Funding Instrument: South African Research Chairs

Initiative - Astronomy (SARChI-Astronomy)

Document: Framework & Funding Guide

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1. Strategic background

1.1 Context

The *White Paper on Science and Technology* (1996) and *the National Research and Development Strategy* (2002) emphasised the need for South Africa to transform its Science, Engineering and Technology (SET) workforce. Other policy and strategies of government, including the *Human Resource Development Strategy* (2009) and the *Medium Term Strategic Framework* (2009), note the shortage of high-level skills as a significant constraint in the development of the economy and society. In this regard, South Africa must produce a greater number of highly skilled individuals; particularly in SET, to achieve the goal of "*an equitable, sustainable, and inclusive growth path that brings decent work and sustainable livelihoods, education, health, safe and secure communities, and rural development*".

The South African Research Chairs Initiative (SARChI) was established in 2006 by the Department of Science and Technology (DST). This Funding Instrument is managed by the National Research Foundation (NRF) through a contractual agreement with DST. It is a strategic intervention of the South African government designed to attract and retain excellence in research and innovation at South African universities. In particular, the Instrument is aimed at increasing scientific research capacity through the development of human capacity and stimulating the generation of new knowledge. It is also intended to support the realisation of South Africa's transformation into a knowledge economy in which the generation of knowledge translates into socio-economic benefits.

SARChI is designed to significantly expand the scientific research base of South Africa in a way that supports implementation of the national Research and Development policies. Since inception, 198 Research Chairs have been awarded in various disciplines and research fields. The Funding Instrument has been

successful in retaining leading South African scientists in the university system and attracting leading foreign researchers and expatriate researchers to South Africa.

1.2   SARChI Objectives

The main goal of the Initiative is to strengthen and improve research and innovation capacity of public universities in order to produce high quality postgraduate students and outputs. The SARChI objectives are to:

- Expand the scientific research and innovation capacity of South Africa;
- Improve South Africa's international research and innovation competitiveness, while responding to social and economic challenges of the country;
- Attract and retain excellent researchers and scientists;
- Increase the production of Masters and Doctoral graduates; and
- Create research career pathways for young and mid-career researchers, with a strong research, innovation and human capital development output trajectory.

1.3 SARChI Guiding Principles

The following principles will inform the awarding of the Research Chairs to the successful university:

- SARChI is a strategic instrument aimed at strengthening research and innovation capacity in public universities in South Africa, enhancing the training of a new generation of researchers and the further development of established researchers in all knowledge areas while responding to national priorities and strategies;
- SARChI is a Funding Instrument for universities. Research Chairs may be held by a South African public university in partnership with a public research institution such as: another public university, a Science Council or a National Research Facility;

- Public universities in South Africa will bid for a Research Chair in an open and competitive process, hence the Research Chair will not be pre-allocated to an institution;

- Each university may submit a maximum of three (3) applications for the Research Chairs relative to a particular Call;

- The Research Chair must be in alignment with the university *Programme and Qualification Mix* (PQM) approved by the Department of Higher Education and Training;

- The Chair will be expected to dedicate at least 80% of their time conducting research, supervising an average of 10 Masters and Doctoral students per annum and mentoring emerging researchers. The remainder of the time may be dedicated to administration or undergraduate teaching;

- Research Chairs are tenable at two Tiers. **Tier 1** is for Chairs who are established researchers, that are recognised internationally as leaders in their field, and/or have received substantial international recognition for their research contributions. **Tier 2** is for Chairs who are established researchers, with a strong research, innovation and human capital development output trajectory, and the potential to achieve substantial international recognition for their research contributions in the next five to ten years;

- Candidates from abroad that are willing to spend at least 50% of their time within South Africa are eligible for consideration, at the Tier 1 level, the initiative has the intention of attracting candidates, including African scholars and South Africans in the diaspora, who have distinguished themselves in their research fields. However, international candidates at Tier 2 level are required to reside full-time in South Africa for the duration of the award of the Research Chair.

1.4   University Accountability for SARChI Chairs

A Chair may be appointed by the university, at the level of an Associate Professor or full Professor, benchmarked nationally. The Chair will fit into the normal management structures of the host institution. However, accountability for the Research Chair will reside with the Vice-Chancellor or Deputy Vice-Chancellor responsible for research at the South African host university.

1.5   Profile of Candidates

The NRF will require the approved candidate for the SARChI Chair to enter into a five-year performance agreement in the form of '*Conditions of Grant*' and will evaluate the performance of the Chair against the research plan, stated objectives and targets, as declared in the online application. The track record of the candidate is therefore very important to the selection process and success of the Research Chair.

