Megan E. Schwamb

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Education

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

Awards & Honors

Carl Sagan Medal for Excellence in Public Communication in Planetary Science (American Astronomical Society, Division for Planetary Sciences)	Oct 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
Honorable Mention, National Science Foundation Graduate Fellowship	2007
Reed Fellowship, California Institute of Technology	2006
Barry M. Goldwater Scholarship	2005
University Scholar Honors, University of Pennsylvania	2002-2006

Employment & Positions Held

Assistant Scientist, Gemini Observatory, Northern Operations Center	2016-present
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
Smithsonian Astrophysical Observatory Summer REU Program Intern	2005

Observing Experience

50+ 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. Also trained in performing queue observing for the Gemini North Telescope

Professional Activities and Service

Large Synoptic Survey Telescope (LSST) Solar System Science Collaboration (SSSC) Co-Chair – the SSSC is one of the eight active LSST Science Collaborations	2017-present
Gemini Observatory NIRI (Near InfraRed Imager and spectrograph) instrument scientist	2017-present
Gemini North Operations Tea Discussion Series Co-Organizer	2017-present
Gemini North Science Coffee Discussion Series Organizer	2016-present
Continuing Collaborator on the Hyper Suprime-Cam Subaru Strategic Program (SSP)	2016-present
Outer Solar System Origins Survey (OSSOS) Light curves Working Group Team Lead	2016-2017
Member of the Large Synoptic Survey Telescope (LSST) Solar System Science Collaboration	2016-present
AAS World Wide Telescope Advisory Board Member	2016-present
Comet Hunters Project Scientist	2015-present
Comet Hunters Science Team Member	2015-present
Member of the Taiwan Canada-France Hawaii Telescope Time Allocation Committee	2015
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
Postdoctoral fellow representative to the ASIAA colloquium committee	2014-2015
Organizer of ASIAA Hack Days (Taipei - July 2014 & November 2015)	2014-2015
Science organizing committee member of the 2015 East Asian Young Astronomer Meeting (Taiwan, February 2015)	2014-2015
Collaboration member of the Outer Solar System Origins Survey (OSSOS)	2014-present

(member of Surfaces and Light Curves working groups)

Co-organizer of the workshop on Citizen Science in Astronomy (Taipei, March 2014).	2013-2014
Planet Four Science Team Member	2013-present
Member of the Las Cumbres Observatory Global Telescope (LCOGT) Time Allocation Committee allocating time on the 2-m Faulkes telescopes and LCOGT 1-meter network	2013-present
Co-organizer of the Hack Day at the winter American Astronomical Society Meeting (January 2013, 2014, 2015, 2016, 2017)	2012-present
Co-organizer for Yale Center for Astronomy & Astrophysics Seminar Series	2012-2013
Co-organizer of the 2013 NSF Astronomy & Astrophysics Fellows Symposium (Austin, January 2013)	2012
Member of the Yale Time Allocation Committee allocating time on WIYN, SMARTS, and Keck telescopes	2011-2013
Planet Hunters Project Scientist	2011-2015
Planet Hunters Science Team Member	2010-2015
Member of the La Silla-QUEST Kuiper belt Survey	2010-2013
Co-organizer for the Caltech Planetary Science Department Seminar	2009-2010
Member of the Palomar Distant Solar System Survey	2006-2009

Funding and Grants Awarded

National Science Council/Ministry of Technology & Science of Taiwan 'Citizen Science in Astronomy Workshop', (Officially Awarded to postdoctoral fellowship supervisor at ASIAA, Shiang-Yu Wang- Grant Written and Managed by M.E. Schwamb), 2013-2014, **300,000 NTD/$10,000**

Academia Sinica Postdoctoral Fellowship, 2013-2015, **1,832,480 NTD/$60,210**

American Philosophical Society Franklin Grant, "Assessing the Extrasolar Planet Inventory with Citizen Science," 2012, **$5,000**

National Science Foundation Astronomy & Astrophysics Postdoctoral Fellowship, "Dwarf Planets of the Southern Hemisphere," 2010-2013**, $249,000**

NASA Earth and Space Science Fellowship, "Beyond Sedna: Probing the Distant Solar System," 2009, **$30,000**

Research Activities

- *Studying the small body populations of the outer Solar System* – Dr. Schwamb has participated in the development, day-to-day operations, and analysis of two-wide field optical surveys (Schwamb et al 2009, 2010; Rabinowitz, Schwamb et al 2012, 2013) to study the orbital and physical properties of the planetesimal populations in the Kuiper belt and inner Oort Cloud. Dr. Schwamb is also assisting the outer Solar System group at ASIAA on the development of a strategy for a potential Solar System survey component to the Hyper Suprime-Cam (HSC) Survey on the Subaru Telescope as well as separate dedicated ASIAA led survey. HSC is the largest wide-field camera on a 10-m class telescope with a 1.5-deg field-of-view in diameter.

