

Postbaccalaureate Positions in Instrument Modeling, Atmospheric Modeling, and Laboratory Studies with the NASA Sellers Exoplanet Environments Collaboration (SEEC)

Applications are now being accepted for multiple short-term postbaccalaureate research positions to support the Sellers Exoplanet Environments Collaboration at NASA/Goddard Space Flight Center (NASA/GSFC) in Greenbelt, MD. The position is funded through the Southeastern Universities Research Association (SURA) and the Center for Research and Exploration in Space Science and Technology II (CRESST II) (<https://cresst2.umd.edu/>). The Sellers Exoplanet Environments Collaboration team develops cross-disciplinary science and instrumentation models and analysis tools to assist in the exploration of exoplanet environments. The innovations and discoveries enabled here contribute to our understanding of our place in the universe and guide the development of future missions that will search for Earth-like planets around other stars. Please visit seec.gsfc.nasa.gov for more information.

Positions available with the Sellers Exoplanet Environments Collaboration span a variety of research areas. Successful candidates will be chosen to work on one the research areas listed below. Recent graduates with experience coding in any of the below areas are invited to apply. We encourage applicants who are considering applying to a graduate program in astrophysics, planetary science or related disciplines in the near future, and who wish to expand their research experience in the interim to also apply.

- 1) Area #1: Assist in developing a Python software framework to simulate spectroscopic exoplanet data acquired with a suite of novel instrument technologies. Previous experience data simulation or analysis is required.
- 2) Area #2: Assist in developing planet atmosphere retrieval algorithms to examine the scientific return from simulated and future data products. Results from these data simulations and analysis will facilitate design trade studies to inform technology investments and laboratory demonstrations. Previous experience in modeling or analyzing planetary atmospheres is required.
- 3) Area #3: Perform either 3-D climate model simulations of exoplanet atmospheres, in order to produce observables for missions like JWST and ground-based telescopes like ELTs, and/or modify a 1-D photochemistry code to apply for terrestrial and Neptune-like planets and generate observables like transit and reflection spectra. Previous experience in modeling or analyzing planetary atmospheres is required.
- 4) Area #4: Assist in laboratory measurements of high-temperature gas-phase species and low-temperature ices, in order to determine optical properties and improve spectral modeling tools. Previous laboratory classwork, either in chemistry or physics, is required. Technical experience with vacuum systems and FTS/FTIR would be a major advantage.

General Position Requirements

- Soon or recent graduate with bachelor's degree in astronomy, physics, or a related science or engineering discipline;
- Significant experience in scientific programming; Python in particular is a major plus;
- Available to work on-site at NASA/GSFC for 40 hours/week; and
- Able to pass a security and background check in order to obtain a badge to access NASA/GSFC.

Instructions to Apply

The positions will remain available until filled. Applications received by April 9, 2020 will receive best consideration. To apply, each applicant should send the following:

- Your ranked top two preferences between the 4 areas listed above;
- Curriculum Vitae;
- A work sample in the form of either a report, poster, or journal article, along with your associated source code; and
- Two letters of reference arranged to be sent directly from your referees.

Application materials should be submitted to:
SEEC Post-Baccalaureate Research Assistant
CRESST/SURA
Mail Code 660.8, NASA/GSFC
Greenbelt, MD 20771, or
Via e-mail to katherine.s.mckee@nasa.gov

Salary and benefits are competitive, commensurate with experience and qualifications. The desired start date is in the range April-June 2020, with an initial employment term of 1 year that will be extended to an annual renewal contingent on performance. For more information about the proposed research, contact Dr. Avi Mandell (avi.mandell@nasa.gov). For information on CRESST II or SURA, contact Ms. Charna Meth (charna@sura.org). SURA is an equal opportunity employer and welcomes all to apply. EOE/M/F/D/V.