



South African Radio Astronomy Observatory

Postdoctoral Fellowships for 2023

Application Guide

Read this Guide Carefully Before Completing an Application Form

NRF|SARAO Closing Date for Applications: 20 September 2022

Apply Online at: <https://nrfconnect.nrf.ac.za>

The South African Radio Astronomy Observatory (SARAO) invites applications from suitably qualified candidates for five postdoctoral fellowships, commencing in 2023. Please note that successful applicants will be notified by SARAO, by 15 December 2022. If you have not heard from SARAO by 15 December 2022, please assume that your application was NOT successful.

1 APPLICANT'S CLOSING DATE FOR SARAO POSTDOCTORAL FELLOWSHIPS FOR 2023

Individual universities will set their own internal closing dates for applications. Please find out from the university where you intend registering for your Postdoctoral Fellowship, what their internal closing date is, and ensure you submit your application by that date.

2 ELIGIBILITY FOR SARAO POSTDOCTORAL FELLOWSHIPS FOR 2023

- 2.1 This call is open to all nationalities.
- 2.2 Applicants for SARAO Postdoctoral Fellowships 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 2018.
- 2.3 Successful applicants must be able to commence with their postdoctoral fellowships in South Africa on, or before, 1 October 2023.

3 STRUCTURE AND FUNDING LEVELS OF SARAO POSTDOCTORAL FELLOWSHIPS FOR 2023

- 3.1 Postdoctoral fellowships are only tenable at South African universities.
- 3.2 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.
- 3.3 The current value of a SARAO postdoctoral fellowship is ZAR 422,000 per annum (non-taxable). (Please note that the current value of the postdoctoral fellowship may be adjusted in 2023, to account for annual inflation changes.) The fellowship is supplemented by travel and equipment grants.
- 3.4 There is NO relocation grant for SARAO post-doctoral fellows, and successful applicants may NOT use their postdoctoral fellowship travel grants to cover the costs of their relocation to South Africa.

4 RESEARCH PROPOSALS AND HOSTS/SUPERVISORS FOR SARAQ POSTDOCTORAL FELLOWSHIPS FOR 2023

- 4.1 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 SARAQ postdoctoral fellows in 2023, is provided in the table below.**
- 4.2 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.
- 4.3 **For 2023, SARAQ will consider research project proposals that involve the scientific use or technical development of all radio astronomy and geodesy facilities located and operated in South Africa under the auspices of SARAQ, including guest instruments. Priority will be given to projects directly associated with MeerKAT. Proposals linked to guest instruments will need to explicitly provide proof of the availability of all resources required, including the maturity of the particular instrument.**

5 CONDITIONS OF AWARD OF A SARAQ POSTDOCTORAL FELLOWSHIP

- 5.1 Postdoctoral fellows are required to submit proof of employment at the relevant South African university, to SARAQ. No funds for a postdoctoral fellowship will be released until SARAQ has received the proof of employment.
- 5.2 On receipt of proof of employment, SARAQ will pay 100% of the postdoctoral fellowship to the university.
- 5.3 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.
- 5.4 All research papers published by SARAQ-funded postdoctoral fellows must acknowledge the financial assistance of SARAQ as follows. ***“The financial assistance of the South African Radio Astronomy Observatory (SARAQ) towards this research is hereby acknowledged (www.sarao.ac.za)”***
- 5.5 Copies of papers and conference proceedings, published by SARAQ-funded postdoctoral fellows, must be provided to SARAQ.
- 5.6 Postdoctoral fellows are required to attend the annual SARAQ Postgraduate Scholarship Conference, and present their research projects at the conference.
- 5.7 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 SARAQ for approval, prior to any changes. SARAQ is under no obligation to continue support if the changes do not comply with the criteria on which the fellowship offer was based.
- 5.8 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.
- 5.9 If a postdoctoral fellow resigns before the end of the period for which the fellowship was awarded, the postdoctoral fellow should fill in the exit form which should be signed by the host supervisor and the institution. The unused Fellowship funding should be returned or paid back to SARAQ by the institution.
- 5.10 An annual travel grant is available to support travel related to a postdoctoral fellow’s research.

- The travel grant includes subsistence and accommodation.
- 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.

5.11 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.

