

John W. Noonan

Curriculum Vitae

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Education

Aug. 2012-May 2016	B.A. Astrophysical and Planetary Sciences, University of Colorado, Boulder (<i>Summa cum laude</i>)
Aug. 2017- Jan. 2022	Ph.D. and M.S. (<i>en route</i>), Planetary Sciences, Lunar and Planetary Laboratory, University of Arizona

Employment

Sept. 2022 -	Postdoctoral Researcher, Department of Physics, Auburn University
Feb. 2022 - Sept. 2022	Visiting Research Scholar, Department of Physics, Auburn University
June 2016 - July 2017	Analyst, Department of Space Operations at Southwest Research Institute (SwRI)
June 2015 - June 2016	Student Scientist, Department of Space Operations, SwRI
June 2014 - June 2015	Student Assistant, Department of Space Operations, SwRI

Programming Skills

Python	Experienced User, data reduction, data analysis, statistical modeling, numerical simulations
LaTeX	Experienced User, manuscript preparation, document management
Git	Experienced User, version control, repository maintenance
Notion	Experienced User, management and organizational software
Fortran	Some Experience, numerical simulation
C++	Some Experience, numerical simulation
Microsoft Office	Experienced User
Google Drive	Experienced User

Achievements and Awards

April 2014	Runner-up, CU Boulder Student Employee of the Year
May 2014	Recipient of Susan Wesley Scholarship, CU Boulder
August 2019	Student Travel Stipend, Mike A'Hearn Comet Symposium
May 2023	Dr. James D. Henson Postdoctoral Scholar Award Auburn University Department of Physics
June 2023	Asteroid (32185) named Noonan by IAU

Invited Talks and Presentations

March 2018	<i>Ultraviolet Observations of Coronal Mass Ejection Impact on Comet 67P/Churyumov-Gerasimenko by R-Alice.</i> Department of Physics, Comenius University, Bratislava, Slovakia.
July 2023	<i>Mapping Cometary Water Production Rates with ULTRASAT</i> Weizmann Institute of Science, Rehovot, Israel.

University and Professional Service

Current

Janu. 2023 -	Reviewer	Icarus
Sept. 2020 -	Reviewer	The Planetary Science Journal
Mar. 2020 -	Reviewer	Space Telescope Science Institute (Hubble Space Telescope)
June 2019 -	Member	American Astronomical Society Division of Planetary Science DPS Federal Relations Subcommittee
Sept. 2019 -	Reviewer	NASA Planetary Data System Small Bodies Node

Past

	Executive Secretary, Panelist	NASA Review Panel
June 2020 - May 2022	Organizer	Small Bodies Research Journal Club at the Lunar and Planetary Laboratory
Aug. 2018 - May 2020	Organizer	Lunar and Planetary Laboratory Journal Club
Jan. 2014 - Jan. 2015	Founding Member	University of Colorado Astronomy Club

Outreach

Dec. 2017	"The Rosetta Mission", talk for the Sonoran Astronomical Society
Jan. 2017	"CYGNSS: The Human Side" Blog for the Planetary Society
Nov. 2016	"Rosetta in the Rearview: What Have We Learned?" Blog for the Planetary Society

Current and Pending Funding

2018-2020	Composition and physical processes of the inner coma of Comet 46P/Wirtanen GO-15625, PI: D. Bodewits
2019-2022	A multidisciplinary approach to unravel photon and electron processes and their interaction with the coma of 67P/Churyumov-Gerasimenko NASA RDAP, PI: D. Bodewits
2020-2021	HST/COS chemical inventory and activity of interstellar object 2I/Borisov GO-16049, PI: D. Bodewits
2021-2022	The return of Rosetta's comet 67P/Churyumov-Gerasimenko GO-16770, PI: D. Bodewits
2021-2022	Characterizing the Aftermath of Mega Outbursts of Centaur 29P GO-16852, PI: D. Bodewits
2023-2026	Investigating Sulfur Abundances and Distributions in UV Comet Observations AR-17031, PI: J. Noonan, (\$493,000)
2023-2025	Characterization of Water Outgassing in Main-Belt Comets 133P/Elst-Pizarro and 358P/PANSTARRS GO-4250, PI: H. Hsieh