- *Colours of the Outer Solar System Origins Survey (Col-OSSOS)* - Col-OSSOS is a follow-up program for the Outer Solar System Origins Survey (OSSOS). OSSOS is an on-going large program on the Canada-France-Hawaii Telescope (CFHT) to produce a sample of ~500 Kuiper belt objects with well-characterized orbits obtained from a survey where the discovery biases and losses are fully known and understood. Col-OSSOS is a Large Program on Gemini North and on CFHT that began in the fall of 2014 to measure the optical and near-infrared colors (u, r,g,J) of the brightest OSSOS discoveries (m_r' < 23.5). Col-OSSOS will create an unprecedented dataset combining surface color information, orbital dynamics, and population statistics to probe the origin and history of the Kuiper belt. Dr. Schwamb is participating as manager of the optical data reduction team and as part of the observing team.

- *Light curves of Kuiper belt objects* – Dr. Schwamb is a member of the OSSOS light curves team which aims to obtain rotational rates and shape estimates for a sample of the OSSOS Kuiper belt discoveries. She currently serves as team lead, helping to coordinate observations and efforts from various team members.

- *Studying the seasonal fans on Mars* - Dr. Schwamb is an active science team member of the Planet Four (htttp://www.planetfour.org) project. Dark features develop on the top of Mars' Southern polar CO_2 ice sheet, as it thaws during the spring. Carbon dioxide gas jets loft dust and dirt through cracks in the ice sheet to the surface where it is believed the surface winds subsequently sculpt the material into the hundreds of thousands of dark fans. It is difficult if not impossible for computer algorithms to accurately identify individual fans are easily spotted by eye. Planet Four (launched in January 2013) enlists citizen scientists to examine high-resolution images, from the HiRISE camera on Mars Reconnaissance Orbiter (MRO), and map the sizes, shapes, and orientations of these features. Planet Four will produce a seasonal wind map of the South Pole of Mars and reveal how it changes over time and is impacted year to year by the Martian climate. Dr. Schwamb is consulting on the data reduction strategy to combine multiple classifier markings to identify the fans locations and shapes, and also participating in the effort to assess the accuracy and recall rate of Planet Four at identifying fans present in the HiRISE images.

- *Mapping the carbon dioxide jet process on Mars' South Pole* - Planet Four: Terrains (http://terrains.planetfour.org) is a citizen science project enlisting the general public to surveying mid-resolution MRO Context Camera (CTX) to identify the channels and pits (dubbed araneiforms) carved during the carbon dioxide gas jets formation process. Dr. Schwamb has lead the design and data analysis of the Planet Four: Terrains project. The project has identified 20 new regions of jet activity selected for on-going high resolution HiRISE monitoring. The analysis of the first 91 CTX observations has lead to the first

identification of araneiforms on geologic units located off of the South Polar Layered Deposits (SPLD, layers of dust and water ice) and a tentative link with crater ejecta covered surfaces. These locations serve as new probes of the conditions required for channel creation in the jet process and the active seasonal processes on Mars.

- *Using citizen science to study the population of main-belt comets:* Dr. Schwamb serves as project scientist for Comet Hunters (http://www.comethunters.org), an online citizen science project to identify main-belt comets, asteroids exhibiting cometary activity including dust tails and dust coma. Members of the public review asteroid observations from the Subaru Telescope from on-going Hyper Suprime-Cam survey and public archival images from Suprime-Cam.

