

# Megan E. Schwamb

---

**Address:** Astrophysics Research Centre  
Queen's University Belfast  
Belfast BT7 1NN  
UK  
**Phone:** +44 2890 975046  
**Email:** [mschwamb.astro@gmail.com](mailto:mschwamb.astro@gmail.com) (preferred) / [m.schwamb@qub.ac.uk](mailto:m.schwamb@qub.ac.uk)  
**Citizenship:** USA  
**Website:** <http://www.megschwamb.com>

---

## 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

---

## 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

---

## 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

---

### 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.

---

### Observatory Operations Experience:

Three years of experience with 8-10-m class observatory science operations and user support. This role included daytime and nighttime operations duties including serving as a queue coordinator, instrument scientist, contact scientist for queue observing programs and Phase II support, and nighttime queue observer.

---

### 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 (Legacy Survey Telescope of Space and Time):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)	2017-2019

instrument team member	
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

---

### 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

---

### Selected Recent Outreach Activities:

June 2023: Girls in Maths and Physics, a widening participation outreach event aimed at engaging local 12-16 year old female students (~200 participants per year) from across Northern Ireland.

February 2023: Co-organizer of the Queen's Astronomy Day, part of Northern Ireland Science Festival Events (over 300 people were in attendance)

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 (~200 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.

---

### 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.

---

### **Selected Recent Teaching Experience/Student Mentoring:**

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

Queen's University Belfast MSci Students Supervised since (September 2019): 4

2023 – taught a 6-hour Planet Formation graduate student training course. The purpose of the short course is to introduce graduate students to the physics behind 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.

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.

---

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

TNOS 2024, Taipei, Taiwan (Science organizing committee)	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

---

### Selected Recent Invited Talks:

European Astronomical Society Annual Meeting, "Solar System - from near to far - in its stellar environment at the Gaia & LSST era" session, Kraków, Poland – July 10, 2023

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

---

### Selected Recent Funding & Grants Awarded:

LINCC (LSST Interdisciplinary Network for Collaboration and Computing) Frameworks Incubator Program, Optimizing an LSST Solar System Simulator, 2023, **\$22,000 + 1.5 FTE of Software engineer time for 3 months.**

UKRI STFC Projects Peer Review Panel, UK Involvement in LSST: Phase C (QUB component), 2023, **~£180,000** contribution for the software development of Adler, a Solar System transient classifier for Lasair, the UK's Rubin Observatory transient alert broker.

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**

---

## Publications:

### Submitted 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, 2022, *Col-OSSOS: Evidence for a compositional gradient inherited from the protoplanetary disk?*, PSJ, submitted
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, 2022, *Col-OSSOS: The Distribution of Surface Classes in Neptune's Resonances*, PSJ, submitted

### Peer Reviewed Publications

1. 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
2. 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
3. **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. Ďurech, W. C. Fraser, M. Granvik, M. M. Knight, R. Malhotra, W. J. Oldroyd, A. Thirouin, & Q. Ye, 2022, *Tuning the Legacy Survey of Space and Time (LSST) Observing Strategy for Solar System Science*, ApJS, 266, 22
4. L. E. McKeown, 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, 118049
5. 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, in press

6. 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
7. 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
8. 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
9. 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
10. 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. Neilsen 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
11. 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
12. 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
13. 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
14. 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. Föhring, J. Roediger, T. Seccull, & A. B. Smith, 2020, *Establishing Earth's Minimoons Population through Characterization of Asteroid 2020 CD3*, AJ, 160, 277
15. 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
  16. 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
  17. 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
  18. 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
  19. 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
  20. **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
  21. 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
  22. 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
  23. 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