Students

2022-	Benjamin Lightfoot, Auburn University, <i>Fluorescence efficiencies of atomic species</i> Auburn University Department of Physics Outstanding Junior, 2023
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Letters of Reference

Walter M. Harris	Ph.D Advisor, University of Arizona	wmharris@email.arizona.edu
Vishnu Reddy	Ph.D. Minor Advisor, University of Arizona	vishnureddy.lpl@gmail.com
Dennis Bodewits	Postdoctoral Advisor, Auburn University	dzb0059@auburn.edu

Publications

Refereed research papers

1. Feldman, P. D., M. F. A'Hearn, L. M. Feaga, J.-L. Bertaux, J. **Noonan**, J. W. Parker, E. Schindhelm, A. J. Steffl, S. A. Stern, and H. A. Weaver (July 2016). The Nature and Frequency of the Gas Outbursts in Comet 67P/Churyumov-Gerasimenko Observed by the Alice Far-ultraviolet Spectrograph on Rosetta. *The Astrophysical Journal Letters* **825**(1), L8, L8.
2. **Noonan**, J., E. Schindhelm, J. W. Parker, A. Steffl, M. Davis, S. A. Stern, Z. Levin, S. Kempf, and M. Horanyi (Aug. 2016). An investigation into potential causes of the anomalistic feature observed by the Rosetta Alice spectrograph around 67P/Churyumov-Gerasimenko. *Acta Astronautica* **125**, 3–10.
3. Chaufray, J. .-Y. et al. (July 2017). Rosetta Alice/VIRTIS observations of the water vapour UV electroglow emissions around comet 67P/Churyumov-Gerasimenko. *Monthly Notices of the Royal Astronomical Society* **469**, S416–S426.
4. Feldman, P. D., M. F. A'Hearn, J.-L. Bertaux, L. M. Feaga, B. A. Keeney, M. M. Knight, J. **Noonan**, J. W. Parker, E. Schindhelm, A. J. Steffl, S. A. Stern, R. J. Vervack, and H. A. Weaver (Jan. 2018). FUV Spectral Signatures of Molecules and the Evolution of the Gaseous Coma of Comet 67P/Churyumov-Gerasimenko. *The Astronomical Journal* **155**(1), 9, 9.
5. **Noonan**, J. W., S. A. Stern, P. D. Feldman, T. Broiles, C. Simon Wedlund, N. J. T. Edberg, E. Schindhelm, J. W. Parker, B. A. Keeney, J. Vervack Ronald J., A. J. Steffl, M. M. Knight, H. A. Weaver, L. M. Feaga, M. A'Hearn, and J.-L. Bertaux (July 2018). Ultraviolet Observations of Coronal Mass Ejection Impact on Comet 67P/Churyumov-Gerasimenko by Rosetta Alice. *The Astronomical Journal* **156**(1), 16, 16.
6. Bodewits, D., J. Országh, J. **Noonan**, M. Durian, and Š. Matejčík (Nov. 2019). Diagnostics of Collisions between Electrons and Water Molecules in Near-ultraviolet and Visible Wavelengths. *The Astrophysical Journal* **885**(2), 167, 167.
7. Kareta, T., B. Sharkey, J. **Noonan**, K. Volk, V. Reddy, W. Harris, and R. Miles (Dec. 2019). Physical Characterization of the 2017 December Outburst of the Centaur 174P/Echeclus. *The Astronomical Journal* **158**(6), 255, 255.