- *Using citizen science to probe the inventory of exoplanets* -The Planet Hunters (http://www.planethunters.org) citizen science project utilizes human pattern recognition to identify exoplanet transits in the publicly released *Kepler* dataset that may be missed by automated detection algorithms. Dr. Schwamb is a founding member of the Planet Hunters. The success of a citizen science approach is shown by the project's: 9 planet candidate co-discoveries with the *Kepler* effort (Batalha et al. 2012; Lintott, Schwamb et al. 2013), over 30 unknown planet candidates not previously identified by the *Kepler* team (Fischer, Schwamb et al. 2012; Lintott, Schwamb et al. 2013; Wang et al.+ Schwamb 2013; Schmitt et al. + Schwamb 2014a,b), a confirmed Jupiter-sized planet in the habitable zone of a Sun-like star (PH2 b; Wang et al. + Schwamb 2013), and a circumbinary planet in a quadruple star system (PH1 b; Schwamb et al. 2013). Dr. Schwamb coordinated the analysis and observational follow-up effort to confirm and characterize PH1 b, the first planet discovered in a four star system. She led the scientific collaboration comprised of scientists at San Diego State University, Harvard- Smithsonian Center for Astrophysics, University of California Berkeley, Yale University, California Institute of Technology, Northwestern University, Southwest Research Institute, and the University of Alabama.

- *La Silla QUEST Kuiper belt Survey* – Dr. Schwamb participated in a wide-field survey aimed at searching for any remaining bright Pluto-sized bodies in the Kuiper belt. She designed the survey observing scheme, choosing to focus on the region of the southern skies that were the most likely to harbor Pluto-sized bodies and had not been previously surveyed from telescopes at Northern observatories. She also managed the day-to-day operations of the survey, reviewed the moving object candidates. Covering ~8,000 square degrees down to a R magnitude of 21.5, the survey found no new dwarf planets, but discovered 2010 WG9, the third and brightest of a dynamical subclass of class of Centaurs, minor planets on short-lived orbits between Jupiter and Neptune, on extreme nearly perpendicular orbits. She examined the origin of this class of object, finding that these bodies must be diffusing in towards the inner Solar System from the Oort cloud rather than originating in the Kuiper belt (Brasser, Schwamb et al. 2012b).

- *Palomar Distant Solar System Survey* - Dr. Schwamb participated in a wide-field Solar System survey covering ~12,000 square degrees down to a depth of 21.3 in R magnitude. The survey searched for new members of the inner Oort Cloud out to ~1000 AU in order constrain the size and orbital properties of this distant planetesimal population. No new Inner Oort cloud bodies were found, but the survey detected 52 (25 new discoveries) Kuiper belt objects (KBOs) including the discovery of dwarf planet 2007 OR10 and the redetection of inner Oort cloud object Sedna. Dr. Schwamb developed the automated software detection pipeline to search the images for moving objects. She also managed the day-to-day

operations of the survey including monitoring data quality, choosing the fields to observe, and examining candidate moving objects by eye. She was also responsible for all of the recovery observations to secure the orbits of the new discoveries. She developed a survey simulator to test predicted Inner Oort cloud orbital distributions, finding that Sedna is a natural outcome of an embedded cluster environment with a wide variety of cluster properties capable of producing an inner Oort cloud population consistent with the survey observations (Schwamb et al. 2009, 2010; Brasser, Schwamb et al. 2012).

Outreach Activities

- 2016-present: Contributing to Gemini blog with articles also organizing the Gemini blog series, Get to Know Gemini (http://www.gemini.edu/blog/blog/tag/get-to-know-gemini/) – A monthly blog series to highlight the different backgrounds, types of jobs, and people behind Gemini observatory.

- Frequent contributor to the blogs, for the Planet Four (http://blog.planetfour.org/) and the Comet Hunters (http://www.comethunters.org) projects and previously for the Planet Hunters (http://blog.planethunters.org/) project, communicating to the public the progress and science resulting from these citizen projects as well as gathering guest posts by other scientists detailing their research activities in associated fields.

- 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 in New York City, and currently serving as the organizer of the Taipei, Taiwan branch. The aim is to bring astronomy to the people, rather than having them come to the astronomers, in a more relaxed setting to talk about interesting science results. In addition to New York City and Taipei, branches of this series now exist in several US cities including: Washington DC, Columbus, Seattle, Lansing, Rochester, and Austin, USA, Toronto, Canada, and Santiago, Chile. Organized Astronomy on Tap one-night event in Chicago, USA (September 2014).

- Co-founder and co-curator of the curated twitter account Astrotweeps (http://www.astrotweeps.org), launched in January 2014, where each week a different astronomer or planetary scientist is featured, taking over the twitter account and engaging with over 4000 followers. Organized in December 2014 two google+ on-air hangouts with astronomers and planetary scientists featured on astrotweeps to discuss for the general public key astronomy and planetary science news and events of 2014 (138 combined views).