24. **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
25. 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
26. 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
27. R. E. Pike, W. C. Fraser, **M. E. Schwamb**, J. J. Kavelaars, M. Marsset, M. T. Bannister, M. J. Lehner, S.-Y. Wang, B. Gladman, J.-M. Petit, S. Gwyn, Y.-T. Chen, M. Alexandersen, & K. Volk, 2017, *Col-OSSOS: Z Band Photometry Reveals Three Distinct TNO Surface Types*, AJ, 154, 101
28. M. T. Bannister, C. Shankman, K. Volk, Y.-T. Chen, N. Kaib, B. J. Gladman, M. Jakubik, J.J. Kavelaars, W.C. Fraser, **M.E. Schwamb**, J.-M. Petit, S.-Y. Wang, S. D. J. Gwyn, M. Alexandersen, & R. E. Pike, 2017, *OSSOS: V. Diffusion in the orbit of a high-perihelion distant Solar System object*, AJ, 153,262
29. W. C. Fraser, M T. Bannister, R. E. Pike, M. Marsset, **M. E. Schwamb**, J. J. Kavelaars, P. Lacerda, D. Nesvorný, K. Volk, A. Delsanti, S. Benecchi, M. J. Lehner, K. Noll, B. Gladman, J.-M. Petit, S. Gwyn, Y.-T. Chen, S.-Y. Wang, M. Alexandersen, T. Burdullis, S. Sheppard & Chad Trujillo, 2017, *All planetesimals born near the Kuiper belt formed as binaries*, Nature Astronomy, 1, 88
30. M.T. Bannister, M. Alexandersen, S. D. Benecchi, Y.-T. Chen, A. Delsanti, W. C. Fraser, B. J. Gladman, M. Granvik, W. M. Grundy, A. Guilbert-Lepoutre, S. D. J. Gwyn, W.-H. Ip, M. Jakubik, R. L. Jones, N. Kaib, J. J. Kavelaars, P. Lacerda, S. Lawler, M. J. Lehner, H. W. Lin, P. S. Lykawka, M. Marsset, R. Murray-Clay, K. S. Noll, A. Parker, J.-M. Petit, R. E. Pike, P. Rousselot, **M. E. Schwamb**, C. Shankman, P. Veres, P. Vernazza, K. Volk, S.-Y. Wang, & R. Weryk, 2016, *OSSOS: IV. Discovery of a dwarf planet candidate in the 9:2 resonance with Neptune*, AJ 152, 212
31. M. T. Bannister, J. J. Kavelaars, J.-M. Petit, B. Gladman, S. Gwyn, Y.-T. Chen, K. Volk, M. Alexandersen, S. Benecchi, F. Bianco, A. Delsanti, W. C. Fraser, M. Granvik, W. Grundy, A. Guilb-Lepoutre, A. Gulbis, D. Hestroer, W. Ip, M. Jakubik, L. Jones, N. Kaib, P. Lacerda, S. Lawler, M. Lehner, E. Lin, T. Lister, P. Lykawka, S. Monty, M. Marsset, R. Murray-Clay, K. Noll, A. H. Parker, R. Pike, P. Rousselot, D. Rusk, **M. E. Schwamb**, C. Shankman, B. Sicardy, P. Vernazza, & S-Y. Wang, 2016, *The Outer Solar System Origins Survey: Design and First-quarter Discoveries*, AJ, 152, 70B
32. A. C. Barr & **M. E. Schwamb**, 2016, *Interpreting the Densities of the Kuiper Belt's Dwarf Planets*, MNRAS, 460,1542