8. Keeney, B. A., S. A. Stern, P. D. Feldman, M. F. A'Hearn, J.-L. Bertaux, L. M. Feaga, M. M. Knight, R. A. Medina, J. **Noonan**, J. W. Parker, J. P. Pineau, R. N. Schindhelm, A. J. Steffl, M. Versteeg, J. Vervack Ronald J., and H. A. Weaver (May 2019). Stellar Occultation by Comet 67P/Churyumov-Gerasimenko Observed with Rosetta's Alice Far-ultraviolet Spectrograph. *The Astronomical Journal* **157**(5), 173, 173.
9. Keeney, B. A., S. A. Stern, J. Vervack Ronald J., M. M. Knight, J. **Noonan**, J. W. Parker, M. F. A'Hearn, J.-L. Bertaux, L. M. Feaga, P. D. Feldman, R. A. Medina, J. P. Pineau, R. N. Schindhelm, A. J. Steffl, M. Versteeg, and H. A. Weaver (Dec. 2019). Upper Limits for Emissions in the Coma of Comet 67P/Churyumov-Gerasimenko near Perihelion as Measured by Rosetta's Alice Far-UV Spectrograph. *The Astronomical Journal* **158**(6), 252, 252.
10. **Noonan**, J. W., V. Reddy, W. M. Harris, W. F. Bottke, J. A. Sanchez, R. Furfaro, Z. Brown, R. Fernandes, T. Kareta, et al. (Nov. 2019). Search for the H Chondrite Parent Body among the Three Largest S-type Asteroids: (3) Juno, (7) Iris, and (25) Phocaea. *The Astronomical Journal* **158**(5), 213, 213.
11. Reddy, V. et al. (July 2019). Near-Earth asteroid 2012 TC4 observing campaign: Results from a global planetary defense exercise. *Icarus* **326**, 133–150.
12. Bodewits, D., J. W. **Noonan**, P. D. Feldman, M. T. Bannister, D. Farnocchia, W. M. Harris, J. .-Y. Li, K. E. Mandt, J. W. Parker, and Z. .-X. Xing (Apr. 2020). The carbon monoxide-rich interstellar comet 2I/Borisov. *Nature Astronomy* **4**, 867–871.
13. Kareta, T., J. Andrews, J. W. **Noonan**, W. M. Harris, N. Smith, P. O'Brien, B. N. L. Sharkey, V. Reddy, A. Springmann, C. Lejoly, K. Volk, A. Conrad, and C. Veillet (Feb. 2020). Carbon Chain Depletion of 2I/Borisov. *The Astrophysical Journal Letters* **889**(2), L38, L38.
14. Kareta, T., K. Volk, J. W. **Noonan**, B. N. L. Sharkey, W. M. Harris, and V. Reddy (May 2020). An Extremely Temporary Co-orbital: The Dynamical State of Active Centaur 2019 LD2. *Research Notes of the American Astronomical Society* **4**(5), 74, 74.
15. Xing, Z., D. Bodewits, J. **Noonan**, and M. T. Bannister (Apr. 2020). Water Production Rates and Activity of Interstellar Comet 2I/Borisov. *The Astrophysical Journal Letters* **893**(2), L48, L48.
16. **Noonan**, J. W., D. Bockelée-Morvan, P. D. Feldman, S. A. Stern, B. A. Keeney, J. W. Parker, N. Biver, M. M. Knight, L. M. Feaga, M. D. Hofstadter, S. Lee, R. J. Vervack, A. J. Steffl, R. N. Schindhelm, J. Pineau, R.

