



**South African Square Kilometre Array Project
Doctoral Bursary Programme
Call for applications for 2017**

Application Guide

Read this guide carefully before completing an application form

Closing date for applications is 29 July 2016

1. Eligibility for a Doctoral bursary from the South African SKA Project

- **Nationality**

The South African SKA Project (SKA SA) will consider applications from students who are:

1. South African citizens, and permanent residents of South Africa; or
2. Citizens of Botswana, Ghana, Kenya, Madagascar, Mauritius, Mozambique, Namibia and Zambia, who wish to complete a relevant Doctoral degree at a South African university; or
3. South African citizens and citizens of Botswana, Ghana, Kenya, Madagascar, Mauritius, Mozambique, Namibia and Zambia, who wish to complete a relevant Doctoral degree at a university in an SKA SA partner country.

- **Relevant Masters degree**

SKA SA will consider applications from students who are academically excellent, and who have completed, or are completing, a Masters degree that is relevant to the scientific and technical goals of the SKA and MeerKAT radio telescopes.

2. Application process for a SKA SA Doctoral Bursary

The application process for Doctoral bursaries from the SKA SA comprises two stages:

Stage 1: Students complete an application form

1. Prospective students apply to SKA SA for a bursary by completing an online application form.
2. At this stage in the application process students DO NOT submit a research proposal with their application form, they only indicate their preferred area/s of research from the list of SKA SA-priority research areas. *(See Annexure A for the 2017 SKA SA PhD Priority Research Areas)*
3. A panel, duly appointed by SKA SA, evaluates all student applications, and recommends to SKA SA the students who should receive a bursary. (If required, the panel may interview short-listed students.)

Stage 2: Students select their research projects and correspond with the relevant supervisors

1. Students recommended for a bursary, by the panel, are provided with copies of all the pre-approved research projects for a particular year. Students select the project they wish to pursue for their Doctoral degree from these pre-approved projects.
2. Students and supervisors (of the pre-approved projects) are then given the opportunity to contact each other to discuss project details, and ascertain suitability for supervision etc.

IMPORTANT: Students awarded a Doctoral bursary from SKA SA will have to register at the university where the supervisor of the research project, selected by the student, is based, and the student will have to undertake his / her research at that university.

3. Structure of a SKA SA Doctoral Bursary

(Note: The bursary levels quoted in the table below are the current levels, and may be adjusted to take into account changes in university fees and inflation.)

Bursary item	Amount / Duration	Comments
Bursary	R 119,000	
Travel Grant	R 22,000	1. The student may use the travel grant for travel related to his/her research. 2. It is compulsory for a student to travel at least once a year to a conference / workshop for research purposes. 3. Travel grants, or any funds remaining from a travel grant, for a particular year, may be carried over to the next year.
Equipment Grant	R 32,000	1. The equipment grant is a total amount available for the full duration of the bursary (i.e. this is not an annual amount). 2. The equipment grant is available to the student to support the purchase of equipment required for his / her research. 3. Equipment purchased using funds from SKA SA is the property of the university where the student is registered, and not the property of the student. 4. Equipment grants, or any funds remaining from an equipment grant may be carried over to the next year.
Home Travel Grant	Cost of one return ticket, with one change	SKA SA will organise and pay for one return ticket, per year, for students from Botswana, Ghana, Kenya, Madagascar, Mauritius, Mozambique, Namibia and Zambia.
Repatriation Fee	Paid in full, if required	SKA SA will pay the repatriation fee, if required, for students from Botswana, Ghana, Kenya, Madagascar, Mauritius, Mozambique, Namibia and Zambia.
Emergency Medical Insurance	Paid in full	SKA SA will pay the cost of emergency medical insurance for students from Botswana, Ghana, Kenya, Madagascar, Mauritius, Mozambique, Namibia and Zambia.

