Postdoctoral Fellowship in HI Radio Astronomy 28 February 2023

The Rhodes University Centre for Radio Astronomy Techniques & Technologies (RATT) is calling for applications for a 3-year postdoctoral fellowship in observational radio astronomy. In collaboration with the Radio Astronomy Research Group (RARG) of the South African Radio Astronomy Observatory (SARAO, Cape Town, South Africa), RATT conducts research into novel radio astronomy techniques required by the next generation of radio telescopes, with a focus on applying those techniques to MeerKAT data in order to answer key astrophysical questions. The RATT team led by Prof. Oleg Smirnov is one of the leading groups in the world focused on the development of radio astronomy techniques, with a diverse range of science interests. We are leading the creation of a large HI database from the MGCLS sample, and using this to carry out extensive HI studies in collaboration with GASP. Among other projects, the group is closely involved in the MeerKAT Fornax Survey, which is a large science program reaching unprecedented depth and resolution. We are also part of the Virgo Filament survey with MeerKAT, featuring incredible resolution of nearby galaxies. We can therefore offer a broad range of projects related to HI studies.

Project

We are looking for a candidate who is motivated and self-propelled, and will be able to spend a significant fraction of their time on their own research projects, within the context of RATT's HI research interests. The focus of the science can include (but not be limited to): studying the effect of the environment on HI and star formation properties of galaxies in varying cluster environments; imaging of HI in the intra-cluster/intergalactic medium. They will also be expected to contribute to processing and analysing other MeerKAT radio interferometric data, leading publications on the project, and presenting results at international conferences.

Requirements

A master's degree in physics or astrophysics followed by at least three years of relevant research experience (including experience as a Ph.D. student or postdoctoral researcher); and/or a Ph.D. in astrophysics or a closely related discipline.

Selection criteria

- Experience with radio interferometry and/or research in extragalactic astrophysics at research institutes and universities.
- Motivation and skills to define or take a leading role in existing projects.
- The ability to work efficiently within a team and to obtain results in an independent way.
- A strong track record of peer-reviewed publications.
- A record of oral presentations at international conferences.
- Good programming skills and a good level of English language (oral and written)

Content of the applications

The following documents should be included in the applications (preferably as one-PDF file) and will be used for their evaluation:

- Motivation letter.
- Curriculum vitae with elements relevant for the selection criteria.
- A one-page description of main research achievements and planned contributions using MeerKAT HI projects being carried out at RATT.
- Peer-reviewed publication list.

Application procedure and deadline

Applications must be sent via email to **applications@ratt.center**. The application deadline is 30 April 2023.

Candidates must arrange for the two reference letters to be sent directly to **(applications@ratt.center** by 30 April 2023.

Duration and location of the fellowship

The position is for a duration of 3 years. The appointed postdoctoral researcher will be based at Rhodes University (Makhanda/Grahamstown) and/or at SARAO (Cape Town), where they will liaise with a young and vibrant astrophysics and techniques group and other South African universities. Collaboration with other international institutions with leading radio astronomy facilities will be actively encouraged. RATT has a strong collaboration with the Italian National Institute for Astrophysics (INAF), in particular the observatories of Cagliari and Padova. Therefore, the successful candidate will be required to go on extended visits to INAF-Cagliari and Padova with the aim of benefitting from and keeping the strong connection between the two science teams.

The value of the fellowship is at the standard SARAO post-doctoral level, and adjusted annually for inflation. The 2023 level is ZAR 434,000 p.a., tax-free. Additional equipment and travel funding will be available as necessary.

Evaluation of the applications and job interviews

All applications will be evaluated by a selection panel based on the aforementioned criteria. The panel will consider the overall quality of the applications, the scientific impact of the research of the candidate and its relevance for the HI science done with MeerKAT.

Job interviews may be required as part of the selection. If so, they will be carried out remotely. During the interviews, candidates will be asked to elaborate on the content of their application and on the selection criteria for the positions.

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