33. W. C. Fraser, M. Alexandersen, **M. E. Schwamb**, M. Marsset, R. E. Pike, J. J. Kavelaars, M. T. Bannister, S. Benecchi, & A. Delsanti, 2016, *TRIPPy: Trailed Image Photometry in Python*, AJ, 151, 158
34. J. R. Schmitt, A. Tokovinin, J. Wang, D. A. Fischer, M. H. Kristiansen, D. M. LaCourse, R. t Gagliano, A. J. V. Tan, H. M. Schwengeler, M. R. Omohundro, A. Venner, I. Terentev, A. R. Schmitt, T. L. Jacobs, T. Winarski, J. Sejkpa, K. J. Jek, T. S. Boyajian, J. M. Brewer, S. T. Ishikawa, C. Lintott, S. Lynn, K. Schawinski, **M. E. Schwamb**, & A. Weiksnar, 2016, *Planet Hunters X: Searching for Nearby Neighbors of 75 Planet and Eclipsing Binary Candidates from the K2 Kepler extended mission*, AJ, 151, 159
35. M. Kimura, K. Isogai, T. Kato, Y. Ueda, S. Nakahira, M. Shidatsu, T. Enoto, T. Hori, D. Nogami, C. Littlefield, R. Ishioka, Y.-T. Chen, S.-K. King, C.-Y. Wen, S.-Y. Wang, M. J. Lehner, **M. E. Schwamb**, J.-H. Wang, Z.-W Zhang, C. Alcock, T. Axelrod, F. B. Bianco, Y.-I. B, W.-P. Chen, K. H. Cook, D.-W. Kim, T. Lee, S. L. Marshall, E. P. Pavlenko, & et al., 2015, *Repetitive patterns in rapid optical variations in the nearby black-hole binary V404 Cygni*, Nature, 529, 54
36. R. Brasser & **M. E. Schwamb**, 2015, *Reassessing the Formation of the Inner Oort cloud in an Embedded Star Cluster II: Probing the Inner Edge*, MNRAS, 446, 3788
37. J. R. Schmitt, E. Agol, K. M. Deck, L. A. Rogers, J. Z. Gazak, D. A. Fischer, J. Wang, M. J. Holman, K. J. Jek, C. Margossian, M. R. Omohundro, T. Winarski, J. M. Brewer, M. J. Giguere, C. Lintott, S. Lynn, M. Parrish, K. Schawinski, **M. E. Schwamb**, R. Simpson, & A. M. Smith, 2014, *Planet Hunters VII. Discovery of a New Low-Mass, Low-Density Planet (PH3 c) Orbiting Kepler-289 with Mass Measurements of Two Additional Planets (PH3 b and d)*, ApJ, 795, 167
38. J. R. Schmitt, J. Wang, D. A. Fischer, K. J. Jek, J. C. Moriarty, T. S. Boyajian, **M. E. Schwamb**, C. Lintott, A. M. Smith, M. Parrish, K. Schawinski, S. Lynn, R. Simpson, M. Omohundro, T. Winarski, S. J. Goodman, T. Jebson, & D. Lacourse, 2014, *Planet Hunters VI: An Independent Characterization of KOI-351 and Several Long Period Planet Candidates from the Kepler Archival Data*, AJ, 148, 28
39. **M. E. Schwamb**, M. E. Brown, & W. C. Fraser, 2014, *The Small Number of Large Kuiper belt objects*, AJ, 147, 2
40. A. Mao, E. Kamar, Y. Chen, E. Horvitz, **M. E. Schwamb**, C.J. Lintott, & A. M. Smith, 2013, *Volunteering vs. Work for Pay: Incfentives and Tradeoffs in Crowdsourcing*, Proceedings of the First Association for the Advancement of Artificial Intelligence Conference on Human Computation (HCOMP 2013)
41. J. Wang, D. A. Fischer, T. Barclay, T. S. Boyajian, J.R. Crepp, **M. E. Schwamb**, C. Lintott, K.J. Jek, A. M. Smith, M. Parrish, Michael, K. Schawinski, J. R. Schmitt, M.J. Giguere, J.M. Brewer, S. Lynn, Stuart; R. Simpson, A. J. Hoekstra, T. L. Jacobs, D. LaCourse, H.M. Schwengeler, M.Chopin, Mike, & R. Herszkowicz, 2013, *Planet Hunters V: A Confirmed Jupiter-Size Planet in the Habitable Zone and 42 Planet Candidates from the Kepler Archive Data*, ApJ, 776,10