- Assisted with the coordination of the translation effort by the ASIAA Education and Public Outreach Office to translate astronomy-based Zooniverse (http://www.zooniverse.org) citizen science projects to traditional character Chinese. To date eight projects Galaxy Zoo, Planet Four, Disk Detective, Sunspotter, the Milky Way Project, Radio Galaxy Zoo, Cyclone Center, and Floating Forests have been translated. Also coordinated the Japanese translation of Planet Four.

- Organized two public Google+ Hangouts In July 2015 with Kupier belt experts, planetary scientists, and science communicators to discuss the science behind and the results coming from New Horizons fly-by before and after the spacecraft's closest approach to the Pluto system (in total 171 live and 1690 recorded views)

- Assisted with the 2013 Academia Sinica public open house and helped create and run a citizen science in astronomy booth as part of the ASIAA contribution.

- Co-organized a teacher workshop in Taipei, Taiwan as an addition to the Citizen Science in Astronomy workshop (March 2014) to introduce citizen science and present lessons plans and ways student can be engaged in Zooniverse projects.

- Communicating to the public via Twitter (@megschwamb) with over 2,700 followers. Also contributing content to the Gemini Observatory twitter account (@GeminiObs)

- Organized and participated in live web chats to communicate the science behind Planet Hunters, Planet Four, and other relevant astronomy and planetary science topics.

- Contributed popular science articles to *Sky & Telescope* Magazine, *Planetary Society blog*, and *Space Exploration News (Sen)*

Teaching and Mentoring Activities

January 4, 2017 – Attending New Methods for Teaching about Exoplanets Workshop, a one-day workshop at the American Astronomical Society focusing on best practices in implementing active learning strategies to the topic of exoplanets in the undergraduate classroom.

September 2016- present: Helping supervising undergraduate PIO (Public Information and Outreach) intern to develop Gemini blog series about Gemini's Large and Long Program (observing projects allocated multi-semester nights of observing time) and the Gemini PIO 12 Days of Solstice Advent Calendar.

July – November 2016: Co-supervised undergraduate student Ishan Mishra initially as part of the ASIAA Summer Student program and then afterwards. Ishan developed a pipeline to generate simulated main-belt comet images creating trailed coma and comet-like tails from template stars in HSC observations that will be used on the Comet Hunters website to determine the detection efficiency and detection thresholds for the Comet Hunters project.

January 3-4 2016 – attended Center for Astronomy Education's Tier I Teaching Excellence Workshop, a two-day workshop at the American Astronomical Society focusing on best practices in implementing active learning strategies.

July 2015: served as a lecturer for the ASIAA Summer Student program

July 1- August 31, 2015: Supervised undergraduate summer student Gauri Sharma as part of the ASIAA Summer Student program. She analyzed the prevalence of boulders in images of the HiRISE camera's seasonal monitoring campaign images and developed a software package to identify the Planet Four subimages that contain repeat observations of boulders and other desired positions around the Martian South Pole.

July 1 - August 31, 2014: Supervised undergraduate summer student Chu-hong Mai as part of the ASIAA Summer Student program. She was working on Planet Four project data including map projecting the orbital images of Mars used on the website.

June 1 - August 31, 2011: Co-supervised undergraduate summer student Thomas Esty. He created the Planet Hunters site guide, developed classroom content for high school and middle school science teachers, and assessed how well the Planet Hunters classifications identify stellar variability.

March - June 2009: Graduate Teaching Assistant for 'Introduction to Earth and Planetary Sciences: Planetary Sciences' at California Institute of Technology. Included holding homework and exam review sessions, grading homework and, guest lecturing.

