

Carl A. Schmidt

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Education

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| Ph.D., Astronomy, Boston University | 2013 |
| Thesis: <i>Mercury's Sodium Exosphere</i> (M. Mendillo Advisor) | |
| M.A., Astronomy, Boston University | 2008 |
| B.A., Physics, University of Colorado | 2005 |

Appointments

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| Research Assistant Professor, Boston University | 2021 - Present |
| Research Scientist, Boston University | 2017 - 2021 |
| Research Associate, CNRS/LATMOS Paris (F. Leblanc Supervisor) | 2015 - 2017 |
| Research Associate, Univ. of Virginia (R. E. Johnson Supervisor) | 2013 - 2015 |
| Graduate Research Assistant, Boston Univ. (M. Mendillo Supervisor) | 2006 - 2013 |
| Undergraduate Research Assistant, Univ. Colorado (F. Hearty Supervisor) | 2002 - 2005 |

Research Areas: Planetary aeronomy, plasma interactions with surfaces and atmospheres, Monte-Carlo modelling, telescope-based observation and instrumentation

Teaching Experience

Instructor, Boston Univ. 2022 (Fall term) & 2023 (Fall & Spring terms)

- *AS865 & AS866 Graduate Research Seminar I & II* Weekly seminar offering astronomy graduate students the skills and practice needed for oral presentations on current research topics and to receive peer and expert feedback, 2 credits

Guest Lecturer, Boston Univ. 2022 (Fall term)

- *CC111 Core Natural Science I: Origins- of the Big Bang, Earth, Life and Humanity* 5 lectures in a team-taught course in Boston University's Core Curriculum program. Targeted at incoming students fulfilling scientific inquiry, quantitative reasoning and teamwork/collaboration requirements, 4 credits, expected enrollement is roughly 100 students.

Instructor, Boston Univ. 2018 - 2021 (Summer term, annually)

- *AS101 The Solar System* course in Boston University's Astronomy Dept targeted at undergraduate non-majors fulfilling a laboratory science requirement, 4 credits, typically 16 students enrolled with 1 teaching assistant.

Teaching Assistant, Boston Univ.

2007 (Spring term)

- Lab instructor for *AS101 The Solar System* undergraduate course

Undergraduate Research Advisor:

- Chase Young (Spring - Summer 2018)
- Mikhail Sharov (Fall 2018 - Spring 2021)
- Cameron Moye (Univ. Maryland, NASA SUPPR intern, Summer 2020)
- Aishwarya Ganesh (Univ. Texas, NASA SUPPR intern, Summer 2021)
- Patrick Lierle (Summer 2019 - Summer 2022)

Graduate Research Advisor:

- Emma Lovett (Fall 2021 -), NASA FINESST Graduate Fellowship
- Patrick Lierle (Fall 2022 -)

Academic Service

PhD Thesis Committee Memberships:

- Rozenn Robidel (PhD 2023, Université Paris-Saclay) *Study of the exosphere of Mercury with the PHEBUS spectrograph on the BepiColombo mission*
- Alec Daly (PhD expected Fall 2024, Boston University) *TBD*

Qualifying Exam Committee Memberships:

- Lou Baya Ould Rouis (2023)

Journal Articles Under Review (students underlined)

- C. Nixon and 38 co-authors including C. Schmidt (2024) *Titan's Atmosphere in Late Northern Summer from JWST and Keck Observations*, *Nature Astronomy*, *under review*
- Z. Milby, K. de Kleer, C. Schmidt, and F. Leblanc (2024) *Short-Timescale Spatial Variability of Ganymede's Optical Aurora*. *Planetary Science Journal*, *under review*
- A. Unni, A. V. Oza, S. Thirupathi, H. J. Hoeijmakers, J. V. Seidel, C. A. Schmidt, K. de Kleer, A. D. Baker, B. Manjunath, A. Gebek and M. Meyer zu Westram (2024) *Transiting Sodium Cloud Localized to WASP-49b by HIRES/KECK*. *Monthly Notices of the Royal Astronomical Society*, *under review*

- J. P. Morgenthaler, C. Schmidt, M. F. Vogt, N. M. Schneider and M. Marconi (2024) *Jovian sodium nebula and Io plasma torus S⁺ and brightnesses 2017 – 2023: insights into volcanic vs. sublimation supply*. Journal of Geophysical Research: Space Physics, *under review*

Peer-Reviewed Book Chapters (students underlined)

- C. Schmidt and J. Baumgardner (2022) *Lunar Atmosphere, Alkali Lunar Exosphere in Encyclopedia of Lunar Science*, Editors B. Cudnik & C. Ahrens, Springer, [DOI](#).
- F. Leblanc, C. Schmidt, V. Mangano, A. Mura, G. Cremonese, J. M. Raines, J.M. Jasinski, M. Sarantos, A. Milillo, R.M. Killen, S. Massetti, T. Cassidy, R.J. Vervack Jr., S. Kameda, M.T. Capria, M. Horanyi, D. Janches, A. Berezhnoy, A. Christou, T. Hirai, P. Lierle and J. Morgenthaler (2022) *Comparative Na and K Mercury and Moon exospheres in Surface Bounded Exospheres and Interactions in the Solar System*, Space Sciences Series of ISSI, Springer. Jointly published in Space Science Reviews, Vol 218, 2, [DOI](#).

Peer-Reviewed Journal Articles (students underlined)

- D. Bhattacharyya, J. T. Clarke, M. Mayyasi, V. Shematovich, D. Bisikalo, J. Y. Chaufray, E. Thiemann, J. Halekas, C. Schmidt, J. L. Bertaux, M. S. Chaffin, and N. M. Schneider (2023) *Evidence of Hot Hydrogen in the Exosphere of Mars Resulting in Enhanced Water Loss*. Journal of Geophysical Research: Planets, Vol. 128 (8), e2023JE007801, [DOI](#).
- P. Lierle, C. Schmidt, J. Baumgardner, L. Moore and E. Lovett (2023) *The Rapid Imaging Planetary Spectrograph*. Publications of the Astronomical Society of the Pacific, 135, 095002, [arXiv](#), [DOI](#)
- Q. Zhang, K. Battams, Q. Ye, M. Knight and C. Schmidt (2023) *Sodium Brightening of (3200) Phaethon Near Perihelion*. The Planetary Science Journal, Vol. 4, 70, [DOI](#).
- K. de Kleer, Z. Milby, C. Schmidt, M. Camarca and M. Brown (2023) *The Optical and Near-Infrared Aurorae of Europa, Ganymede and Callisto*. The Planetary Science Journal, Vol. 4, 37, [DOI](#).
- C. Schmidt, M. Sharov, K. de Kleer, N. Schneider, I. de Pater, P.H. Phipps, A. Conrad, L. Moore, P. Withers, J. Spencer, J. Morgenthaler, I. Ilyin, K. Strassmeier, C. Veillet, J. Hill, and M. Brown (2023) *Io's Optical Aurorae in Jupiter's Shadow*. The Planetary Science Journal, Vol. 4, 36, [DOI](#).
- P. R. Lierle, C. Schmidt, J. Baumgardner, L. Moore, T. Bida and R. Swindle (2022) *The Spatial Distribution and Temperature of Mercury's Potassium Exosphere*. The Planetary Science Journal, Vol. 3, 87, [DOI](#).
- C. Schmidt (2022) *Doppler-Shifted Alkali D Absorption as Indirect Evidence for Exomoons*. Frontiers in Astronomy and Space Sciences, Vol. 9, 801873, [DOI](#).

