



SOUTH AFRICAN RADIO ASTRONOMY OBSERVATORY

POSTDOCTORAL FELLOWSHIPS FOR 2021

APPLICATION GUIDE

**READ CAREFULLY BEFORE COMPLETING AN APPLICATION
FORM**

The South African Radio Astronomy Observatory (SARAO) invites applications from suitably qualified candidates for five postdoctoral fellowships, commencing in 2021. Please note that successful applicants will be notified by SARAO, by 15 December 2020. If you have not heard from SARAO by 15 December 2020, please assume that your application was NOT successful.

1 ELIGIBILITY FOR SARAO POSTDOCTORAL FELLOWSHIPS FOR 2021

- 1.1 Applicants must have been active in research since obtaining their Doctoral degree. In the case of a break in research, an applicant must have obtained his/her Doctoral degree on, or after, 30 September 2016.
- 1.2 Successful applicants must be able to commence with their postdoctoral fellowships in South Africa on, or before, 1 October 2021.
- 1.3 **For 2021, SARAO will consider postdoctoral applications that focus on observational research programmes, which utilise key existing radio astronomy instruments located in South Africa. These include MeerKAT, HERA, C-BASS, early versions of HIRAX, and HartRAO facilities (including astrometry and geodesy applications). Amongst these, MeerKAT is the highest priority area. (Other relevant research may be considered.)**

2 STRUCTURE AND FUNDING LEVELS OF SARAO POSTDOCTORAL FELLOWSHIPS FOR 2021

- 2.1 Postdoctoral fellowships are only tenable at South African universities.
- 2.2 Postdoctoral fellowships are awarded for a period of three years. Renewal of a postdoctoral fellowship for the second and third year is at the sole discretion of SARAO, and is subject to satisfactory performance, which will be determined from Annual Progress Reports, detailing progress on deliverables as per the original research proposal. In the report, deliverables should be demonstrated by showing evidence thereof e.g. senior authorship peer-reviewed papers, developed hardware, preliminary results of simulations or data analysis, etc.
- 2.3 The current value of a SARAO postdoctoral fellowship is ZAR 410,000 per annum (non-taxable). (Please note that the current value of the postdoctoral fellowship may be adjusted in 2021, to account for annual inflation changes.) The fellowship is supplemented by travel and equipment grants.
- 2.4 There is no relocation grant linked to the postdoctoral fellowships.

3 RESEARCH PROPOSALS AND HOSTS/SUPERVISORS FOR SRAO POSTDOCTORAL FELLOWSHIPS FOR 2021

- 3.1 All postdoctoral fellowship applications must be endorsed by a host/supervisor, at the university in South Africa where the fellowship will be undertaken. **A list of supervisors who have indicated that they are willing to host SRAO postdoctoral fellows in 2021, is provided in the table below.**
- 3.2 Applicants are required to investigate the research specialisations of the individual hosts and institutions to inform their choices, and match their own strengths and interests. Applicants must contact the respective hosts to discuss the willingness of a host to endorse the application, and to discuss and draft a research project and implementation plan, for submission as part of the application.
- 3.3 **For 2021, SRAO will consider postdoctoral applications that focus on observational research programmes, which utilise key existing radio astronomy instruments located in South Africa. These include MeerKAT, HERA, C-BASS, early versions of HIRAX, and HartRAO facilities (including astrometry and geodesy applications). Amongst these, MeerKAT is the highest priority area. (Other relevant research may be considered.)**

