

**Opportunity Title:** Solar System Tidal Dynamics

**Opportunity Reference Code:** 0070-NPP-NOV23-JPL-PlanetSci

**Organization** National Aeronautics and Space Administration (NASA)

**Reference Code** 0070-NPP-NOV23-JPL-PlanetSci

**Application Deadline** 11/1/2023 6:00:59 PM Eastern Time Zone

**Description** The objective of this position is to conduct research on one or more problems concerning the tidally driven orbital evolution of solar system bodies. Two representative examples are the Mars-Phobos system, and the Saturn-Titan system. In the Mars case, there is good observational evidence of rapid orbital evolution, but the internal structure implications for Mars are still somewhat puzzling. It suggests that Mars is more dissipative than the solid parts of Earth, contrary to naïve expectations. In the case of Titan, current models suggest that is likely to be a highly dissipative body, and yet the orbital eccentricity has not been fully damped. It appears likely that some excitation mechanism is, or was, operative.

Bills, B.G., et al. (2005), Improved estimate of tidal dissipation in Mars, J. Geophys. Res., 110,E07004. Bills, B.G. and F.Nimmo (2008), Forced obliquity and moments of inertia of Titan, Icarus, 196, 293-297.

**Location:**

Jet Propulsion Laboratory  
Pasadena, California

**Field of Science:**Planetary Science

**Advisors:**

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**Applications with citizens from Designated Countries will not be accepted at this time, unless they are Legal Permanent Residents of the United States.** A complete list of Designated Countries can be found at: <https://www.nasa.gov/oirr/export-control>.

Eligibility is currently open to:

- U.S. Citizens;
- U.S. Lawful Permanent Residents (LPR);
- Foreign Nationals eligible for an Exchange Visitor J-1 visa status; and,
- Applicants for LPR, asylees, or refugees in the U.S. at the time of application with 1) a valid EAD card and 2) I-485 or I-589 forms in pending status

**Eligibility Requirements** • **Degree:** Doctoral Degree.



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