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## CURRICULUM VITAE

of  
Marshall John Styczinski

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### PERSONAL

**Information:** US Citizen, born 1988 in Dublin, California.  
**Position:** NASA Postdoctoral Fellow at the Jet Propulsion Laboratory, California Institute of Technology.  
**Interests:** Magnetic sounding; astrobiology; space exploration; science communication and public outreach  
**Website:** <https://moosh.run>

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### EDUCATION

**09/2012 – 08/2021** University of Washington  
Degree conferred: Doctor of Philosophy, Physics  
Significant works: “Analytical forward models for magnetic induction of asymmetric, icy ocean worlds with implications for spacecraft investigations” ([Doctoral dissertation](#), July 2021)  
Degree conferred: Graduate Certificate, Astrobiology  
Degree conferred: Master of Science, Physics

**09/2006 – 06/2010** University of California, Davis  
Degree conferred: Bachelor of Science with Highest Honors, Physics  
Significant works: “On the Return of HP West: The Revival and Restoration of a Hewlett-Packard 5950A Photoelectron Spectrometer” ([Undergraduate honors thesis](#), May 2010)

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### HONORS AND AWARDS

**09/2021 – present** [NASA Postdoctoral Program](#) recipient  
**01/2022** Expert consultant, [UW Astrobiology Program](#) “life detection mission” workshop  
**09/2018 – 08/2021** [NASA Earth and Space Science Fellowship](#) recipient  
**05/2020 – 08/2020** [JPL Planetary Science Summer School](#) participant  
**04/2019 – 09/2019** Visiting Scholar, University of Oregon Planetary Science Group  
**08/2018 – 09/2018** Visiting Scholar, University of Melbourne Astrophysics Group  
**06/2018 – 08/2018** [JPL Space Grant Summer Internship](#) participant  
**03/2017 – 08/2021** Science Communication Fellow, [Pacific Science Center](#)  
**06/2010** Bachelor of Science with Highest Honors from UC Davis

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### SCIENTIFIC PUBLICATIONS

- M. J. Styczinski**, S. D. Vance, E. M. Harnett, and C. J. Cochrane. A perturbation method for evaluating the magnetic field induced from an arbitrary, asymmetric ocean world analytically. *Icarus*, 376:114840, 2022. DOI: [10.1016/j.icarus.2021.114840](https://doi.org/10.1016/j.icarus.2021.114840)
- M. J. Styczinski**, Z. S. Cooper, D. M. Glaser, O. Lehmer, V. Mierzejewski, and J. Tarnas. Chapter 7: Assessing habitability beyond earth. In M. J. Schaible, N. Szeinbaum, and G. Tan, editors, *Astrobiology Primer 3.0 special issue*. In press, *Astrobiology*, 2022.
- M. J. Styczinski**, D. M. Glaser, M. Hooks, T. Z. Jia, K. Johnson-Finn, G. A. Schaible, and M. J. Schaible. Chapter 11: Astrobiology education, engagement, and resources. In M. J. Schaible, N. Szeinbaum, and G. Tan, editors, *Astrobiology Primer 3.0 special issue*. In press, *Astrobiology*, 2022.

4. C. J. Cochrane, S. D. Vance, T. A. Nordheim, **M. J. Styczinski**, A. Masters, and L. H. Regoli. In search of sub-surface oceans within the uranian moons. *Journal of Geophysical Research: Planets*, 126(12):e2021JE006956, 2021. DOI: [10.1029/2021JE006956](https://doi.org/10.1029/2021JE006956)
5. S. D. Vance, **M. J. Styczinski**, B. G. Bills, C. J. Cochrane, K. M. Soderlund, N. Gómez-Pérez, and C. S. Paty. Magnetic induction responses of jupiter’s ocean moons including effects from adiabatic convection. *Journal of Geophysical Research: Planets*, 126(2):e2020JE006418, 2020. DOI: [10.1029/2020JE006418](https://doi.org/10.1029/2020JE006418)
6. **M. J. Styczinski** and E. M. Harnett. Induced magnetic moments from a nearly spherical ocean. *Icarus*, 354:114020, 2021. DOI: [10.1016/j.icarus.2020.114020](https://doi.org/10.1016/j.icarus.2020.114020)
7. G. T. Seidler, D. R. Mortensen, A. J. Remesnik, J. I. Pacold, N. A. Ball, N. Barry, **M. Styczinski**, and O. R. Hoidn. A laboratory-based hard x-ray monochromator for high-resolution x-ray emission spectroscopy and x-ray absorption near edge structure measurements. *Review of Scientific Instruments*, 85(11):113906, 2014. DOI: [10.1063/1.4901599](https://doi.org/10.1063/1.4901599)