Table 1: Postdoctoral Fellowship Supervisors/hosts for 2021

Name	University	Host/Supervisor Email Address	Research Specialisation
Prof Oleg Smirnov	Rhodes University	o.smirnov@ru.ac.za	Algorithms, Calibration and Imaging, Direction-Dependent Effects
Prof Amanda Weltman	University of Cape Town	amanda.weltman@uct.ac.za	Cosmology, Astrophysics, HIRAX
Prof Kavilan Moodley	University of KwaZulu-Natal	moodleyk41@ukzn.ac.za	Observational Cosmology (HIRAX, MeerKAT)
Prof Yin-Zhe Ma	University of KwaZulu-Natal	ma@ukzn.ac.za	Epoch of Reionization, Fast Radio Bursts, and HI Intensity Mapping
Prof Mattia Vaccari	University of Western Cape	mattia.vaccari@gmail.com	Observational Galaxy & AGN Evolution, Cosmic Star Formation History, Multi-Wavelength Extragalactic Astronomy, Machine Learning in Astronomy
Dr Gyula I. G. Józsa	Rhodes University	jozsa@ska.ac.za	Galaxy Evolution, Radio Astronomy, Analysis Techniques
Prof Bruce Bassett	University of Cape Town	bruce.a.bassett@gmail.com	Machine Learning, Observational Cosmology
Prof Jaco Versfeld	Stellenbosch University	djjversfeld@sun.ac.za	Signal Processing and Big Data
Prof Renée C Kraan-Korteweg	University of Cape Town	kraan@ast.uct.ac.za	Extragalactic Large-Scale Structure, Systematic HI Surveys, MeerKAT HI Surveys, Cosmic Flow Fields, Tull-Fisher Relation
Dr Michelle Lochner	University of Western Cape	dr.michelle.lochner@gmail.com	MeerKAT/ LSST Multiwavelength Research, Machine Learning, Statistics
Prof Roger Deane	University of Pretoria	roger.deane@up.ac.za	Radio Astronomy
Prof Matt Hilton	University of KwaZulu-Natal	hiltonm@ukzn.ac.za	Galaxy Clusters, Galaxy Evolution, Observational Cosmology
Prof. Gianni Bernardi	Rhodes University	giannibernardi75@gmail.com	21cm Cosmology, Galaxy Clusters
Prof Mario Santos	University of Western Cape	mgrsantos@uwc.ac.za	Cosmology with MeerKAT/SKA, HI Intensity Mapping, Reionization and HERA
Prof Dirk de Villiers	Stellenbosch University	ddv@sun.ac.za	Antenna Systems for Radio Astronomy
Prof Patrick Woudt	University of Cape Town	pwoudt@ast.uct.ac.za	Radio Transients, Cataclysmic Variables, Optical Synoptic Surveys
Dr Sarah Blyth	University of Cape Town	sarblyth@ast.uct.ac.za	Galaxy Evolution and Large Scale Structure - Particularly interested in Evolution of Cold Gas Component of Galaxies over Cosmic Time (co-PI LADUMA HI survey)
Prof Lerothodi Leeuw	University of South Africa	Lerothodi@alum.mit.edu	Extragalactic Observational Astronomy

4 CONDITIONS OF AWARD OF A SRAO POSTDOCTORAL FELLOWSHIP

- 4.1 Postdoctoral fellows are required to submit proof of employment at the relevant South African university, to SRAO. No funds for a postdoctoral fellowship will be released until SRAO has received the proof of employment.
- 4.2 On receipt of proof of employment, SRAO will pay 100% of the postdoctoral fellowship to the university.
- 4.3 Postdoctoral fellows may not hold additional full-time salaried employment during this fellowship, but they are allowed to undertake a maximum of twelve hours of teaching, tutorials, assistance or demonstration duties per week, and they may be remunerated for their services, provided that they are reimbursed at the normal university rate for services rendered.
- 4.4 All research papers published by SRAO-funded postdoctoral fellows must acknowledge the financial assistance of SRAO as follows. ***“The financial assistance of the South African Radio Astronomy Observatory (SRAO) towards this research is hereby acknowledged (www.srao.ac.za)”***
- 4.5 Copies of papers and conference proceedings, published by SRAO-funded postdoctoral fellows, must be provided to SRAO.
- 4.6 Postdoctoral fellows are encouraged to attend the annual SRAO Postgraduate Scholarship Conference, and to present their research at the conference.
- 4.7 If a postdoctoral fellow wishes to change their research project, or the university, for which the fellowship was awarded, they must provide a motivation to SRAO for approval, prior to any changes. SRAO is

under no obligation to continue support if the changes do not comply with the criteria on which the fellowship offer was based.

- 4.8 If a postdoctoral fellow completes their research before the end of the period for which the fellowship was awarded, the fellowship will be decreased on a pro rata basis depending on the month in which the fellowship-holder completes their research.
- 4.9 An annual travel grant is available to support travel related to a postdoctoral fellow's research.
- An application for travel must be submitted to SARAO, via the university research office, at least two months before any trip is to be undertaken. Travel grant applications must be endorsed by the relevant supervisor / host.
 - The approval of a travel grant application is at the sole discretion of SARAO.
 - Unspent funds from travel grants will automatically be carried over from one year to the next, for the duration of the postdoctoral fellowship.
- 4.10 An equipment grant is available to support the purchase of equipment required to enable a postdoctoral fellow to do their research, and is a total amount for the three years of the fellowship.
- An application to purchase any item of equipment using this grant must be submitted to SARAO, via the university research office. The approval of an equipment grant application is at the sole discretion of SARAO.
 - Unless circumstances are motivated as exceptional, SARAO will NOT approve funding to purchase books, cellular phones, media players, E-readers, printers, digital projectors, iPads or other tablets.
 - Unspent funds from equipment grants will automatically be carried over from one year to the next, for the duration of the postdoctoral fellowship.

5 SARAO CONTACT INFORMATION

Queries with regards to the application requirements or the application procedure, may be directed to:

Dr Mthuthuzeli Zamxaka

Email: mzamxaka@ska.ac.za

Telephone: +27 11 442 2434

**Applications must be submitted electronically on the NRF Online Submission System
at <https://nrfs submission.nrf.ac.za/nrfmkii/>**