Research Scientist Position: TESS Pipeline Scientist

Applications are invited for a research scientist position in the area of computational science and exoplanets at the MIT Kavli Institute for Astrophysics and Space Research (MKI). The candidate will be expected to participate in the intellectual and programmatic development and operation of a data processing pipeline for the Transiting Exoplanet Survey Satellite (TESS), an MKI-led NASA mission which is scheduled for launch by NASA in 2017. TESS is expected to discover thousands of exoplanets in orbit around the brightest stars in the sky. This first-ever spaceborne all-sky transit survey of the solar neighborhood will identify planets ranging from Earth-sized to giant planets, around a wide range of stellar types and orbital distances.

The successful candidate will work to understand and enhance pipelines to process TESS data.

The TESS data pipeline process sequence goes from 1] raw spacecraft data to 2] raw pixel-level data to 2] pixel-level calibrated data to 3] photometric analysis to flux time series 4] detrended flux time series 5] threshold crossing events. The pipeline code is written in python and C. Dataset sizes are a few hundreds of GB per sector, with 26 total sectors of data that covers ~80% of the celestial sphere (one sector per month out of a two-year mission).

This advertised position is for steps 2 through 4 and involves: developing, maintaining, and enhancing the pipeline; running the pipeline on simulated data before launch and actual data during the prime mission, data validation, documentation, data product delivery to the community. The pipeline scientist is part of a small team of programmers, scientists, and manager.

The position is based at MIT and also involves significant, close interaction with project collaborators at NASA Ames Research Center in Mountain View, CA. The position will provide for time for carrying out self-motivated and collaborative exoplanet research in an environment that includes TESS and MIT research scientists, astronomers, and engineers developing and operating high-precision optical CCD photometers for space borne instruments. Research collaborators also include active participants in the MIT Department of Physics and Department of Earth, Atmospheric, and Planetary Sciences, as well as members of the Harvard-Smithsonian Center for Astrophysics.

The position requires a Ph.D. in physics, astronomy, or a related field, with previously demonstrated initiative and experience in working independently. US citizenship or permanent resident status is required.

Qualified applicants should send their CV, publications list, statement of research
interests, and arrange for three letters of reference to be sent to Scott Dynes at sbcdynes@mit.edu (pdf preferred). Review of applications will begin immediately and continue until the position is filled. The start date is nominally Spring 2017. The appointment is for three years, renewable depending on performance and funding.

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