

Opportunity Title: Laser Interferometer Space Antenna: Sources and Data

Analysis Tools

Opportunity Reference Code: 0003-NPP-NOV23-JPL-Astrophys

Organization National Aeronautics and Space Administration (NASA)

Reference Code 0003-NPP-NOV23-JPL-Astrophys

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

Description LISA is a planned joint NASA/ESA mission to measure gravitational waves from space. Astrophysical sources for LISA include: compact binaries (e.g., white dwarf –white dwarf binaries), mergers of supermassive black holes, and inspirals of compact stellar-mass objects into supermassive black holes. Dr. Cutler does research on LISA sources and is developing methods and tools to be used in LISA data analysis. In particular, he is currently doing studies on how accurately physical source parameters (such as the source's location on the sky, or the masses of both objects in a binary) could be extracted from the noisy LISA data set. He is also developing computationally efficient strategies for digging weak signals out of the data, and he is participating in the Mock LISA Data Challenges, wherein synthetic source signals are added, in a blind way, to synthetic LISA noise, and participants are challenged to extract the signals and recover the correct parameter values. The goal of the Mock LISA Data Challenges is to develop the data analysis tools that will be needed for LISA, and to demonstrate readiness in this area.

References:

[1] Barack, L. and Cutler, C., 2004, "LISA Capture Sources: Approximate Waveforms, Signal-to-Noise Ratios, and Parameter Estimation Accuracy", PRD 69, 082005.

[2] Cutler, C., and Harms, J., 2006, "Big Bang Observer and the neutron-star-binary subtraction problem", PRD 73, 042001.

Location:

Jet Propulsion Laboratory
Pasadena, California

Field of Science: Astrophysics

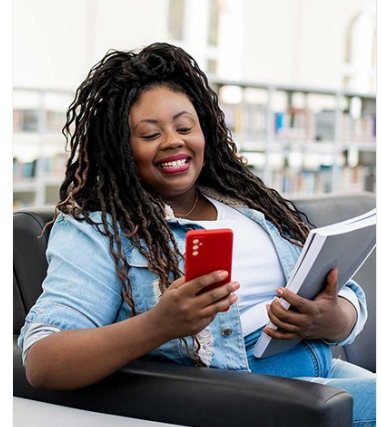
Advisors:

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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;



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- 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.