42. D. Rabinowitz, **M. E. Schwamb**, E. Hadjiyska, S. Tourtellotte, & P. Rojo 2013, *The Peculiar Photometric Properties of 2010 WG9: A Slowly Rotating Trans-Neptunian Object from the Oort Cloud*, AJ, 146, 17
43. C. J. Lintott, **M. E. Schwamb**, T. Barclay, C. Sharzer, D.A. Fischer, J. Brewer, M. Giguere, M., S. Lynn, M. Parrish, N. Batalha, S. Bryson, J. Jenkins, D. Ragozzine, J. F. Rowe, K. Schawinski, R. Gagliano, J. Gilardi, K. J. Jek, J.-P. Pääkkönen, & T. Smits, 2013, *Planet Hunters: New Kepler planet candidates from analysis of quarter 2*, AJ, 145 151
44. **M. E. Schwamb**, J. A. Orosz, J. A. Carter, W.F. Welsh, D. A. Fischer, G. Torres, A. W. Howard, J. R. Crepp, W. C. Keel, C. J. Lintott, N. A. Kaib, D. Terrell, R. Gagliano, K. J. Jek, M. Parrish, A. M. Smith, S. Lynn, R. J. Simpson, M. J. Giguere & K. Schawinski, 2013, *Planet Hunters: A Circumbinary Planet in a Quadruple Star System*, ApJ 768, 127
45. D. Rabinowitz, **M. E. Schwamb**, E. Hadjiyska, & S. Tourtellotte, 2012, *The La Silla - QUEST Kuiper Belt Survey*, AJ, 144, 140
46. **M. E. Schwamb**, C.J. Lintott, D.A. Fischer, M. J. Giguere, S. Lynn, A. M. Smith, J. M. Brewer, M. Parrish, K. Schawinski, & R. J. Simpson, 2012. *Planet Hunters: Assessing the Kepler Inventory of Short Period Planets*, ApJ, 754, 129
47. R. Brasser, **M. E. Schwamb**, P. S. Lykawka, & R. Gomes, 2012, *An Oort cloud origin for the high-inclination, high-perihelion Centaurs*, MNRAS, 420, 3396
48. D. A. Fischer, **M. E. Schwamb**, K. Schawinski, C. Lintott, J. Brewer, M. Giguere, S. Lynn, M. Parrish, T. Sartori, R. Simpson, A. Smith, J. Spronck, N. Batalha, J. Rowe, J. Jenkins, S. Bryson, A. Prsa, P. Tenenbaum, J. Crepp, T. Morton, A. Howard, M. Beieu, Z. Kaplan, N. Vannispén, C. Sharzer, J. Defouw, A. Hajduk, J. P. Neal, A. Nemec, N. Schuepbach, & V. Zimmermann, 2012, *The First Two Planet Candidates Identified by the Public using the Kepler Public Archive Data*, MNRAS, 419, 2900
49. R. Brasser, M. J. Duncan, H. F. Levison, **M. E. Schwamb**, & M. E. Brown, 2012, *Reassessing the formation of the inner Oort cloud in an embedded star cluster*, Icarus, 217, 1
50. W. C. Fraser, M. E. Brown, & **M. E. Schwamb**, 2010, *The Luminosity Function of the Hot and Cold Kuiper belt Populations*, Icarus, 10, 944
51. **M. E. Schwamb**, M. E. Brown, D. L. Rabinowitz, & D. Ragozzine, 2010, *Properties of the Distant Kuiper Belt: Results from the Palomar Distant Solar System Survey*, ApJ, 20,1691
52. **M. E. Schwamb**, M. E. Brown, & D. L. Rabinowitz, 2009, *A Search for Distant Solar System Bodies in the Region of Sedna*, ApJL, 694, L45
53. M. J. Lehner, C.-Y. Wen, J.-H. Wang, S. L. Marshall, **M. E. Schwamb**, Z.-W. Zhang, F. B. Bianco, J. Giammarco, R. Porrata, C. Alcock, T. Axelrod, Y.-I. Byun, W. P. Chen, K. H. Cook, R. Dave, S.-K. King, T. Lee, H.-C. Lin, & S.-Y. Wang, 2009, *The Taiwanese-American Occultation Survey: The Multi-Telescope Robotic Observatory*, PASP, 12, 138
54. C. Night, R. Di Stefano,& **M. Schwamb**, 2008, *Beyond Caustic Crossings: Properties of Binary Microlensing Light Curves*, ApJ, 686, 785