4. Conditions of Award

- 4.1. The duration of an SKA SA bursary is three years for a Doctoral degree.
- 4.2. A bursary from the SKA SA is renewable each year, for the duration of the respective bursary, at the sole discretion of the SKA SA, and is subject to:
 - 4.2.1. Satisfactory performance, which will be determined primarily through bi-annual progress reports; and
 - 4.2.2. Publishing at least one paper, in an internationally refereed journal, during your degree, unless the SKA SA explicitly waives this condition, after discussion with the student.
 - 4.2.3. All research papers published by postgraduate students must acknowledge the financial assistance of the SKA SA.
 - 4.2.4. All research papers published by postgraduate students must be submitted to the SKA SA.
 - 4.2.5. Students must present their research at the annual SKA SA Postgraduate Bursary Conference.
 - 4.2.6. Students are allowed to hold supplementary grants or emoluments, during this bursary, to a maximum of 50% of the SKA SA award, but he/she must inform the SKA SA via his/her university of such awards or emoluments.
 - 4.2.7. If a student wishes to change his / her research project, field of study, or the university, for which the bursary was offered, he / she must provide a motivation to the SKA SA for approval, prior to any changes. The SKA SA is under no obligation to continue support if the changes do not align with the original criteria on which the bursary offer was made.
 - 4.2.8. If a student completes his/her degree before the end of the period for which the bursary has been awarded, the bursary will be decreased on a pro rata basis depending on the month in which the student completes the degree.
 - 4.2.9. Students who do not obtain the degree for which the bursary was awarded, relinquish their studies, or leave the tertiary institution during the period for which the bursary was awarded, will have to refund all payments of the bursary already received by them (this includes funds paid out from travel and equipment grants).
 - 4.2.10. On completion of a postgraduate degree funded by the SKA SA, students must accept reasonable employment, if it is offered to him / her by the SKA SA, to carry out work related to the SKA and /or the MeerKAT, for a period not exceeding two years, unless this condition is explicitly waived by the SKA SA after discussion with the student.
- 4.3. Travel Grants
 - 4.3.1. The annual travel grant is available to support travel related to a student's research.
 - 4.3.2. The grant includes subsistence and accommodation.
 - 4.3.3. An application for travel must be provided to the SKA SA at least two months before any trip is to be undertaken. The supervisor must endorse travel grant applications.
 - 4.3.4. A report highlighting the research benefits of the trip (plus proof of expenditure) must be provided to the SKA SA within two weeks after returning from the trip. If the no proof of

expenditure can be provided to the SKA SA, the student will be required to refund the amount paid by the SKA SA for the relevant travel.

4.3.5. The approval of a travel grant application is at the sole discretion of the SKA SA.

4.3.6. Travel grants may be carried over from one academic year to the next.

4.4. Equipment Grants

4.4.1. The equipment grant is available to support the purchase of equipment required to enable a student's research, and is a total amount available for the duration of the degree.

4.4.2. An application to purchase any item of equipment using this grant must be made to the SKA SA. The approval of an equipment grant application is at the sole discretion of the SKA SA.

4.4.3. The supervisor must endorse equipment purchase applications.

4.4.4. Receipts for any equipment purchase must be submitted to the SKA SA within two weeks after the purchase. (If no receipts can be provided to the SKA SA, the student will be required to refund the amount paid by the SKA SA for the equipment purchased)

4.4.5. Equipment purchased using funds from the SKA SA is the property of the university, where the student is registered.

4.4.6. Unless circumstances are motivated as exceptional, the SKA SA will NOT approve funding to purchase books, cellular phones, media players, E-readers, printers, digital projectors, and iPads or other similar tablets.

5. Application forms and submission information

5.1. Application forms are available at <https://skagrants.nrf.ac.za>

5.2. Students must submit their applications via the research office at the university where they are currently registered. **(Students not currently registered at a South African university may submit their application forms directly to SKA SA. Contact SKA SA at lgura@ska.ac.za if you require further clarification.)**

5.3. Queries may be directed to SKA SA at lgura@ska.ac.za

Annexure A: Priority Areas for Doctoral-Level Research in 2017

1. Radio Pulsar and Fast-Transient science, instrumentation and data analysis (including real-time RFI detection).
2. Real-time Signal Processing instrumentation for Radio Astronomy, specifically using FPGA and GPU platforms.
3. Big Data topics, including the development of hardware (e.g. Micro-servers and data storage solutions).
4. Instrumentation and data analysis for Radio Frequency Interference (RFI) detection, analysis and archival.
5. Science topics that involve the exploitation of MeerKAT capabilities projected as of late 2017 ("Array Release 3"), including those linked to MeerKAT Large Survey Projects.
6. Epoch of Reionization and Intensity Mapping data reduction and analysis.
7. Interferometric Data Processing and Analysis, including calibration and imaging.
8. C-BASS data processing and analysis.
9. Mid-frequency Aperture Array technologies.
10. Wide-band single-pixel receivers.