- A. L. E. Werner, S. Aizawa, F. Leblanc, J. Y. Chaufray, R. Modolo, J. M. Raines, W. Exner, U. Motschmann and C. Schmidt (2022) *Ion density and phase space density distribution of planetary ions Na^+ , O^+ and He^+ in Mercury's magnetosphere*. Icarus, Vol. 372, 114734, [DOI](#).
- T. Cassidy, C. Schmidt, A. Merkel, J. Jasinski and M. Burger (2021) *Detection of Large Exospheric Enhancements at Mercury due to Meteoroid Impacts*, The Planetary Science Journal, Vol. 2, 175, [DOI](#).
- J. Baumgardner, S. Luetngen, C. Schmidt, M. Mayyasi, S. Smith, C. Martinis, J. Wroten, L. Moore and M. Mendillo (2021) *Long-Term Observations and Physical Processes in the Moon's Extended Sodium Tail*, Journal of Geophysical Research: Planets, Vol. 126, 3, [DOI](#).
- V. Mangano and 61 co-authors including C. Schmidt (2021) *BepiColombo science investigations during cruise and flybys at the Earth, Venus and Mercury*, Space Science Reviews, Vol. 217, 23, [DOI](#).
- C. Schmidt, J. Baumgardner, L. Moore, T. A. Bida, R. Swindle and P. Lierle (2020) *The Rapid Imaging Planetary Spectrograph: Observations of Mercury's Sodium Exosphere in Twilight*. The Planetary Science Journal, Vol. 1, 4, [DOI](#).
- A. Oza, R.E. Johnson, E. Lellouch, C. Schmidt, N. Schneider, C. Huang, D. Gamborino, A. Gebek, A. Wyttenbach and B-O Demory. (2019) *Sodium and Potassium as Remnants of Volcanic Satellites Orbiting Close-in Gas Giant Exoplanets*, Astrophysical Journal, V885, 2, [DOI](#).
- L. Moore, H. Melin, T. Stallard, J. O'Donoghue, J. Moses, S. Miller and C. Schmidt (2019) *Modelling H_3^+ in Planetary Atmospheres: Effects of Vertical Gradients on Observed Quantities*, Philosophical Transactions of the Royal Society A, 377, [DOI](#).
- R.E. Johnson, A. Oza, F. Leblanc, C. Schmidt and T.A. Nordheim (2019) *The Origin and Fate of O_2 in Europa's Ice: An Atmospheric Perspective*. Space Science Reviews, 215 (1), 20, [DOI](#).
- J. Morgenthaler, J. Rathbun, C. Schmidt, J. Baumgardner and N. Schneider (2019) *Large Volcanic Event on Io Inferred from Jovian Sodium Nebula Brightening*, Astrophysical Journal Letters, 871 (2), L23, [DOI](#).
- A. Oza, F. Leblanc, R. E. Johnson, C. Schmidt, L. Leclercq, T. Cassidy and J.-Y. Chaufray (2019) *Dusk Over Dawn O_2 Asymmetry in Europa's Near-Surface Atmosphere*. Planetary & Space Science, 167, 23-32, [DOI](#).
- C. Schmidt, N. Schneider, F. Leblanc, C. Gray, J. Morgenthaler, J. Turner and C. Grava (2018) *A Survey of Visible S^+ Emission in Io's Plasma Torus During the Hisaki Epoch*. Journal of Geophysical Research: Space Physics, 123, 7, 5610-5624, [DOI](#).
- F. Leblanc, A. Oza, L. Leclercq, C. Schmidt, T. Cassidy, R. Modolo, J.Y. Chaufray and R. E. Johnson (2017) *On the Orbital Variability of Ganymede's Atmosphere*. Icarus, Vol. 293, p. 185-198, [DOI](#).
- J. D. Turner, D. Christie, P. Arras, R. E. Johnson and C. Schmidt (2016) *Investigation of the environment around close-in transiting exoplanets using CLOUDY*. Monthly Notices of the Royal Astronomical Society, Vol 458 (4), p.3880-3891, [DOI](#).

- C. Schmidt (2016) *High Resolution Integral-Field Spectroscopy of Gas and Ion Distributions in the Coma of Comet C/2012 S1 ISON*. Icarus, Vol 265, p. 35-41, [DOI](#).
- R.E. Johnson, A. Oza, L.A. Young, A.N. Volkov and C. Schmidt (2015) *Volatile Loss and Classification of Kuiper Belt Objects*. Astrophysical Journal, Vol 809 (1), 43, [DOI](#).
- N.-E. Raouafi, C. M. Lisse, G. Stenborg, G. H. Jones and C. Schmidt (2015) *Dynamics of HVECs emitted from comet C/2011 L4 as observed by STEREO*. Journal of Geophysical Research, Vol 120 (7), pp. 5329-5340, [DOI](#).
- C. Schmidt, R.E. Johnson, J. Baumgardner and M. Mendillo (2015) *Observations of Sodium in the Coma of Comet C/2012 S1 (ISON) During Outburst*. Icarus, Vol 247, p. 313-318, [DOI](#).
- C. Schmidt (2013) *Monte-Carlo Modeling of North-South Asymmetries in Mercury's Sodium Exosphere*, Journal of Geophysical Research, Vol 118, A50396, [DOI](#).
- C. Schmidt, J. Baumgardner, M. Mendillo and J. Wilson (2012) *Escape rates and variability constraints for high-energy sodium sources at Mercury*, Journal of Geophysical Research, Vol 117, A03301, [DOI](#).
- C. Schmidt, J. Wilson, J. Baumgardner and M. Mendillo (2010) *Orbital Effects on Mercury's Escaping Sodium Exosphere*, Icarus, Vol 207 (1), p. 9-16, [DOI](#).

