Postdoctoral Researcher in Submillimeter Detector Technology and Instrumentation

Applications are now being accepted for a Postdoctoral Associate, to work in the Observational Cosmology Laboratory and the Detector Systems Branch at *NASA Goddard Space Flight Center (GSFC)* in Greenbelt, MD. The position is funded through the *University of Maryland College Park (UMCP)* and the *Center for Research and Exploration in Space Sciences & Technology II (CRESST II)*. Our teams develop space-based opto-electronic sensor systems and instruments for detection and processing of photons from ultra-faint astrophysical sources of radiation spanning the mid- to far-infrared/submillimeter wavelength range.

The Postdoctoral Associate will work on two main projects with Dr. Eric Switzer and Dr. Omid Noroozian on 1) development and characterization of superconducting Kinetic Inductance Detectors (KID) for single-photon sensing arrays for the Origins Space Telescope; and 2) integration and testing of a KID-based spectrometer instrument for NASA's Experiment for Cryogenic Large-Aperture Intensity Mapping (EXCLAIM) balloon mission. The EXCLAIM mission is a newly funded telescope that will map the intensity of diffuse, redshifted CO and CII emission from 420-540 GHz. It will employ a focal plane with six on-chip cryogenic spectrometer modules called µSpec that employ arrays of ultrasensitive KIDs.

Work in the first year will focus on three areas: 1) leading the experimental design, optimization, and characterization of single-photon-detecting KIDs in collaboration with a fabrication team; 2) assembly, testing and optimization of a newly built ultra-dark blackbody calibration testbed; and 3) in-lab characterization of the EXCLAIM spectrometer instrument and µSpec modules. Subsequent work will consist of integration and testing of the EXCLAIM receiver system.

We invite submillimeter instrumentalists who are broadly interested in the development of superconducting kinetic inductance technologies, low-temperature photon detectors, and electro-optical instruments to apply. Candidates for this position should have earned a Ph.D. within the last five years in Physics, Electrical Engineering, or Astronomy with prior relevant experience with low-temperature detectors, microwave measurement circuits, low-noise electronics, and a strong track record of scientific publications. The initial funding for this position will be for one year, with the possibility of extension for up to two more years depending on performance and funding availability.

The position will remain available until filled. Applications received by March 15, 2020 will receive best consideration. Each applicant should send a Curriculum Vita, list of publications, statement of research interests, and contact information for three references to:

Application materials should be submitted to:
Submillimeter Instrumentalist
CRESST/UMCP
Mail Code 660.8, NASA/GSFC
Greenbelt, MD 20771, or
Via e-mail to katherine.s.mckee@nasa.gov

Technical information concerning the research should be directed to Dr. Switzer (eric.r.switzer@nasa.gov) and Dr. Noroozian (omid.noroozian@nasa.gov). For information on UMCP's Department of Astronomy and CRESST II, please contact Dr. Tracy Huard (thuard@astro.umd.edu).