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### PROFESSIONAL AFFILIATIONS

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Affiliate, [Europa Clipper Science Team](#)  
[University of Washington Astrobiology Program](#)

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### PROFESSIONAL QUALIFICATIONS

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Extensive experience with a wide variety of programming languages and systems, especially:  
[SPICE ephemeris software](#), [NASA PDS](#), UNIX & bash, Fortran, Python, Matlab, C++, IDL, and  $\text{\LaTeX}$   
 6 years formal experience teaching university physics, including TA training and exam writing

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### SELECTED PRESENTATIONS

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**07/2021** [University of Washington PhD defense presentation](#)  
**08/2018** [University of Melbourne Astrophysics Colloquium](#)  
**12/2017** [Pacific Science Center’s “Science in the City”](#)  
**05/2016** Town Hall Theater’s “[UW Science Now](#)” speaker series ([link to recording](#))

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### RESEARCH POSITIONS

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**09/2021 – present** *NASA Postdoctoral Fellow*, JPL-Caltech  
 Research focus: Magnetic sounding of icy ocean worlds  
                           Magnetic induction modeling and data analysis  
 Advisor: NASA Research Scientist Steven D. Vance

**05/2018 – 08/2021** *Doctoral Candidate*, University of Washington  
 Research focus: Magnetic sounding of icy moons, especially Europa  
                           Magnetospheric plasma modeling  
 Advisor: Affiliate Professor Erika Harnett

**09/2012 – 05/2018** *Graduate Student*, University of Washington  
 Past research: Improving the efficiency of conceptual instruction in- and out-of-class  
                           Student understanding of Gauss’s law  
                           Interdisciplinary learning in science courses  
 Advisor: Professors Paula R. L. Heron and Peter S. Shaffer

**04/2011 – 07/2012** *Junior Specialist*, University of California, Davis  
 Duties: Design, build, test, and analyze cryogenic bubble detection experiment (Tripathi);  
           Develop and implement software for analyzing irradiated magnets,

Supervisor(s): assess radiation damage of magnets used in Linear Collider R&D (Pellett);  
Professor S. Mani Tripathi, Professor Emeritus David Pellett

**07/2010 – 04/2011** *Development Technician*, University of California, Davis  
 Duties: Restore, repair, and improve indium evaporative deposition system (Tripathi);  
 Construct sensitive Double Chooz neutrino detector in international team (Svoboda);  
 Train and mentor undergraduate laboratory assistants  
 with X-ray photoemission spectrometer (Fadley)  
 Supervisor(s): Professor S. Mani Tripathi, Professor Robert Svoboda, Distinguished Professor  
 Charles S. Fadley

**05/2008 – 06/2010** *Undergraduate Research Assistant*, University of California, Davis  
 Duties: Restore and optimize X-ray photoemission spectrometer system, analyze Si/Mo  
 multilayer crystal native oxide properties  
 Supervisor(s): Distinguished Professor Charles S. Fadley

### **TEACHING EXPERIENCE**

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**09/2012 – 06/2018** *Graduate Teaching Assistant*, University of Washington  
 Courses: Introductory physics tutorials and laboratories, advanced electromagnetism tutorials,  
 and introductory courses in astrobiology, planetary science, and space science  
 Structure: Sole or co-instructor leading discussions in 24–32 student classrooms  
 Note: Most terms as head TA, leading training sessions for other TAs, writing exams,  
 and course administration (including curriculum writing and revisions)

**09/2012 – 06/2018** *Physics Study Center Staff*, University of Washington  
 Courses: Introductory and advanced physics  
 Structure: Individual homework and conceptual guidance

**10/2007 – 06/2012** *Physics Club Volunteer Tutor*, University of California, Davis  
 Courses: Introductory physics and calculus  
 Structure: Individual homework and conceptual guidance