Conference Proceedings and Abstracts (students underlined)

- Roth, L., Schmidt, C., Saur, J., Molyneux, P., Retherford, K., Mykola, I. (2024) *Ganymede's oxygen and water atmosphere during eclipse passage*. Outer planet moon-magnetosphere interaction workshop held May 13-17 in Dublin, IRL.
- Nixon, C. et al. (2023) *Observations of Titan in 2022-2023 with JWST and Keck*, American Geophysical Union, Fall Meeting 2023, abstract #P32B-06.
- Lovett, E., Schmidt, C., Lierle, P. (2023) *Europa's Alkali Exosphere During the 2022 Juno Flyby*, American Geophysical Union, Fall Meeting 2023, abstract #P42A-07.
- Schmidt, C., Spencer, J., Roth, L., Ganesh, A., Moye, C., Saur, J., Retherford, K., Grodent, D. (2023) *Io's Far Ultraviolet Emissions Surrounding its Passage through Jupiter's Shadow*, American Geophysical Union, Fall Meeting 2023.
- de Kleer, K., Milby, M., Schmidt, C., Camarca, M., Brown, M. (2023) *The Optical Aurorae of Europa, Ganymede, and Callisto*, American Geophysical Union, Fall Meeting 2023, abstract #P42A-05.
- Morgenthaler J., Schmidt, C., Vogt, M., Schneider, N. (2023) Variation in the brightness of the Jovian sodium nebula and Io plasma torus since 2017: a tool for studying gas-producing geologic processes on Io, American Geophysical Union, Fall Meeting 2023, abstract #P33C-3170
- Schmidt, C., Baumgardner, J., Luettgen, S. Mayyasi, M., Smith, S. M., Martinis, C. R., Wroten, J, Moore, L., Mendillo, M. (2023) *Characterizing the Lunar Sodium Exotail Using Earth as a Lens*, American Geophysical Union, Fall Meeting 2023, abstract #P21C-3032.

- Morgenthaler J., Schmidt, C., Vogt, M., Schneider, N. (2023) Io plasma torus observations on 550 nights during the Juno era: A comprehensive record of the modulation in the flow of plasma into and out of Jupiter’s magnetosphere, American Geophysical Union, Fall Meeting 2023, abstract #SM21A-07.
- Nerney, E., Bagenal, F., Wilson, R. J., Schmidt, C. (2023) A 3D Model of the Io Plasma torus and Model Comparisons with Observations, American Geophysical Union, Fall Meeting 2023, abstract #P03-06A.
- Lovett, E., Schmidt, C. (2023) *Mapping Europa’s Salty Atmosphere*, Workshop on the Origins and Habitability of the Galilean Moons, held 24-26 October in Marseille, France.
- Morgenthaler J., Schmidt, C., Vogt, M., Schneider, N. (2023) Io plasma torus S+ and Jovian sodium nebula brightnesses since 2017: context for Io volcanic, atmospheric, and Jovian magnetospheric studies, EPSC-DPS Joint Meeting, held 1-6 Oct in San Antonio, Texas.
- Nerney, E., Bagenal, F., Schmidt, C. (2023) *A 3D Model of the Io Plasma torus and Model Comparisons with Observations*, EPSC-DPS Joint Meeting, held 1-6 Oct in San Antonio, Texas.
- Milby, Z. de Kleer, K., Schmidt, C. (2023) *Short-Timescale Variability of Ganymede’s Optical Aurora*, EPSC-DPS Joint Meeting, held 1-6 October in San Antonio, Texas.
- Roberts, K., Moore, L., Stallard, T., Chowdhury, N., Melin, H., O’Donoghue, J., Vogt, M., Mohamed, K., Agiwal, O. (2023) *Mapping Temporal and Spatial Temperature Variations in Jupiter’s Upper Atmosphere*, EPSC-DPS Joint Meeting, held 1-6 Oct in San Antonio, Texas.
- Lovett, E., Schmidt, C., Lierle, P. (2023) *Europa’s Alkali Exosphere During the 2022 Juno Flyby*, EPSC-DPS Joint Meeting, held 1-6 Oct in San Antonio, Texas.
- Lierle, P., Schmidt, C., Lovett, E. (2023) *Measurements of Heating in Mercury’s Alkali Exotail*, EPSC-DPS Joint Meeting, held 1-6 Oct in San Antonio, Texas.
- Schmidt, C., Merkel, A., Vervack, R. (2023) *Exospheric Redistribution of Elements in Mercury’s Soil*, EPSC-DPS Joint Meeting, held 1-6 Oct in San Antonio, Texas.
- Nixon C. A. and 36 co-authors including Schmidt, C. (2023) *Observations of Clouds on Titan with JWST/NIRCam and Keck/NIRC-2*, European Geophysical Union Meeting, held 23–28 April in Vienna, Austria.
- Clarke, J. T., Bhattacharyya, D., Mayyasi, M., Shematovich, V., Bisikalo, D., Chaufray, J. Y., Thiemann, E., Halekas, J., Schmidt, C., Bertaux, J. L., Chaffin, M. S. and Schneider, N. M. (2023) *Evidence of Hot Hydrogen in the Exosphere of Mars Resulting in Enhanced Water Loss*. European Geophysical Union Meeting, held 23–28 April in Vienna, Austria.
- Cartwright, R., de Kleer, K., Schmidt, C. A., Villanueva, G. L., Beddingfield, C. B., Nordheim, T. A., Hand, K. P., Glein, C. R., Emery J. P., Hanley, J. and Thieberger, C. (2023) *Investigating the Nature and Origin of Hydrated Salts on Europa*. 54th Lunar and Planetary Science Conference, held March 13–17 in The Woodlands, TX, [link](#).

- Nixon C. A. and 36 co-authors including Schmidt, C. (2022) *First Observations of Titan with the James Webb Space Telescope*. American Geophysical Union Fall Meeting held 12-16 Dec. in Chicago, IL, abstract #P52D-1572.
- Morgenthaler J., Schmidt, C., Marconi, M., Vogt, M., Schneider, N. (2022) Find Your Favorite Io Volcanic Enhancement! A Global View of the Jovian Magnetosphere During the Juno Mission as Recorded by PSI's Io Input/Output Observatory (IoIO). American Geophysical Union Fall Meeting held 12-16 Dec. in Chicago, IL, abstract #SM42F-2232.
- Solorio, W., Merkel, A. W., Brain, D. A., Schmidt, C. (2022) Understanding the Role of Mercury in Investigating the Connection Between Planetary Habitability, Atmospheres, and Magnetic Fields. American Geophysical Union Fall Meeting held 12-16 Dec. in Chicago, IL, abstract #P42E-2442.
- Schmidt, C. (2022) Na and K Absorption in Solar System Transit Spectroscopy, Exoplanets in Our Backyard 2.0, held 2-4 Nov in Albuquerque, NM, LPI 2687, 3033 [link](#).
- Milby, M., de Kleer, K., Schmidt, C., Camarca, M., Brown, M. (2022) Discovery of New Oxygen Aurora on Europa, Ganymede and Callisto. American Astronomical Society, DPS meeting #54, held 2-7 October in London, Ontario, id.513.08
- de Kleer, K., Milby, M., Schmidt, C., Camarca, M., Brown, M. (2022) The Red/Green Oxygen Aurorae of Europa and Ganymede. American Astronomical Society, DPS meeting #54, held 2-7 October in London, Ontario, id.513.09
- Moore, L., Stallard, T., O'Donoghue, J., Melin, H., Chowdhury, N., Johnson, R., Vogt, M., Schmidt, C. and Orton, G. (2022) Ionospheric temperature variability above Jupiter's Great Red Spot, EPSC2022-564. EPSC Meeting, held 18-23 Sept 2022 in Granada, Spain, [link](#).
- Morgenthaler J., Marconi, M., Schmidt, C., Vogt, M., Schneider, N. (2022) Using the Io plasma torus as a probe of Io's exosphere, Magnetospheres of the Outer Planets, held July 11-15, 2022 in Liege, BE, [link](#).
- Morgenthaler J., Marconi, M., Schmidt, C., Vogt, M., Schneider, N. (2022) Using Io Input/Output observatory (IoIO) observations to determine if mass flow in Jupiter's magnetosphere driven by internal or external processes, Magnetospheres of the Outer Planets, held July 11-15, 2022 in Liege, BE, [link](#).
- Schmidt, C., Cassidy, T., Merkel, A., Jasinski, J., Burger, M. (2022) Impact Events Observed by MESSENGER UVVS, Mercury 2022: Current and future science of the innermost planet, held 7-10 June 2022 in Orléans, France. [link](#).
- Mangano, V., Schmidt, C., Vervack, R., Morgenthaler, J., Leblanc, F., Lierle, P., Del Moro, D. (2022) Coordinated Campaign of Ground-Based Observations of Mercury's Exosphere in 2021, Mercury 2022: Current and future science of the innermost planet, held 7-10 June 2022 in Orléans, France. [link](#).
- Oza, A., Gebek, A., Seidel, J., Hoeijmakers, J., Unni, A., Thirupathi, S., Schmidt, C., Baker, A., de Kleer, K., Lopes, R., Johnson, R. E. (2022) Transient Sodium and