- Medina, H. A. Weaver, J.-L. Bertaux, and M. F. A'Hearn (June 2021). Spatial Distribution of Ultraviolet Emission from Cometary Activity at 67P/Churyumov-Gerasimenko. *The Astronomical Journal* **162**(1), 5.
17. **Noonan, J. W.**, W. M. Harris, S. Bromley, D. Farnocchia, J.-Y. Li, K. E. Mandt, J. W. Parker, K. Venkataramani, and D. Bodewits (Feb. 2021). FUV Observations of the Inner Coma of 46P/Wirtanen. *The Planetary Science Journal* **2**(1), 8, 8.
 18. **Noonan, J. W.**, G. Rinaldi, P. D. Feldman, S. A. Stern, J. W. Parker, B. A. Keeney, D. Bockelée-Morvan, R. J. Vervack, A. J. Steffl, M. M. Knight, R. N. Schindhelm, L. M. Feaga, J. Pineau, R. Medina, H. A. Weaver, J.-L. Bertaux, and M. F. A'Hearn (June 2021). Analysis of Hybrid Gas–Dust Outbursts Observed at 67P/Churyumov–Gerasimenko. *The Astronomical Journal* **162**(1), 4.
 19. Lejoly, C., W. Harris, N. Samarasinha, B. Mueller, E. Howell, J. Bodnarik, A. Springmann, T. Kareta, B. Sharkey, J. **Noonan**, et al. (2022). Radial Distribution of the Dust Comae of Comets 45P/Honda–Mrkos–Pajdušáková and 46P/Wirtanen. *The Planetary Science Journal* **3**(1), 17.
 20. Magaña, L. O., K. D. Retherford, D. Bodewits, L. M. Feaga, C. Grava, P. D. Feldman, T. K. Greathouse, and J. W. **Noonan** (2022). LRO-LAMP Observations of the Preperihelion Coma of Comet C/2013 A1 (Siding Spring). *The Planetary Science Journal* **3**(1), 12.
 21. Rivkin, A. S., J. P. Emery, E. S. Howell, T. Kareta, J. W. **Noonan**, M. Richardson, B. N. Sharkey, A. A. Sickafoose, L. M. Woodney, R. J. Cartwright, et al. (2022). The nature of low-albedo small bodies from 3 μm spectroscopy: one group that formed within the ammonia snow line and one that formed beyond it. *The Planetary Science Journal* **3**(7), 153.
 22. Seligman, D. Z., L. A. Rogers, S. H. C. Cabot, J. W. **Noonan**, T. Kareta, K. E. Mandt, F. Ciesla, A. McKay, A. D. Feinstein, W. G. Levine, J. L. Bean, T. Nordlander, M. R. Krumholz, M. Mansfield, D. J. Hoover, and E. Van Clepper (July 2022). The Volatile Carbon-to-oxygen Ratio as a Tracer for the Formation Locations of Interstellar Comets. *The Planetary Science Journal* **3**(7), 150, 150.
 23. **Noonan, J. W.**, J. W. Parker, W. M. Harris, S. Bromley, M. Saki, Y. Moulane, D. Farnocchia, M. Micheli, J.-Y. Li, K. E. Mandt, et al. (2023). The Evolution of Activity and Chemical Composition in Rosetta's Comet Targets across Multiple Apparitions: Complications for CS₂ as the CS Parent in Comet Nuclei. *The Planetary Science Journal* **4**(4), 73.
 24. **Noonan, J. W.**, K. Volk, D. Nesvorný, and W. F. Bottke (Jan. 2024). Dynamical feasibility of (3) Juno as a parent body of the H chondrites. *Icarus* **408**, 115838, 115838.

