

# HENRY MANELSKI

Lafayette, IN

☎ 732-299-2119 ✉ [hmanelsk@purdue.edu](mailto:hmanelsk@purdue.edu)

## EDUCATION

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### Purdue University

PhD Student - *Planetary Science*, Advisor: Roger Wiens

05 2022 – Present

West Lafayette, IN

### Columbia University

BSc - *Applied Mathematics*, GPA: 3.56

08 2018 – 05 2022

New York, NY

## SELECTED COURSEWORK

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|---------------------------------------|-------------------------------|--|----------------------------------|
| • Dynamical Systems                   | • Mathematics of Data Science | • Laboratory Analysis of Planetary Materials | • Partial Differential Equations |
| • Geochemistry for a Habitable Planet | • Space Instrumentation       | • Mars Seminar                               | • Stochastic Systems             |

## WORK AND LEADERSHIP EXPERIENCE

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### SuperCam Science Team | Student Collaborator

05 2022 - Present

- Working on Perseverance rover mission operations as a science Payload Uplink Lead (sPUL) for SuperCam, data validation of LIBS data for the Planetary Data System (PDS), and data interpretation. I specialize in analysis of Laser Induced Breakdown Spectroscopy (LIBS) data, plasma diagnostics, and trace element geochemistry.

### Jet Propulsion Laboratory | Research Assistant

06 2021 - 08 2021

- Awarded a Summer Undergraduate Research Fellowship (SURF) at JPL/Caltech for the summer of 2021. Project proposal: using principal components analysis and spectral parameters to investigate passive spectra from the Curiosity Rover's ChemCam instrument. This project led to a poster presentation at the 2022 Lunar and Planetary Science Conference (LPSC) and a paper published in the *Journal of Geophysical Research: Planets* in 2023.

### Crater Café | Lead Organizer

05 2024 - Present

- Serving as the lead organizer for the Purdue EAPS Planetary group's weekly seminar: Crater Café. Helping to bring world class planetary scientists to Purdue to share their research with our department.

### EAPS Graduate Student Association | Secretary

09 2023 - 09 2024

- Served as a liaison for graduate students in Purdue EAPS to communicate with faculty and staff. Organized monthly meetings to plan events, discuss graduate student concerns, and make our voices heard within the department.

## TEACHING EXPERIENCE

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### Columbia University Dept. of Earth & Enviro. Eng. | Teaching Assistant

01 2022 - 05 2022

- Helped to build the curriculum for and grade projects/exams for the course "EAEE 4262: Space Exploration and Mining". Held office hours and review sessions. Created lesson plans and ran discussion sessions.

### Columbia University Dept. of Mathematics | Teaching Assistant

09 2020 - 12 2020

- Graded exams and held office hours for the course "MATH 1102: Calculus II". Ran review sessions before exams.

## SKILLS & INTERESTS

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**Languages:** English (Native), German (B2), Mandarin (B1), Polish (B1)

**Technical:** Python (Pandas, Numpy, Sci-kit learn), JMARS, Java, Arduino IDE/C++, QGIS

**Citizenship:** United States, Austria

## PUBLICATIONS

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**H. T. Manelski**, R. C. Wiens, B. Bousquet, P. B. Hansen, S. Schröder, S. Clegg, N. D. Martin, A. E. Nelson, R. K. Martinez, A. M. Ollila, A. Agnes. (2024). LIBS Plasma Diagnostics with SuperCam on Mars: Implications for Quantification of Elemental Abundances. *Spectrochimica Acta Part B: Atomic Spectroscopy*, 222. <https://doi.org/10.1016/j.sab.2024.107061>

**H. T. Manelski**, R. Y. Sheppard, A. A. Fraeman, R. C. Wiens, J. R. Johnson, E. B. Rampe, J. Frydenvang, N. L. Lanza, O. Gasnault. (2023). Compositional variations in sedimentary deposits in Gale Crater as observed by ChemCam passive and active spectra. *Journal of Geophysical Research: Planets*, 128, e2022JE007706. <https://doi.org/10.1029/2022JE007706>

**H. T. Manelski**, R. C. Wiens, S. Schröder, P. B. Hansen, B. Bousquet, N. Martin, S. Clegg. LIBS Plasma Diagnostics with SuperCam on Mars. Lunar and Planetary Science Conference 2024, The Woodlands, TX.