Selected Invited Talks

Canada-France-Hawaii Telescope Seminar, Waimea, Hawaii, USA- July 24,2017
Earth & Life Science Institute Colloquium, Tokyo Institute of Technology, Japan – June 30, 2017
Invited Talk at the Small Bodies Session at AGU Meeting, San Francisco, USA - Dec 15, 2016
Our Red Planet Workshop Invited Speaker, NASA HQ/NASA Goddard – September 20, 2016
Gemini North Observatory Seminar, Hilo, Hawaii, USA - May 3, 2016
HSC Survey Collaboration Meeting, Taipei, Taiwan – Citizen Science with HSC, Jan 15, 2016
National Tsing Hua University Colloquium, Hsinchu, Taiwan – November 27, 2015
Bash Symposium 2015: New Horizons in Astronomy Talk, UT Austin USA – October 19, 2015
National Taiwan Normal University *Colloquium*, Taipei, Taiwan – March 10, 2015
Earth & Life Science Institute Seminar, Tokyo Institute of Technology, Japan – Feb 4, 2015
Cardiff University Colloquium, Cardiff, UK – November 5, 2014
University of Nottingham Seminar, Nottingham, UK – November 3, 2014
National Central University Colloquium, Taichung, Taiwan – May 16, 2014
Southwest Research Institute (SwRI) Colloquium, Boulder, Colorado, USA – January 14, 2014
Exoplanets and Kepler Astrophysics Special Session Talk, 223rd American Astronomical Society Meeting, Washington D.C., USA – January 6, 2014
Exoplanet Reading Group Seminar, University of Chicago, Chicago, USA – July 8, 2013
Modern Statistical & Computational Methods for Analysis of Kepler Data Workshop Talk, SAMSI, Research Triangle Park, North Carolina, USA, June 10, 2013
ASIAA Colloquium, Academia Sinica, Taipei, Taiwan – May 24, 2012
Institute for Theory & Computation Seminar, Harvard/SAO, Cambridge, USA – May 1, 2012
Southwest Research Institute (SwRI) Colloquium, Boulder, Colorado, USA – March 27, 2012
Wesleyan University Colloquium, Middletown, Connecticut, USA – March 7, 2012
Brown University Seminar, Providence, Rhode Island, USA – April 25, 2012
American Museum of Natural History Seminar, New York City, New York, USA – Feb 10, 2012
NASA Goddard Extrasolar Planets Seminar, Greenbelt, Maryland, USA November 2, 2011
University of Pennsylvania Colloquium, Philadelphia, Pennsylvania, USA – February 23, 2011

Publications In Preparation

1. **M.E. Schwamb,** W. C. Fraser, R. E. Pike, M. Marsset, M T. Bannister, J. J. Kavelaars, A. Delsanti, S. Benecchi, M. J. Lehner, S.-Y-Wang D. Nesvorný, B. Gladman, J.-M. Petit, S. Gwyn, Y.-T. Chen, M. Alexandersen, K. Volk, AJ, in preparation

2. **M. E. Schwamb**, C. J. Lintott, S. Kruk, R. J. Smethurst, S. Matsushita, S.-Y. Wang, & O. I. Wong**,** *Evidence for the Expulsion of the Molecular Gas Reservoir in Blue Elliptical Galaxies Via Active Galactic Nucleus Feedback*, AJ, in preparation

3. K.-M. Aye, **M. E. Schwamb**, C. J. Hansen, G. Portyankina, C. J. Lintott, B. Carstensen, C.

Snyder, M. Parrish, S. Lynn, C-H. Mai, D. Miller, G. Sharma, R. J. Simpson, & A. M. Smith, *Planet Four: A Citizen Science Investigation of the Martian South Polar Seasonal Fan Deposits*, Icarus, in preparation

Peer Reviewed Publications

1. 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, in press

2. **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, 2017, *Planet Four: Terrains - Discovery of Araneiforms Outside of the South Polar Layered Deposits*, Icarus, in press

3. 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

4. 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

5. 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

6. 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

7. A. C. Barr & **M. E. Schwamb**, 2016, *Interpreting the Densities of the Kuiper Belt's Dwarf Planets*, MNRAS, 460,1542

8. 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

9. 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. Sejpka, 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

10. 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

11. 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

12. 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

13. 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

14. **M. E. Schwamb**, M. E. Brown, & W. C. Fraser, 2014, *The Small Number of Large Kuiper belt objects*, AJ, 147, 2

15. 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)

16. 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

17. 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

18. 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

19. **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

20. D. Rabinowitz, **M. E. Schwamb**, E. Hadjiyska, & S. Tourtellotte, 2012, *The La Silla - QUEST Kuiper Belt Survey*, AJ, 144, 140

21. **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

22. 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

23. 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. Beleu, Z. Kaplan, N. Vannispen, 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

24. 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

25. W. C. Fraser, M. E. Brown, & **M. E. Schwamb**, 2010, *The Luminosity Function of the Hot and Cold Kuiper belt Populations*, Icarus, 10, 944

26. **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

27. **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

28. 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

29. C. Night, R. Di Stefano**,**& **M. Schwamb**, 2008, *Beyond Caustic Crossings: Properties of Binary Microlensing Light Curves*, ApJ, 686, 785

30. 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

Non-Peer Reviewed Publications

1. **M.E. Schwamb,** 2014, *Solar System: Stranded in no-man's-land*, Nature, News & Views, 507 7493