**South African Radio Astronomy Observatory**

**Postdoctoral Fellowships for 2025**

**Application Guide**

**Read this Guide Carefully Before Completing an Application Form**

**Closing Date for Applicants: 31 August 2024**

**Apply Online at: https://nrfconnect.nrf.ac.za**

The South African Radio Astronomy Observatory (SARAO) invites applications from suitably qualified candidates for three postdoctoral fellowships, commencing in 2025. Please note that successful applicants will be notified by SARAO, by 15 December 2024. If you have not heard from SARAO by 15 December 2024, please assume that your application was NOT successful.

## 1 CLOSING DATE FOR SARAO POSTDOCTORAL FELLOWSHIPS FOR 2025

The universities set their own internal closing dates for applications. Please find out from the university where you intend completing 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 2025

2.1 This call is open to all nationalities.

2.2 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 2020.

2.3 Successful applicants must be able to commence with their postdoctoral fellowships in South Africa on, or before, 1 October 2025.

## 3 STRUCTURE AND FUNDING LEVELS OF SARAO POSTDOCTORAL FELLOWSHIPS FOR 2025

3.1 Postdoctoral fellowships are only tenable at South African universities.

3.2 Postdoctoral fellowships are awarded for a period of three years.

3.3 Renewal of a postdoctoral fellowship each year is subject to satisfactory performance, which will be determined through annual progress reports (APRs), detailing progress on deliverables as per the original research proposal. In the APRs, deliverables should be demonstrated by showing evidence thereof e.g., senior authorship peer-reviewed papers, conference proceedings, developed hardware, preliminary results of simulations or data analysis, etc. Failure to submit a progress report on time may result in the cancelation of the fellowship for the current and subsequent years.

3.4 The postdoctoral fellowship level for 2025 is R460,410. The fellowship amount is supplemented by a travel grant of R48,000 per annum, and an equipment grant of R72 000 for the duration of the fellowship.

3.5 There is NO relocation grant for SARAO postdoctoral fellows, and successful applicants may NOT use their travel grants to cover the costs of their relocation to South Africa.

## 4 RESEARCH PROPOSALS AND HOSTS/SUPERVISORS FOR SARAO POSTDOCTORAL FELLOWSHIPS FOR 2025

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 SARAO postdoctoral fellows in 2025, 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 2025, SARAO 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 SARAO, including guest instruments. Relevant data for any research proposed must be available in 2025. 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 (and the availability of relevant data).**

## 5 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 SARAO-funded Postdoctoral Fellowships in 2025**

| Name | University | Host/Supervisor Email Address | Research Specialisation |
|---|---|---|---|
| Prof. Mattia Vaccari | University of Cape Town | mattia.vaccari@uct.ac.za | Machine Learning Applications in Multi-Wavelength Astronomy, Multi-Wavelength Galaxy/AGN Evolution, Multi-Wavelength Time-Domain Surveys |
| Dr. Kshitij Thorat | University of Pretoria | kshitij.thorat@up.ac.za | Radio Galaxies, Machine Learning Applications to Radio Astronomy |
| Prof. Yin-Zhe Ma | Stellenbosch University | mayinzhe@sun.ac.za | Radio Search of Dark Matter, 21-cm Cosmology, large-scale structure of the Universe, Pulsar Timing Array |
| Prof. Mario Santos | University of the Western Cape | mgrsantos@uwc.ac.za | Cosmology with radio telescopes |
| Prof. John McKean | SARAO / University of Pretoria | john.mckean@up.ac.za | Gravitational Lensing; Dark Matter; Machine Learning; Active galaxies; Starburst galaxies; high-z |
| Prof. Kavilan Moodley | University of KwaZulu-Natal | moodleyk41@ukzn.ac.za; kavilan.moodley@gmail.com | Radio cosmology, 21cm intensity mapping, diffuse emission in galaxy clusters |
| Prof. Roger Deane | Wits University / University of Pretoria | roger.deane@wits.ac.za | continuum and spectral-line galaxy evolution science with MeerKAT; binary SMBHs; gravitational lensing; Bayesian and machine learning applications |
| Prof. Tinus Stander | University of Pretoria | tinus.stander@up.ac.za | Wideband and multi-band receivers and receiver components development |
| Prof. Patrick Woudt | University of Venda | patrick.woudt@uct.ac.za | Radio transients, Cataclysmic Variables and White Dwarf pulsars, Time-Domain Astrophysics |
| Dr. Jacinta Delhaize | University of Cape Town | j.delhaize@uct.ac.za | Galaxy evolution, extragalactic HI and radio continuum surveys, source finding, HI stacking, HI absorption, AGN, radio galaxies, radio source decomposition and multiwavelength analysis, infrared-radio correlation |
| Prof. Matt Hilton | University of the Witwatersrand | matt.hilton@wits.ac.za | Galaxy evolution, AGNs, diffuse emission in galaxy clusters |
| Dr. Marisa Geyer | University of Cape Town | marisa.geyer@uct.ac.za | Pulsar science, Pulsar Timing, Relativistic Binaries, Gravitational Wave Physics, Fast Radio Bursts, Neutron star theory. |
| Prof. James Chibueze | University of South Africa | chibujo@unisa.ac.za | Galactic star formation, masers and radio galaxies |
| A/Prof. Sarah Blyth | University of Cape Town | sarah.blyth@uct.ac.za | HI and galaxy evolution |
| Dr. Kenda Knowles | Rhodes University | k.knowles@ru.ac.za | Continuum extragalactic radio astronomy -- multiwavelength studies of galaxy clusters; AGN; radio galaxies |
| Dr. Michelle Lochner | University of the Western Cape/SARAO | dr.michelle.lochner@gmail.com | Machine learning and statistics in multiwavelength astronomy, studies of anomalous radio galaxies in MeerKAT data, machine learning-driven scientific discovery in large datasets |
| Dr. Geoff Beck | University of the Witwatersrand | geoffrey.beck@wits.ac.za | Indirect dark matter searches with radio telescopes |
| Distinguished Prof. Oleg Smirnov | Rhodes University | o.smirnov@ru.ac.za | Calibration and imaging, algorithms, observational techniques and technologies, software |

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| Prof. Amare Abebe | North-West University | AmareAbebe.Gidelew@nwu.ac.za | Cosmology, observational constraints from large-scale structure |
| Dr. Lucia Marchetti | University of Cape Town | lucia.marchetti@uct.ac.za | Multiwavelength extragalactic astronomy, Galaxy Evolution, AGN studies, Strong gravitational lensing, LSST/Euclid collaborations, Data Visualisation. |
| Prof. Warren du Plessis | University of Pretoria | wduplessis@up.ac.za | Signal processing, electromagnetic systems, sparse sampling... basically things that operate in the electromagnetic spectrum. |
| Prof. Lerothodi Leeuw | University of the Western Cape | Lerothodi@gmail.com | Multiwavelength Extragalactic Astronomy; Galaxy Evolution; AGN; EoR; Astroparticle Physics. |
| Prof. Matthys Botha | Stellenbosch University | mmbotha@sun.ac.za | Computational electromagnetics for modelling large-scale radio astronomy arrays. |
| Dr. Shajid Haque | University of Cape Town | shajid.haque@uct.ac.za | Applications of quantum information tools in cosmology and astrophysics, cosmology, modified gravity. |
| Prof Alvaro de la Cruz-Dombriz | University of Cape Town | alvaro.delacruzdombriz@uct.ac.za | Modified Gravity, Dark matter, strong gravity regimes, gravitational waves |