55. J.H Wang, **M.E. Schwamb**, K. Y. Huang, C. Y. Wen, Z. W. Zhang, S. Y. Wang, W. P. Chen, F. B. Bianco, R. Dave, M. J. Lehner, S. L. Marshall, R. Porrata, C. Alcock, Y. I. Byun, K. H. Cook, S. K. King, T. Lee, & Y. Urata, 2008, *The Early Optical Brightening in the GRB 071010B*, ApJL, 679,L5

#### Select Non-Peer Reviewed Publications

1. M. M. Dobson, **M. E. Schwamb**, A. Fitzsimmons, M. S. P. Kelley, T. Lister, L. J. Shingles, L. Denneau, A. N. Heinze, K. W. Smith, J. L. Tonry, H. Weiland, D. R. Young, S. D. Benecchi, A. Verbitser, 2021, *New or Increased Cometary Activity in (2060) 95P/Chiron*, RNAAS, 5, 211
2. **M. E. Schwamb**, M. Jurić, B. T. Bolin, L. Dones, S. Greenstreet, H. H. Hsieh, L. Inno, L. R. Jones, M. S. P. Kelley, M. M. Knight, W. T. Reach, T. Seccull, C. Snodgrass, & D. E. Trilling, for the Vera C. Rubin Observatory LSST Solar System Science Collaboration 2021, *Year 1 of the Legacy Survey of Space and Time (LSST): Recommendations for Template Production to Enable Solar System Small Body Transient and Time Domain Science*, RNAAS, 5, 143
3. **M. E. Schwamb**, M. M. Knight, G. H Jones, C. Snodgrass, L. Bucci, J. Manuel Sánchez Pérez, Nikolai Skuppin, & the Comet Interceptor Science Team, 2020, *Potential Backup Targets for Comet Interceptor*, RNAAS, 4,21
4. **M. E. Schwamb**, H. Hsieh, M. T. Bannister, D. Bodewits, S. R. Chesley, W. C. Fraser, M. Granvik, R. L. Jones, M. Jurić, M. S. P. Kelley, D. Ragozzine, D.E. Trilling, & K.Volk, 2019, *A Software Roadmap for Solar System Science with the Large Synoptic Survey Telescope*, RNAAS, 3,51
5. **M. E. Schwamb**, K. Volk, H. W. Lin, M. S. P. Kelley, M. T. Bannister, H. Hsieh, R. L. Jones, M. Mommert, C. Snodgrass, D. Ragozzine, S. R. Chesley, S. S. Sheppard, M. Juric, & M. W. Buie, 2018, *A Northern Ecliptic Survey for Solar System Science*, LSST Cadence Optimization White Paper, arxiv: 1812.01149
6. **M. E. Schwamb**, H. F. Levison, & M. W. Buie, 2018, *Opportunities for the Large Synoptic Survey Telescope to Find New L<sub>5</sub> Trojan and Hilda Lucy Encounter Targets*, RNAAS, 2,159
7. **M. E. Schwamb**, R. L. Jones, S. R. Chesley, A. Fitzsimmons, W. C. Fraser, M. J. Holman, H. Hsieh, D. Ragozzine, C. A. Thomas, D. E. Trilling, M. E. Brown, M. T. Bannister, D. Bodewits, M. de Val-Borro, D. Gerdes, M. Granvik, M. S. P. Kelley, M. M. Knight, R. L. Seaman, Q.-Z. Ye, & L. A. Young, 2018, *Large Synoptic Survey Telescope Solar System Science Roadmap*, arxiv: 802.01783

---

#### References:

Prof. Chris Lintott	University of Oxford (chris.lintott@physics.ox.ac.uk)
Prof. Mario Jurić	University of Washington/Rubin Observatory (mjuric@astro.washington.edu)
Dr. Atsuko Nitta	International Gemini Observatory/NOIRLab (atsuko.nitta@noirlab.edu)