**H. T. Manelski**, R. Y. Sheppard, A. A. Fraeman, R. C. Wiens, J. R. Johnson, E. B. Rampe, J. Frydenvang, N. L. Lanza, O. Gasnault. Variability in Mt. Sharp Group Bedrock as seen by ChemCam Passive and Active Spectra. Lunar and Planetary Science Conference 2023, The Woodlands, TX.

**H. T. Manelski**, R. Y. Sheppard, A. A. Fraeman, J. R. Johnson, R. Wiens, N. Lanza, J. Frydenvang. Classification of ChemCam passive spectral targets in Gale crater. Lunar and Planetary Science Conference 2022, The Woodlands, TX.

C. C. Bedford, C. Royer, R. C. Wiens, J. R. Johnson, B. H. N. Horgan, A. Broz, O. Forni, S. Connell, L. Mandon, B. S. Kathir, E. M. Hausrath, A. Udry, J. M. Madariaga, E. Dehouck, R. B. Anderson, P. Beck, O. Beyssac, É. Clave, S. M. Clegg, E. Cloutis, T. Fouchet, T. S. J. Gabriel, B. J. Garzynski, A. Klidas, **H. T. Manelski**, L. Mayhew, J. Nuñez, A. M. Ollila, S. Schröder, J. Bell, J. I. Simon, U. Wolf, K. M. Stack, A. Cousin, S. Maurice. Discovery of Light-toned Float Rocks in Jezero Crater: A Tale of Aqueous Alteration and High-temperature Metamorphism. Lunar and Planetary Science Conference 2024, The Woodlands, TX.

W. Rapin, S. Maurice, A. Ollila, R. C. Wiens, B. Dubois, T. Nelson, L. Bonhomme, Y. Parot, S. Clegg, R. Newell, L. Ott, B. Chide, V. Payre, C. Bedford, S. Connell, **H. T. Manelski**, S. Schröder, M. Buder, C. Yana, P. Bousquet.  $\mu$ LIBS: Developing a Lightweight Elemental Micro-Mapper for In Situ Exploration. Lunar and Planetary Science Conference 2024, The Woodlands, TX.

O. Forni, C. C. Bedford, C. Royer, Y. Liu, R. C. Wiens, E. Dehouck, P-Y. Meslin, A. Udry, O. Beyssac, T. S. Gabriel, P. Beck, O. Gasnault, C. Quantin-Nataf, J. R. Johnson, S. Schröder, P. Pilleri, **H. T. Manelski**, B. C. Clarck, A. Cousin, S. Maurice, S. M. Clegg. Nickel-Copper Deposits on Mars? Discovery of Ore-Grade Abundances, and Implications on Formation and Alteration. Lunar and Planetary Science Conference 2024, The Woodlands, TX.

M. M. Sori, K. L. Laferriere, K. S. Burkman, J. Herring, A. Klidas, **H. T. Manelski**, R. A. McGlasson, S. M. Menten, I. F. Pamerleau, S. L. Pérez-Cortés. Hollows as a Source for Mercury's Polar Organics. Lunar and Planetary Science Conference 2023, The Woodlands, TX.

O. Mikulskytė, J. Kingsworth, **H. T. Manelski**, Luka Pikulic, J. Rothenbuchner. Science Objectives of the Tumbleweed Mission-Swarm Based Wind Driven Rover Mars Exploration. Lunar and Planetary Science Conference 2023, The Woodlands, TX.

Mars City States - New Societies for a New World Chapter 20: Nexus Aurora - Mars City State Design

## AWARDS

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Tomas Hirschfield Scholar Award at FACSS SciX 2024