting Saturn-sized planet on an 84-day orbit*, MNRAS, 494, 1
20. C. Kiss, G. Marton, A. H. Parker, W. Grundy, A. Farkas-Takács, J. Stansberry, A. Pála, T. Müller, K. S. Noll, **M. E. Schwamb**, A. C. Barr, L. A. Young, & J. Vinkó, 2019, *The mass and density of the dwarf planet (225088) 2007 OR10*, Icarus, 334
21. M. Alexandersen, S. D. Benecchi, Y-T Chen, M. R. Eduardo, A. Thirouin, **M. E. Schwamb**, M. J. Lehner, S-Y. Wang, M. T. Bannister, B. J. Gladman, S. D. J. Gwyn, J. J. Kavelaars, J.-M. Petit, & K. Volk, 2019, *OSSOS XII: Variability studies of Trans-Neptunian Objects using the Hyper-Suprime Camera*, AJ, 244, 19
22. **M. E. Schwamb**, W. C. Fraser, Michele T. Bannister, M. Marsset, R. E. Pike, J. J. Kavelaars, S. D. Benecchi, M. J. Lehner, S.-Y. Wang, A. Thirouin, A. Delsanti, N. Peixinho, K. Volk, M. Alexandersen, Y.-T. Chen, B. Gladman, S. D. J. Gwyn, and J.-M. Petit, 2019, *Col-OSSOS: The Colours of the Outer Solar System Origins Survey*, ApJS, 243, 12
23. M. Marsset, W. C. Fraser, R. E. Pike, M. T. Bannister, **M. E. Schwamb**, K. Volk, J. J. Kavelaars, M. Alexandersen, Y.-T. Chen, B. J. Gladman, S. D. J. Gwyn, & J.-M. Petit, 2019, *Col-OSSOS: Color and Inclination Are Correlated throughout the Kuiper Belt*, ApJ, 2019, 157, 3

24. K.-M Aye, **M. E. Schwamb**, G. Portyankina, C. J. Hansen, A. McMaster, G. R.M. Miller, B. Carstensen, C. Snyder, M. Parrish, Stuart Lynn, C. Mai, David Miller, R. J. Simpson, & A. M. Smith, 2019, *Planet Four: Probing Springtime Winds on Mars by Mapping the Southern Polar CO<sub>2</sub> Jet Deposits*, Icarus, 319
25. S. D. Benecchi, C.M. Lisse, E.L. Ryan, R. P. Binzel, **M. E. Schwamb**, L. A. Young, & A. J. Verbiscier, 2018, *K2 Lightcurve: Twelves Days on Pluto-Charon*, Icarus, 314
26. **M. E. Schwamb**, K.-M. Aye, G. Portyankina, C. J. Hansen, C. Allen, S. Allen, F. J. Calef III, S. Duca, A. McMaster, G. R. M. Miller, 2018, *Planet Four: Terrains - Discovery of Araneiforms Outside of the South Polar Layered Deposits*, Icarus, 308
27. M. T. Bannister, B. J. Gladman, J.J. Kavelaars, J.-M. Petit, K. Volk, Y.-T. Chen, M. Alexandersen, S. D. J. Gwyn, **M. E. Schwamb**, S. Benecchi, N. Cabral, R. Dawson, A. Delsanti, W. C. Fraser, M. Granvik, S. Greenstreet, A. Guilbert-Lepoutre, W.-H. Ip, M. Jakubik, R. L. Jones, N. Kaib, P. Lacerda, C. Van Laerhoven, S. Lawler, M. J. Lehner, H. W. Lin, P. S. Lykawka, M. Marsset, R. Murray-Clay, R. E. Pike, P. Rousselot, C. Shankman, A. Thirouin, P. Vernazza, S.-Y. Wang, 2018, *OSSOS: 800+ trans-Neptunian objects --- the complete data release*, AJ, 236, 18
28. M. T. Bannister, **M. E. Schwamb**, W. C. Fraser, M. Marsset, A. Fitzsimmons, S. D. Benecchi, P. Lacerda, R. E. Pike, J.J. Kavelaars, A. B. Smith, S. O. Stewart, S.-Y. Wang, M. J. Lehner, 2017, *Col-OSSOS: Colors of the Interstellar Planetesimal 1I/Oumuamua*, ApJL, 851, L38
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