Potassium Clouds at Candidate Exomoon Systems, Exoplanets IV, held 1-6 May in Las Vegas, NV, Bulletin of the American Astronomical Society, Vol. 54 (5), [link](#).

- Schmidt, C., Lierle, P., Mangano, V., Leblanc, F., Morgenthaler, J., Vervack, R. (2022) Coordinated Ground-Based Measurements of Mercury's Exosphere, Mercury Exploration Assessment Group, held Feb 1–3, 2022, Virtual, [link](#).
- Schmidt, C. (2022) UVVS Measurements of Impactor Plumes: New Insights and Open Questions, Mercury's Surface Response to the Interplanetary Environment: Identifying Needed Studies in Laboratory Astrophysics, held Jan 24–27, 2022, Virtual, [link](#).
- Sharov, M., Schmidt, C., Gray, C., Schneider, C., Withers, P. (2021) An ARCES study of Io's Aurora in Jupiter's Shadow. APO Science Symposium, held virtually 26-28 July, [link](#).
- Morgenthaler J., Vogt, M., Schmidt, C., Schneider, N. (2021) Using Io Input/Output Observatory (IoIO) Observations to Provide an New Approach to Resolving the Question: Is Mass Flow in Jupiter's Magnetosphere Driven by Internal or External Processes? Magnetospheres of the Outer Planets, held July 12-16, 2021, virtual, [link](#).
- Schmidt, C., Cassidy, T., Merkel, A., Jasinski, J., Burger, M. (2021) Simulating Impulsive Events in the Mercury Exosphere as Observed by MESSENGER UVVS. Mercury Exploration Assessment Group, held Feb 3–5, 2021, Virtual, [link](#).
- Schmidt, C. (2020) The Io-Torus Interaction as Seen Through a Telescope, Outer Planet Moon-Magnetosphere Interaction Workshop, #24, held Nov 5-6 2020, ESA/ESTEC, Noordwijk, The Netherlands, [link](#).
- Moye, C., Schmidt, C., Roth, L., Ivchenko, N., Saur, J., & Retherford, K. (2020). Evidence for an Ionic Pathway in Oxygen and Sulfur Atoms Escaping Io. Bulletin of the AAS, 52(6), [link](#).
- Baumgardner, J., Luetzgen, S., Schmidt, C., Mayyasi, M., Smith, S., Martinis, C., Wroten, J., Moore, L., Mendillo, M. (2020) A new long-term study of the Moon's extended tail of sodium atoms. American Geophysical Union, Fall Meeting 2020, abstract #SM33F-3282.
- Lierle, P., Schmidt, C., Baumgardner, J., Moore, L., Swindle, R. (2020) The Brightness of Mercury's Potassium Exosphere. Europlanet Science Congress, Vol.14, EPSC2020-493, held 21 Sept - 9 Oct, Virtual, [DOI](#).
- Sharov, M., Schmidt, C., Gray, C., Schneider, C., Withers, P. (2020) Io's Optical Airglow in Jovian Eclipse. Europlanet Science Congress, Vol.14, EPSC2020-457, 2020, held 21 Sept - 9 Oct, Virtual, [DOI](#).
- Schmidt, C., Moullet, A., de Kleer, K., Spencer J., Roth, L. (2019) A Multi-Wavelength Study of Io's Atomic Oxygen and Sulfur Emission. American Geophysical Union, Fall Meeting 2019, abstract #SM33F-3282.
- Spencer J., Grundy, W., Schmidt C. (2019) Rapid Temporal Variability of Condensed Oxygen on Europa? EPSC-DPS Joint Meeting, held 15-20 Sept 2019 in Geneva, Switzerland, [link](#).

