

**Opportunity Title:** Heliophysics Science: Radiation Propagation Analysis and Techniques

**Opportunity Reference Code:** 0066-NPP-NOV23-GSFC-HelioSci

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

**Reference Code** 0066-NPP-NOV23-GSFC-HelioSci

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

**Description** This opportunity involves detail modeling of plasma and radio wave emissions in magnetospheric plasmas. A wide variety of tools exist or are being developed to help in this analysis. Proven ray-tracing programs for Earth and Jupiter model magnetospheres are available for use in growth-rate calculations, source region determinations, magnetospheric radio sounding, and the modeling of wave propagation effects. Typical research activities involve the modeling of multi-instrument and multi-spacecraft measurements to understand fundamental magnetospheric plasma wave processes. Special emphasis is placed on the modeling of data from the recent IMAGE mission. In addition, modeling of plasma instabilities for plasma wave generation and the modeling of plasma effects on long-range wave propagation (changes in phase, Faraday rotation, and polarization) will also be accomplished in order to study to application of magnetospheric radio tomography techniques for use on future missions. Such techniques are also being applied to the problems of plasma and radio wave propagation in the magnetospheres of other planets.

**Location:**

Goddard Space Flight Center  
Greenbelt, Maryland

**Field of Science:**Heliophysics 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/oiir/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



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