

PhD Student
Stevens Institute of Technology

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Posted Oct. 8, 2024, set to expire Feb. 7, 2025

Job Title	PhD Student
Department	Mechanical Engineering https://www.stevens.edu/school-engineering-science/departments/mechanical-engineering
Institution	Stevens Institute of Technology Hoboken, New Jersey
Date Posted	Oct. 8, 2024
Application Deadline	Oct. 31, 2024
Position Start Date	Spring 2024 or Fall 2025
Job Categories	Graduate Student
Academic Field(s)	Aerospace/Aeronautical/Astronautics
Job Website	https://www.stevens.edu/profile/jrabinov
Apply By Email	jrabinov@stevens.edu

Job Description

High-speed jets from giant ice fissures on Saturn's moon Enceladus feed a large plume (**an ice volcano in space!**), which is of interest to scientists because it contains salts and organic compounds, which are evidence of a subsurface liquid water ocean that may possibly host life. However, it is unclear how the composition of the plume might be altered as this material moves from the ocean into space, and to what extent samples from the plume are representative of ocean composition. We have proposed a new eruption model where dissolved gas molecules expand, form bubbles, and drive the mixture into space, which is similar to explosive volcanoes on Earth and essentially the same mechanism that causes cans of soda to explode upon opening if shaken.

Are you interested in modeling the fluid mechanics and eruption mechanism for the Enceladus plume (the "cryovolcano" erupting at the Southern pole of Enceladus, a moon of Saturn)? If so, the [Rabinovitch Research Group](#)

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at [Stevens Institute of Technology](#) (Hoboken, NJ) is looking for students who are interested in pursuing a PhD on this topic. This project will be in collaboration with NASA's Jet Propulsion Laboratory (JPL), and the Southwest Research Institute (SWRI). **Please contact Prof. Rabinovitch if you would like to learn more about this opportunity**, and more detailed information about the Enceladus plume eruption model can be found here: <https://doi.org/10.1029/2023JE007977>.

Note that contacting Prof. Rabinovitch is not a formal application to the graduate program at Stevens Institute of Technology. This posting is for informational purposes only, and does not constitute a formal job posting. Interested applicants should reach out to Prof. Rabinovitch via email to receive more details about this project.

EEO/AA Policy

<https://assets.stevens.edu/mviowpldu823/2nXRgavO9EM9qoZ25kpOeU/d210b6cdc83393253bfc2ffc0a46dd8>

Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

Contact Prof. Jason Rabinovitch
Mechanical Engineering
Stevens Institute of Technology
Hoboken, NJ 07030

Contact E-mail jrabinov@stevens.edu