- Mangano V., Zender, J., Huovelin, J., Schmidt, C., Killen, R., Kameda, S. (2019) Sodium exosphere of Mercury: a call for new Earth-based telescopes and observers. EPSC-DPS Joint Meeting, held 15-20 Sept 2019 in Geneva, Switzerland, [link](#).
- Bhattacharyya, D., Clarke, J., Mayyasi, M., Chaufray, J.-Y., Schmidt, C., Johnson, R. E., Bertaux, J.-L., Moore, L., Chaffin, M., Groeller, H., Schneider, N. (2019) Evidence of Hot Hydrogen in the Exosphere of Mars. EPSC-DPS Joint Meeting, held 15-20 Sept 2019 in Geneva, Switzerland, [link](#).
- Oza, A. and 14 co-authors including Schmidt C. (2019) Alkaline Signatures of an Active Exomoon, *Extreme Solar Systems* 4, id. 306.05. *Bulletin of the American Astronomical Society*, Vol. 51, No. 6, [link](#).
- Baumgardner, J., Schmidt, C., Moore, L., Mendillo M., Mayyasi M. (2019) 20 Years of Observations of the Lunar Sodium Tail. 50th Lunar and Planetary Science Conference, held 18-22 March, 2019 in Woodlands, Texas. LPI id.1940, [link](#).
- Morgenthaler J. & Schmidt, C. (2018) Evidence for a large Volcanic Outburst on Io in Early January 2018 from Ground-Based Sodium Observations by the Io Input/Output facility (IoIO). American Geophysical Union, Fall Meeting 2018, abstract #SM52A-04
- Baumgardner, J., Schmidt, C., Moore, L., Swindle, R., Shaw, C. (2018) Concurrent Lucky Imaging and Spectroscopy of the Mercury Exosphere with the Rapid Imaging Planetary Spectrograph. American Geophysical Union, Fall Meeting 2018, abstract #P22B-05
- Johnson, R. E., Oza, A., Schmidt, C., Leblanc, F. (2018) Plasma and Thermal Processing of Europa's Surface, *Europa Deep Dive: Chemical Composition of Europa and State of Laboratory Data*, held 9-11 Oct, 2018 in Houston, Texas, id.3041, [link](#).
- Oza, A. and 11 co-authors including Schmidt C. (2018) Exogenic Volatiles in the Extended Exospheres of Extrasolar Giant Planets, *European Planetary Science Congress 2018*, held 16-21 September 2018 at TU Berlin, Germany, id.EPSC2018-1199, [link](#).
- Schmidt, C., Baumgardner, J., Moore, L., Bida, T. (2018) Ground-Based BepiColombo Support with the Rapid Imaging Planetary Spectrograph, *European Planetary Science Congress 2018*, held 16-21 September 2018 at TU Berlin, Germany, id.EPSC2018-1216, [link](#).
- Schneider, N., Schmidt C., Kagitani, M., Kasaba, Y., Kimura, T., Murakami, G., Tsuchiya, F., Yamakazi, I, Yoshioka, I, Yoshioka, K. (2018) A Search for Ion Scale Height Variability in Hisaki Io Torus Observations, *Magnetospheres of the Outer Planets*, held July 8-11, 2018 at University of Colorado, [link](#).
- Schmidt C., (2018) Visible Wavelength Spectroscopy of the Io Torus During the Hisaki Mission, *Magnetospheres of the Outer Planets*, held July 8-11, 2018 at University of Colorado, [link](#).
- Schmidt C., Leblanc, F., Reardon, K., Killen, R., Gary D. E., Ahn, K. (2018) Absorption Spectroscopy of Mercury's Exosphere During the 2016 Solar Transit, *Mercury: Current and Future Science of the Innermost Planet*, *Proceedings of the conference held 1-3 May, 2018 in Columbia, MD, 2047*, [link](#).

- Nerney, E. G., Bagenal, F., Yoshioka, K., Schmidt, C. (2017) Constraining Plasma Conditions of the IPT via Spectral Analysis of UV & Visible Emissions and Comparing with a Physical Chemistry Model, American Geophysical Union, Fall Meeting 2017, abstract #SM33C-2672
- Oza, A. V., Leblanc, F., Chaufray, J. Y., Schmidt, C., Roth, L., Johnson, R. E., Cassidy, T. A., Leclercq, L., Modolo, R. (2017) Europa and Ganymede's Water-Product Exospheres. European Planetary Science Congress 2017, held 17-22 September, 2017 in Riga Latvia, id. EPSC2017-626, [link](#).
- Schmidt, C., Leblanc, F., Moore, L., Bida, T. A. (2017) Detection of Mercury's Potassium Tail. American Astronomical Society, DPS meeting #49, id.422.01
- Schmidt, C. (2017) Absorption By Mercury's Atmosphere During Solar Transit. Transiting Exoplanets, held 17-21 July at Keele University, UK, [link](#).
- Schmidt, C., Reardon, K., Killen, R. M., Gary, D. E., Ahn, K., Leblanc, F., Baumgardner, J. L., Mendillo, M., Beck, C., Mangano, V. (2016) Absorption by Mercury's Exosphere During the May 9th, 2016 Solar Transit. American Geophysical Union, Fall General Assembly 2016, abstract #P53B-2198.
- Nerney, E. G., Bagenal, F., Schmidt, C., Yoshioka, K., Steffl, A., Schneider, N. M. (2016) Observations of Ion Composition in the Io Plasma Torus. American Geophysical Union, Fall General Assembly 2016, abstract #P23C-2177
- Raouafi, N. E., Lisse, C. M., Stenborg, G., Jones, G., Schmidt, C. (2016) Dynamics of HVECs emitted from comet C/2011 L4 as observed by STEREO. American Geophysical Union, Fall General Assembly 2016, #P43B-2114
- Leblanc, F., Oza, A., Schmidt, C., Leclercq, L., Modolo, R., Chaufray, J.-Y. (2016) 3D multispecies collisional model of Ganymede's atmosphere. American Astronomical Society, DPS meeting #48, id.429.09
- Skrutskie, M., Nelson, M., Schmidt, C. (2016) Monitoring the Near-infrared Volcanic Flux from Io's Jupiter-facing Hemisphere from Fan Mountain Observatory. American Astronomical Society, DPS meeting #48, id.429.22
- Leclercq, L., Chanteur, G., Modolo, R., Leblanc, F., Schmidt, C., Langlais, B., Thebault, E. (2016) Study of the internal magnetic field of Mercury through 3D hybrid simulations. American Astronomical Society, DPS meeting #48, id.117.01
- Oza, A. Leblanc, F., Schmidt, C., Johnson R. E. (2016) Origin and Evolution of Europa's Oxygen Exosphere. American Astronomical Society, DPS meeting #48, id.517.05
- Schmidt, C., Johnson, R. E., Mendillo, M., Baumgardner, J. L., Moore, L., O'Donoghue, J., Leblanc, F. (2015) Evidence for a Plasma Interaction with Europa's Sodium Clouds from High Resolution Integral Field Spectroscopy. American Geophysical Union, Fall Meeting 2015, abstract #SM31B-2491
- Lisse, C. M., Raouafi, N. E., Stenborg, G., Jones, G. H., Schmidt, C. (2015) Dynamics of High-Velocity Evanescent Clumps (HVECs) Emitted from Comet C/2011 L4 (Pan-STARRS) as Observed by STEREO. American Geophysical Union, Fall Meeting 2015, abstract #SM31D-2542

