

Postdoctoral Fellowship in the High Energy Physics, Cosmology & Astrophysics Theory (HEPCAT) group at the University of Cape Town (UCT)

The High Energy Physics, Cosmology & Astrophysics Theory (HEPCAT) group in the Department of Mathematics and Applied Mathematics at the University of Cape Town (UCT) is offering a SARChI in Physical Cosmology postdoctoral fellowship starting in 2020 with Prof. Amanda Weltman.

The position is funded by the South African Research Chairs Initiative (SARChI) of the National Research Foundation. The research priorities of this position are on the science of the HIRAX experiment and the MeerKAT telescope, specifically cosmological parameter estimations with BAOs, understanding Fast Radio Bursts (FRBs) and the cosmological implications of FRBs and using machine learning in astrophysics.

FRB science is gaining increasing attention in the field of cosmology as it aims to synergise observable quantities with multi-wavelength observations in order to exploit them as unique probes of cosmology. We particularly welcome applications from candidates with expertise in one or more of the priority science areas: FRBs, using FRBs/pulsars to probe the interstellar/intergalactic medium, studies of the circumgalactic medium, studies of cosmic baryons and baryonic feedback processes in galaxies.

You will use your in-depth subject matter knowledge of radio pulsar and/or FRB astronomy to enable and deliver high-quality scientific publications from the MeerKAT telescope. In addition to the scientific exploitation of the sensitivity and capabilities of the MeerKAT and MeerLICHT telescopes, you will also have the opportunity to leverage other world-class multi-wavelength facilities for FRB science and cosmology. You will have the possibility to collaborate with the HIRAX team and the MeerTRAP team at the University of Manchester and this may involve regular travel between these institutes.

Applicants must have a track record of accomplishment and independence in their research. For more information on the activities of the HEPCAT group, see <http://hepcat.group/>. Our members include Shajid Haque, Julien Larena, Jeff Murugan, Jonathan Shock and Amanda Weltman. There are additional opportunities to perform joint work within other group research areas, including amplitudes in astrophysics, machine learning and theoretical cosmology more broadly.

The appointment must comply with the University's approved policies, procedures and practices for the postdoctoral sector, and is subject to the rules and approval of the University of Cape Town and the National Research Foundation of South Africa.

The appointment is for two years at the outset, with a possible extension of one year. A PhD in Physics, Applied Mathematics or Astronomy is required. Postdoctoral experience is a bonus, however the candidate needs to be within 5 years from the date of PhD at the start of the position and may not have held a full-time permanent academic or professional post. The value of the fellowship is R230 000, and it is tax-free. Equipment and travel funding are available.

Interested candidates should send a CV, a research proposal (2-3 pages), and arrange for three letters of recommendation to be sent to melissa.largier@uct.ac.za by February 16th, 2020. Please use the following format in the subject line : YOURNAME, SARChI postdoc 2020. Applications will be considered from that date until the position is filled. The position is available immediately. Any queries can be sent to Melissa at melissa.largier@uct.ac.za. Eligible and complete applications will be considered by members of the HEPCAT group.

The University of Cape Town reserves the right to:

- *disqualify ineligible, incomplete and/or inappropriate applications*
- *change the conditions of award or to make no awards at all*