6 SARAO CONTACT INFORMATION

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

Dr Mthuthuzeli Zamxaka

Email: mzamxaka@sarao.ac.za

Telephone: +27 11 268 3424

Table 1: Supervisors/Hosts for SARA0-funded Postdoctoral Fellowships in 2023

| Name | University | Host/Supervisor Email Address | Research Specialisation |
|--------------------------|---|--------------------------------------|---|
| Prof. James Chibueze | North-West University | James.Chibueze@nwu.ac.za | Star formation, radio galaxies and galaxy clusters. |
| Prof. Lerothodi Leeuw | University of the Western Cape | LLeeuw@uwc.ac.za | Galaxy Evolution Observations, HERA. |
| Dr. Bradley Frank | South African Radio Astronomy Observatory | bfrank@sarao.ac.a | HI Survey Science, Galaxy Evolution, Calibration and Imaging. |
| Assoc. Prof. Sarah Blyth | University of Cape Town | sarblyth@ast.uct.ac.za | Extragalactic astronomy, galaxy evolution, HI surveys. |
| Prof. Andrew Chen | University of the Witwatersrand | andrew.chen@wits.ac.za | Extragalactic astronomy, Multiwavelength and multimessenger astronomy. |
| Dr. Ed Elson | University of Western Cape | drelson.e.c@gmail.com | Low and high-redshift HI studies. |
| Prof. Tinus Stander | University of Pretoria | tinus.stander@up.ac.za | Microwave and mm-wave electronics, receivers. |
| Dr. Kenda Knowles | Rhodes University | k.knowles@ru.ac.za | Galaxy clusters (targeted surveys), radio galaxies. |
| Prof. Yin-Zhe Ma | University of KwaZulu-Natal | ma@ukzn.ac.za | 21-cm intensity mapping, epoch of reionization, radio cosmology, calibration of radio instrument. |
| Prof. Oleg Smirnov | Rhodes University | o.smirnov@ru.ac.za | Calibration & imaging & other algorithms. |
| Prof. Mario Santos | University of Western Cape | mgrsantos@uwc.ac.za | Cosmology with MeerKAT and HERA. |
| Dr. Gyula Józsa | Rhodes University | gjozsa@mpifr-bonn.mpg.de | Galaxy dynamics and evolution, analysis software. |
| Prof. Matt Hilton | University of KwaZulu-Natal/ University of the Witwatersrand | hiltonm@ukzn.ac.za | Galaxy clusters, galaxy evolution, AGNs. |
| Prof. Dirk de Villiers | Stellenbosch University | ddv@sun.ac.za | Antenna systems. |
| Dr. Gianni Bernardi | Rhodes University | g.bernardi@ru.ac.za | 21cm cosmology, galaxy clusters, fast radio bursts, interferometric techniques (calibration and imaging). |
| Prof. Kavilan Moodley | University of KwaZulu-Natal | moodleyk41@ukzn.ac.za | Cosmology, intensity mapping, galaxy clusters. |
| Dr. Jack Radcliffe | University of Pretoria | jack.radcliffe@up.ac.za | Galaxy evolution, VLBI surveys, SKA simulations. |
| Dr. Mpati Ramatsoku | Rhodes University | m.ramatsoku@ru.ac.za | HI surveys, Extragalactic Astronomy, Galaxy Evolution. |
| Prof. Mattia Vaccari | University of Cape Town | mattia.vaccari@gmail.com | Multi-Wavelength Galaxy/AGN Evolution, Machine Learning. |
| Dr. Geoff Beck | University of the Witwatersrand | geoffrey.beck@wits.ac.za | Multi-frequency probes of dark matter. |
| Dr. Michelle Lochner | University of the Western Cape | dr.michelle.lochner@gmail.com | Cosmology, machine learning & statistical techniques. |
| Dr. Kshitij Thorat | University of Pretoria | kshitijthorat.astro@gmail.com | Radio Galaxies, Machine Learning Techniques. |
| Prof. Roger Deane | University of the Witwatersrand /University of Pretoria | roger.deane@wits.ac.za | Extragalactic radio astronomy; strong lensing; VLBI; SKA surveys. |
| Prof. John McKean | University of Pretoria | mckean@astro.rug.nl | Gravitational lensing (dark matter); AGN and star-forming galaxies; megamasers; VLBI surveys; machine learning. |

| Name | University | Host/Supervisor Email Address | Research Specialisation |
|--------------------------|---------------------------------|--------------------------------------|---|
| Dr. Sphesihle Makhathini | University of the Witwatersrand | sphesihle.makhathini@wits.ac.za | Radio Interferometry Algorithms and Pipelines, Imaging, Calibration, Extragalactic Radio Astronomy. |
| Dr. Jacinta Delhaize | University of Cape Town | drjdelhaize@gmail.com | Extragalactic radio surveys, galaxy evolution, radio galaxies, high redshift HI detection. |
| Prof D.J. Pisano | University of Cape Town | pisano@ast.uct.ac.za | Galaxy Formation and Evolution, Star Formation, HI surveys |
| Dr Lucia Marchetti | University of Cape Town | lucia.marchetti@uct.ac.za | Galaxy formation and Evolution, Star Formation, Data visualisation, strong lensing, AGN. |
| Dr Ian Heywood | Rhodes University | ian.heywood@physics.ox.ac.uk | MeerKAT, calibration and imaging, galaxy evolution, transients and variables, large radio surveys. |