- Schmidt, C., Johnson, R. E., Mendillo, M., Baumgardner, J., Leblanc, F. (2015) Neutral and Plasma Distributions in the Coma of Comet C/2012 S1 ISON: Narrowband Imaging and Integral-Field Spectroscopy. European Planetary Science Congress, held 27 Sept - 2 Oct, 2015 in Nantes, France, [link](#).
- Schneider N., and 11 co-authors including Schmidt C., (2015) Plasma Parameters in Io's Torus: Measurements from Apache Point Observatory. European Planetary Science Congress, held 27 Sept - 2 Oct, 2015 in Nantes, France, [link](#).
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- Turner, J., Schmidt, C., Schneider, N., Chaffin, M., McNeil, E., Chanover, N., Oza, A., Rugenski, S., Thelen, A., Johnson, R. E., Bittle, L., King, P. (2014) Plasma Parameters in Io's Torus: Measurements from Apache Point Observatory. American Geophysical Union, Fall Meeting 2014, abstract #P13E-07
- Schmidt, C., Johnson R. E., Baumgardner, J., Mendillo M., (2014) Gas Distributions in Comet ISON's Coma: Concurrent Integral-Field Spectroscopy and Narrow-band Imaging, American Astronomical Society, DPS meeting #46, id.113.02
- Johnson R. E., Oza, A., Young, L., Volkov, A., Schmidt C. (2014) Volatile Loss and Classification of Kuiper Belt Objects. American Astronomical Society, DPS meeting #46, id.510.01
- Schmidt C., Mendillo M., Baumgardner, J., Johnson, R. E. (2013) Sodium Escape in Mercury's Atmosphere: Ground-Based Observations in Support of MESSENGER, American Astronomical Society, DPS meeting #45, id.102.07
- Bhattacharyya, D., Clarke, J. T., Bertaux, J., Chaufray, J., Montgomery, J., Schmidt, C. (2013) Analyzing HST observations of the Martian Corona with different modeling techniques, American Astronomical Society, DPS meeting #45, id.313.15
- Schmidt C., Baumgardner, J., Mendillo, M. (2012) Hemispheric Asymmetries in Mercury's Exosphere, American Astronomical Society, DPS meeting #44, id.410.05
- Clarke, J. T., Bhattacharyya, D., Montgomery, J., Bertaux, J., Chaufray, J., Gladstone, R., Quemerais, E., Wilson, J., Schmidt, C., Mendillo, M (2012) HST observations and modeling of the Martian hydrogen corona, American Astronomical Society, DPS meeting #44, id.214.01
- Schmidt C., Baumgardner, J., Mendillo, M., Sundberg, T., Walsh B. (2012) Hemispheric Asymmetries in Mercury's Exosphere Due to the Offset Magnetic Dipole, American Geophysical Union, Fall Meeting 2012, abstract #P33B-1931
- Schmidt C., Baumgardner, J., Mendillo, M., Wilson J. K. (2011), Escape rates and variability constraints for high-energy sodium sources at Mercury, EPSC-DPS Joint Meeting 2011, held 2-7 Oct 2011 in Nantes, France, Vol. 6, EPSC-DPS2011-100.

- Mangano V. and 19 co-authors including Schmidt, C. (2010) The sodium emission from Mercury’s exosphere as detected by the IMW coordinated campaign in June 2006, 38th COSPAR Scientific Assembly, held 18-15 July 2010, in Bremen, Germany, p.5, B07-0022-10.
- Schmidt, C., Baumgardner, J., Mendillo, M., Davis, C., Musgrave, I. (2010) Observations of Extended Emissions at Mercury by the STEREO Spacecraft, European Planetary Science Congress, held 20-24 Sept in Rome, Italy, Vol. 5, EPSC2010-419.
- Schmidt, C., Baumgardner, J., Mendillo, M., Davis, C., Musgrave, I. (2010) Observations of tail structures at Mercury with the STEREO spacecraft, Joint MESSENGER / BepiColombo Workshop, held, Nov 2-5, in Boulder, CO, Abstract 2.2.1.
- Schmidt, Wilson, Baumgardner, J., Mendillo (2009) Variability in Mercury’s Escaping Sodium Atmosphere, American Astronomical Society, DPS meeting #41, id.35.01
- Schmidt, Wilson, Baumgardner, J., Mendillo (2008) Wide Field Observations of Variability in Mercury’s Comet-like Sodium Tail, American Astronomical Society, DPS meeting #40, id.51.09; Bulletin of the American Astronomical Society, Vol. 40, p.491
- Schmidt, Wilson, Baumgardner, J., Mendillo (2008) Wide Field Observations of Mercury’s Extended Sodium Exosphere, 37th COSPAR Scientific Assembly, held 13-20 July 2008 in Montreal, Canada, p.2775, B07-0036-08
- Schmidt, Baumgardner (2007) Boston University Calibration Facility for Optical Aeronomy. CEDAR Meeting Abstract

Non-Peer-Reviewed Publications

- Chanover, N., Schmidt, C., & DeColibus, D. (2021) *The Continued Relevance of 4m Class Telescopes to Planetary Science in the 2020s* White paper #497 submitted to the Decadal Survey in Planetary Science and Astrobiology 2023-2032, Bulletin of the AAS, 53(4), [DOI](#).
- P. Prem, A. Kereszturi, A. Deutsch, C. Hibbitts, C. Schmidt and 36 co-authors (2021) *Lunar Volatiles and Solar System Science*, White paper #68 submitted to the Decadal Survey in Planetary Science and Astrobiology 2023-2032, Bulletin of the AAS, 53(4), [ArXiv](#), [DOI](#).
- A. Deutsch, N. Chabot, A. Maiti, A. Luspay-Kuti, A. Kereszturi, A. Lucchetti, A. Virkki, A. Colaprete, A. Vorburger, B. Byron, B. Jones, B. Anzures, B. Butler, C. Schmidt and 59 co-authors (2021) *Science Opportunities offered by Mercury’s Ice-Bearing Polar Deposits*. Whitepaper #69 submitted to the Planetary Science and Astrobiology Decadal Survey 2023-2032, Bulletin of the AAS, 53(4), [DOI](#).
- J. Clarke, C. Schmidt, J. Baumgardner, C. Carveth, M. Matta, M. Mendillo, L. Moore, and P. Withers (2013) White Paper on Comparative Planetary Exospheres. White paper submitted to Heliophysics Decadal Survey, [link](#).
- F. Hearty, S. Beland, J. Green, N. Cunningham, J. Barentine, M. Drosback, R. Valentine, A. Bondarenko, C. Schmidt, J. Walawender, C. Froning, J. Morse and P. Hartigan

(2005) Colorado’s Near-Infrared Camera (AKA NIC-FPS) Commissioning on the ARC 3.5M Telescope, Proc. SPIE, Vol 5904, p. 199-211, [DOI](#).

Invited Colloquia

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| The Io Plasma Torus, Union College, Schenectady, NY, USA | 2024 |
| Io’s Atmosphere, Ionosphere, and Plasma Torus, LATMOS, FR | 2023 |
| Solar System Context in the Hunt for Exomoons, NASA JPL, Pasadena, CA, USA | 2023 |
| Alkali Emissions in the Lunar Atmosphere, UMASS, Lowell, MA, USA | 2023 |
| The Lunar Sodium Exosphere, Taiwan Space Union, Taiwan | 2023 |
| The Io-Jupiter Interaction, UMD, College Park, MD, USA | 2022 |
| Io’s Atmosphere and Plasma Torus, Boise State University, Boise, ID, USA | 2022 |
| Optical Spectroscopy of Jupiter’s Moons, AAVSO, Cambridge, MA, USA | 2021 |
| Observing the Exospheres of Mercury & the Moon, UMASS, Lowell, MA, USA | 2020 |
| Io’s Escaping Atmosphere & Plasma Torus, Boston College, Boston, MA, USA | 2018 |
| Solar Transit Spectroscopy of Mercury’s Exosphere, Universiteit van Amsterdam, NL | 2018 |
| Io’s Escaping Atmosphere & Plasma Torus, Universität zu Köln, DE | 2018 |
| Io’s Volcanic Atmosphere and Plasma Torus, Boston University, Boston, MA, USA | 2018 |
| Io’s Plasma Torus Density & the S ⁺ Ribbon, Royal Institute of Technology, SE | 2017 |
| Small Telescope Applications: Mercury, Io & Comets, Université de Liège, BE | 2017 |
| Planetary Applications for Small Telescopes, Institute of Astronomy, Sofia, BG | 2017 |
| Visible Spectroscopy of the Io Plasma Torus, LESIA, l’Observatoire de Paris, FR | 2016 |
| Observations of Io, its Plasma Torus and Neutral Clouds, Lancaster Univ, UK | 2016 |
| Modern Planetary Applications for Small Telescopes, UMD, College Park, MD, USA | 2015 |
| Characteristics of Sodium Escape at Mercury, SERENA-HEWEG, Killarney, IRL | 2014 |
| Atmospheric Escape in Our Solar System, Space Challenges, Sofia, BG | 2013 |
| Mercury’s Sodium Atmosphere, AOSS, Univ. of Michigan, Ann Arbor, MI, USA | 2012 |
| Mercury’s Tenuous Atmosphere, Heliophysics, NASA GSFC, Greenbelt, MD, USA | 2012 |