Selected conference presentations

1. **Noonan, J.**, E. Schindhelm, P. D. Feldman, J. W. Parker, S. A. Stern, H. A. Weaver, A. Steffl, M. F. A'Hearn, L. M. Feaga, and J.-L. Bertaux (Oct. 2016). Observations of Post-Perihelion Outbursts Around Comet 67P/Churyumov-Gerasimenko with the R-Alice Ultraviolet Spectrograph. In: *AAS/Division for Planetary Sciences Meeting Abstracts #48*. Vol. 48. AAS/Division for Planetary Sciences Meeting Abstracts, pp.211.09.
2. **Noonan, J.**, E. Schindhelm, J. W. Parker, A. Steffl, M. Davis, S. A. Stern, Z. Levin, S. Kempf, and M. Horyani (July 2016). The effects of dust outbursts on the anomalous features observed by Rosetta Alice around 67P/Churyumov-Gerasimenko. In: *Space Telescopes and Instrumentation 2016: Ultraviolet to Gamma Ray*. Ed. by J.-W. A. den Herder, T. Takahashi, and M. Bautz. Vol. 9905. Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, pp.99053J.
3. **Noonan, J.**, S. A. Stern, J. W. Parker, B. A. Keeney, J. Weaver H. A., P. Feldman, A. Steffl, L. M. Feaga, and J. L. Bertaux (Dec. 2017). A Search for Rarely Seen Ultraviolet Coma Emissions and New Species Upper Limits at Comet 67P/Churyumov-Gerasimenko Using the Rosetta-Alice Ultraviolet Spectrograph. In: *AGU Fall Meeting Abstracts*. Vol. 2017, pp.P54D–05.
4. **Noonan, J.**, S. A. Stern, P. D. Feldman, T. Broiles, C. Simon Wedlund, N. J. Edberg, E. Schindhelm, J. W. Parker, B. A. Keeney, A. J. Steffl, H. A. Weaver, L. M. Feaga, M. A'Hearn, and J.-L. Bertaux (Oct. 2017). Ultraviolet observations of Coronal Mass Ejection impact on comet 67P/Churyumov-Gerasimenko by Rosetta Alice. In: *AAS/Division for Planetary Sciences Meeting Abstracts #49*. Vol. 49. AAS/Division for Planetary Sciences Meeting Abstracts, pp.509.09.
5. **Noonan, J.**, J. Parker, B. A. Keeney, A. Stern, M. Hofstadter, S. Lee, D. Bockelée-morvan, P. Feldman, R. J. Vervack, H. Weaver, M. M. Knight, L. Feaga, and J.-L. Bertaux (Oct. 2018). Spatial Distribution of Atomic Emission During Cometary Activity from 67P/Churyumov-Gerasimenko as Observed by the Rosetta Alice Ultraviolet Spectrograph. In: *AAS/Division for Planetary Sciences Meeting Abstracts #50*. Vol. 50. AAS/Division for Planetary Sciences Meeting Abstracts, pp.107.01.

6. **Noonan, J. W.**, V. Reddy, W. M. Harris, W. F. Bottke, J. A. Sanchez, R. Furfaro, Z. Brown, R. Fernandes, T. R. Kareta, et al. (Mar. 2019). Is Asteroid (3) Juno the Parent Body of H-Chondrite Meteorites? In: *Lunar and Planetary Science Conference*. Lunar and Planetary Science Conference, pp.1755.
7. **Noonan, J.**, D. Bodewits, W. Harris, J. Parker, K. Mandt, J. Y. Li, and D. Farnocchia (Sept. 2019). Hubble Space Telescope Cosmic Origins Spectrograph Observations of 46P/Wirtanen During Close Approach. In: *EPSC-DPS Joint Meeting 2019*. Vol. 2019, pp.EPSC-DPS2019–992.
8. Bodewits, D. and J. **Noonan** (Jan. 2020). Swift/UVOT observations of interstellar comet 2I/Borisov. In: *American Astronomical Society Meeting Abstracts #235*. Vol. 235. American Astronomical Society Meeting Abstracts, pp.226.05.
9. **Noonan, J.**, D. Bodewits, W. Harris, K. Mandt, J. Li, J. Parker, K. Venkataramani, and D. Farnocchia (Oct. 2020). FUV Observations of 46P/Wirtanen's Inner Coma. In: *AAS/Division for Planetary Sciences Meeting Abstracts*. Vol. 52. AAS/Division for Planetary Sciences Meeting Abstracts, pp.212.01.
10. **Noonan, J.** and K. Volk (Aug. 2020). Evaluating the Dynamical Feasibility of (3) Juno as a Parent Body of the H Chondrites. In: *AAS/Division of Dynamical Astronomy Meeting*. Vol. 52. AAS/Division of Dynamical Astronomy Meeting, pp.100.06.
11. **Noonan, J.**, J.-Y. Li, J. Parker, K. Mandt, K. Venkataramani, and D. Bodewits (Dec. 2022). Revisiting Rosetta's Targets: Comparative Ultraviolet Spectroscopy of 46P/Wirtanen and 67P/Churyumov-Gerasimenko with HST. In: *AAS/Division for Planetary Sciences Meeting Abstracts*. Vol. 54. AAS/Division for Planetary Sciences Meeting Abstracts, pp.101.01.