Grants, Awards & Fellowships

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- NASA/NExSCI Keck Award *Joint Keck-Juno observations of Jupiter, its moons and its magnetosphere*, Co-I (PI Luke Moore, BU), Dates TBD. Total budget / funding to BU: \$60,000
 - Hubble Space Telescope Cycle 31 *HST-Juno Io Campaign: Connecting Volcanos to the Plasma Environment*, Co-I, 2023.12.01 to 2026.11.30. HST-GO-17470. Total budget: TBD. Funding to BU: TBD
 - NSF AST PAARE *Accessing the dark Arizona skies for research and education, a NCAT-BU partnership*, Co-PI (PI Dan Clemens, BU), 2023.08.24-2026.08.23. Total budget / funding to BU: \$256,696
 - NASA/NExSCI Keck Award *Recoil Heating in Mercury’s Alkali Exotail*, PI (Science PI Patrick Lierle, BU), 2024.02.01 to 2025.01.31. Total budget / funding to BU: \$13,375.

- NASA FINESST PI for Emma Lovett’s Graduate Fellowship *Characterizing and Simulating Alkalis in Europa’s Exosphere*, PI, 2023.09.01 to 2026.08.31. 22-PLANET22-0198. Total budget / funding to BU: \$150,000
- Hubble Space Telescope Cycle 30 *Ganymede’s water atmosphere in eclipse*, PI, 2023.06.01 to 2026.05.31. HST-GO-17099. Total budget: \$75,414. Funding to BU: \$55,643
- NASA Discovery Data Analysis Program *Mercury’s escaping sodium tail*, PI, 2022.09.15 to 2025.09.14. 80NSSC22K1303. Total budget: \$525,000. Funding to BU: \$393,997
- NASA/NExSCI Keck Award *Joint Keck-Juno observations of Jupiter, its moons and its magnetosphere*, PI, 2022.08.01 to 2024.07.30. 80NSSC22K0954. Total budget / funding to BU: \$150,000
- NSF Astronomy and Astrophysics Research Grant. *Mass transport in Jupiter’s magnetosphere: driven by internal or external processes?* Co-I/Institutional PI (PI Jeff Morgenthaler, Planetary Science Institute), 2021.09.01 to 2024.08.30. AST-2108416. Funding to BU: \$94,720
- NASA Solar System Observations *Dynamic Processes on the Galilean Satellites*, Co-I/Institutional PI (PI John Spencer, Southwest Research Institute), 2021.08.01 to 2024.07.31. 80NSSC21K1138. Funding to BU: \$59,981
- NASA Discovery Data Analysis Program *Investigating the Impactor Contribution to Mercury’s Exosphere*, Co-I/Institutional PI (PI Aimee Merkel, Univ. Colorado), 2021.05.21 to 2024.04.30. 80NSSC21K1019. Total budget: \$551,469. Funding to BU: \$131,866
- NASA Science Mission Directorate *Characterizing Mercury’s Exosphere with BepiColombo-PHEBUS: US-based Co-Investigators*, PI, 2020.10.13 to 2025.10.12, 80NSSC21K0051. Total budget / funding to BU: \$226,061
- NASA/NExSCI Keck Award *Response of Io’s atomic atmosphere and ionosphere to Jovian eclipse: joint observations with HIRES and HST*, PI, 2020.02.01 to 2020.09.30. 87/2020A-N079. Total budget / funding to BU: \$11,775
- NASA New Frontiers Data Analysis Program *The plasma distribution in the Io torus during the Juno epoch*, Co-I (PI Paul Withers, Boston Univ.), 2019.03.21 to 2022.02.28. 80NSSC19K0818. Total budget / funding to BU: \$289,272
- SOFIA Guest Observer Cycle 7 *Io’s Atomic Sulfur Atmosphere in the Mid-IR*, PI, 2019.04.01 to 2020.03.31. 07-0221. Total budget / funding to BU: \$16,700
- NASA/NExSCI NN-EXPLORE WIYN PI Data Award *Confirming a High Velocity Exo-Exosphere at HD 80606b*, PI, 2019.02.01 to 2021.01.31. N0223. Total budget / funding to BU: \$10,100
- NASA/NExSCI Keck Award *Juno Support: Io’s Auroral Emissions in Jovian Eclipse*, PI, 2019.02.01 to 2020.01.31. 84-208B-N110. Total budget / funding to BU: \$10,062
- Hubble Space Telescope Cycle 26 *Auroral and magnetospheric context for Juno in situ instruments during Cycle 26*, Co-I (PI Denis Grodent, Univ. Liege), 2019.03.01 to 2020.02.28. HST-GO-15638. Total budget / funding to BU: \$134,087

- NASA Solar System Workings *Physical Processes Governing Mercury’s Alkali Exosphere*, PI, 2018.11.01 to 2021.03.31. 80NSSC19K0790. Total budget: \$352,275. Funding to BU: \$203,872
- NASA Solar System Observations *Ground-based observations of Mercury’s exosphere in the post-MESSENGER era*, PI, 2018.03.01 to 2021.02.28. 80NSSC18K0857. Total budget: \$507,403. Funding to BU: \$165,281
- NASA Solar System Workings *The Ins and Outs of the Io Plasma Torus: understanding mass and energy transport using two decades of optical and radio observations*, Co-I (PI Jeff Morgenthaler, Planetary Science Institute), 2017.08.23 to 2020.08.22. 80NSSC17K0733. Total budget: \$526,604. Funding to BU: \$115,358
- Hubble Space Telescope Cycle 25 *Extreme Doppler Shifting of Io’s Neutral Jets*, PI, 2018.03.01 to 2019.02.28. HST-GO-15147. Total budget: \$39,999. Funding to BU: \$28,006
- NSF Astronomy and Astrophysics Research Grant *The Influence of Mercury’s Magnetosphere on Its Outermost Atmosphere*, Science PI (PI Luke Moore, Boston Univ.), 2016.07.15 to 2019.06.30. AST-1614903. Total budget / funding to BU: \$374,407
- NASA Earth and Space Sciences Fellowship *Mercury’s Escaping Atmosphere*, Science PI (PI Michael Mendillo, Boston Univ.), 2010.03.15 to 2013.03.15. 10-Planet10F-0041. Total budget / funding to BU: \$90,000

Telescope Time Awarded

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| Keck I & II (as Co-I, PIs P. Lierle and L. Moore) | 2024, 2025 |
| HST & JWST joint program, STScI (as Co-I, PI K. Retherford) | 2023 |
| WIYN, NASA NExSci | 2022 |
| Hubble Space Telescope, STScI (as US PI, PI L. Roth) | 2022 |
| Keck I & II, NASA NExSci (as PI & Co-I, PI L. Moore) | 2022, 2023 |
| Keck I & II, NASA NExSci (as Co-I, PIs L. Moore & K. de Kleer) | 2021 |
| Very Large Telescope, ESO (as Co-I, PI A. Oza) | 2020 |
| Keck I & II, NASA NExSci (as PI & Co-I, PI M. Vogt) | 2020 |
| THEMIS Solar Telescope, SOLARNET (as Co-I, PI V. Mangano) | 2019, 2020 |
| Big Bear Solar Observatory | 2019 |
| GREGOR Solar Telescope | 2019 |
| SOFIA, USRA | 2019 |
| IRTF, NASA (as Co-I, PI L. Moore) | 2019 |
| WIYN, NASA NExSci | 2019 |
| Keck I, NASA NExSci (as PI & Co-I, PI K. de Kleer) | 2019 |
| Hubble Space Telescope, STScI (as Co-I, PI D. Grodent) | 2019 |
| Hubble Space Telescope, STScI | 2018 |
| Dunn Solar Telescope, National Solar Observatory | 2016 |
| Vacuum Tube Telescope, SOLARNET | 2016 |
| GREGOR Solar Telescope, SOLARNET (as Co-I, PI V. Mangano) | 2016 |
| Very Large Telescope, ESO (as Co-I, PI B. Bonfond) | 2015 |

Via Institutions Partnerships: Large Binocular Telescope, IRTF, Apache Point 3.5m, Lowell Discovery Telescope

Service & Team Activity

- Instrument Science PI: Rapid Imaging Planetary Spectrograph: <http://carlschmidt.science/RIPS.html>
- Co-Investigator: ESA/JAXA BepiColombo mission to Mercury
- Institutional Representative: Massachusetts Space Grant Consortium (2020 -)
- Team Lead: Nationwide Eclipse Ballooning Project, Massachusetts Team
- International Space Science Institute Teams: The influence of Io on Jupiter's Magnetosphere (2016 - 2017), Surface Bounded Exospheres and Interactions in the Solar System (2020), Mass loss from Io's unique atmosphere: Do volcanoes really control Jupiter's magnetosphere? (2021 - 2022)
- Journal Reviews: Icarus (outstanding reviewer award 2017), Journal of Geophysical Research, Geophysical Research Letters, Nature, Astronomy & Astrophysics
- Panelist for federal programs: 12x Research Opportunities in Space and Earth Science (ROSES) programs, Keck Time Allocation Committee, PDS Derived Data Review, Discovery Mission Extension Review, CNRS DIM-ORIGINES (France).
- Local Organizing Committees: Cool Stars 20 Conference, Boston University (2018), DPS Conference, Providence RI (2021)
- Scientific Organizing Committees: Jupiter Day, Boston University (2018)
- Session Chair: AGU: Dynamics of the Io-Jupiter System (2014) and Dynamic Exospheres of Terrestrial bodies through the Solar System (2023), DPS/EPSC: Fire and Ice: Io and Beyond (2023), Io plasma torus splinter meetings at MOP (2017 & 2018), Exosphere/Magnetosphere, Mercury: Current and Future Science of the Innermost Planet, USRA (2018)
- Memberships: American Astronomical Society, International Astronomical Union, American Geophysical Union

Public Outreach

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| Subject Matter Expert, NASA Community College Network | 2023 – |
| Volunteer Astronomer, High Rock Tower & Observatory, City of Lynn, MA | 2022 – |
| Spectroscopy Lab Instructor, ISS Downlink Day, Boston University | 2022 |
| Lab Instructor, BU Academy Dept Visit, Boston Univ. | 2022 |
| Host, Navajo-Hopi Astronomy Outreach Program, Lowell Observatory | 2018 |
| Lecturer / Volunteer Astronomer, J.B. Coit Observatory, Boston Univ. | 2017 – |
| Lecturer, Fan Mountain Observatory Public Nights, Univ. Virginia | 2014 – 2015 |
| Science Fair Judge, Virginia Piedmont Regionals, Charlottesville, VA | 2014 |
| Lecturer, McCormick Observatory Public Nights, Univ. Virginia | 2013 – 2015 |

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| Lab Instructor, Upward Bound program, Boston Univ. | 2010 |
| Science Fair Judge, O'Bryant School for Math and Science, Roxbury, MA | 2009 |
| Workshop Coordinator, Sprout, www.thesprouts.org, Somerville, MA | 2009 – 2013 |

Press & Media

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| Astronomy Magazine: <i>Aurorae throughout our solar system and beyond</i> | 2023 |
| Live TV Interview, Hopewell Meteorite, Russian Television International (RTVi) | 2023 |
| AAS NOVA <i>Pizza Aurorae: Northern (and/or Southern) Lights on Io</i> | 2023 |
| NY Times: <i>New Auroras Found Glowing in the Skies of Jupiter's Moons</i> | 2023 |
| NY Times: <i>Telescopes Team Up to Forecast an Alien Storm on Titan</i> | 2022 |
| Boston Globe: <i>Bad weather may hurt viewing of rare lunar eclipse Friday in Mass.</i> | 2021 |
| Swedish National Public Television: <i>Today a storm from the moon pulls past the earth</i> | 2021 |
| NY Times: <i>The Moon Has a Comet-Like Tail</i> | 2021 |
| Wall Street Journal: <i>Comet Neowise as Seen Around the World</i> | 2020 |
| Sky & Telescope: <i>Comet NEOWISE Dazzles at Dusk</i> | 2020 |
| Fox News: <i>Comet NEOWISE may have sodium tail, new images suggest</i> | 2020 |
| TV Interview, <i>Space Challenges Documentary</i> , Bulgarian National Public Television | 2017 |
| TV Interview, NASA ScienceCast: <i>The 2016 Transit of Mercury</i> | 2016 |
| Content Advisor, Science in the News, Harvard University GSAS | 2013 - 2016 |
| Radio Interview, Science Straight Up, WTJU FM | 2014 |
| Phys.org: <i>Mercury's comet-like appearance spotted by satellites looking at the Sun</i> | 2010 |
| Universe Today: <i>STEREO Catches Mercury Acting Like a Comet</i> | 2010 |