Approved candidates may be current staff members or new recruits to the universities. Where a current university academic staff member takes up a Chair, the university must immediately initiate a process to fill the vacated position with a suitably qualified candidate[1]. The replacement candidate must be employed on a full-time basis for at least the duration of the tenure of the Research Chair. Where the approved candidate is not young, black or female, the university must develop a succession plan designed to develop a range of possible candidates with competitive capacity within two cycles of a Research Chair award.

All candidates who are requested by the DVCs for Research to apply for a Research Chair must be established researchers that hold a doctoral degree or an equivalent research qualification and must submit a proposed research programme that is innovative, original and of high quality. Following the peer review of the proposal and the *curriculum vitae* of the candidate, Chairs may be

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[1]   In short, this Initiative must **add** to the number of university research and academic staff.

approved at the Tier 1 or Tier 2 level based on their past research and innovation outputs, track record in supervising and mentoring postgraduate students and postdoctoral fellows, as well as national and international recognition for their research contributions. The criteria that must be met by candidates for approval at the Tier 1 or Tier 2 level are detailed in Table 1.

Table 1: Criteria for SARChI Tier 1 and Tier 2 Research Chairs

Tier 1 Research Chairs	Tier 2 Research Chairs
• Should be appointed at the level of a full Professor benchmarked nationally; • Should be an outstanding and innovative researcher whose accomplishments have made a major impact in their field; • Should be recognised internationally as an undisputed leader in their field and/or have received substantial international recognition for their research contributions; • Should have a superior record in attracting and supervising post-graduate students and postdoctoral fellows, taking into account the practices of the	• Should be appointed at the level of an Associate Professor or full Professor benchmarked nationally; • Should be an established researcher, with a strong research, innovation and human capital development output trajectory; • Should have the potential to achieve substantial international recognition for their research contributions in the next five to ten years; • Should have demonstrated the ability to attract and successfully supervise postgraduate students and postdoctoral fellows; and

| field; and
• Should reside full time in South Africa for the duration of the Research Chair award. Candidates from abroad, including African scholars and South Africans in the diaspora, that are willing to spend at least spend 50% of their time within South Africa are eligible for consideration.	• Should reside full-time in South Africa for the duration of the Research Chair award. Candidates from abroad, including African scholars and South Africans in the diaspora, who are generally under the age of 40 (forty) years, are eligible for consideration.

2. Proposal Submission and Assessment Process

This section of the Framework and Funding Guide describes the process for proposal submission and assessment.

2.1.   Research Focus and Thematic Areas

The Research Focus and thematic areas for the awarding of Astronomy Research Chairs are those as outlined in the National Strategy for Multi-wavelength Astronomy.

2.2.   Application, Review and Selection Process

The Research Chair will be awarded in an open and competitive process. The application must include, (i) *the motivation by the South African public university to host the Research Chair (ii) the suitability of a candidate for appointment to the Chair position; (iii) a research and activity plan drafted* by the approved candidate.

Each university will be permitted to allow applications of up to three candidates, who must submit a separate full proposal. The application(s) must be authored by the candidate(s) in consultation with the university's Deputy Vice Chancellor

responsible for research. The Standing Astronomy Grants Panel of the Astronomy sub-Agency will assess applications and the Panel will recommend an award for approval by the NRF.

The application should give details on:

(i)   The readiness and commitment of the university to provide an enabling environment to ensure the success of the Research Chair;

(ii)   Strengths, capabilities, strategic environment and competencies of the university;

(iii)   The alignment of the proposed Research Chair with the proposed thematic area and the university research strategy;

(iv)   The potential of the proposed Research Chair to enhance the international research and/or innovation competitiveness within the discipline;

(v)   The potential of the research to impact on the social and/or economic development of the country;

(vi)   The research focus of the Research Chair;

(vii)   A proposed plan on how the Research Chair will fulfill SARChI objectives, including the strategic considerations mentioned in the university proposal; and how it will deliver on the university research strategy; and

(viii)   Specific objectives, outputs and outcomes for the five-year period.

The approved candidate(s)[2] must use the NRF Online Submission System (https://nrfsubmission.nrf.ac.za/nrfmkii/) to register and/or update her/his *curriculum vitae* and complete the application*.*

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[2]   No commitment should be given to the candidate(s) by the university before the NRF has officially informed the university of the Award by means of an award letter.

As awards of SARChI Research Chairs are to be made to the host university, the application by the approved candidate has to be supported through the electronic application process. The Deputy Vice-Chancellor responsible for research at the university must undertake the support of the application on the online application. Each university must submit the following documentation to be considered as a host university for Research Chairs, through the online application:

- University Research Strategy;

- PQM approved by the Department of Higher Education and Training;

- Details of current academic and research staff of the university in the specific discipline; and

- Statistics on university research outputs and postgraduate students trained and graduated for the period 2011 to 2015, in the specific discipline.

2.3. Selection Criteria

2.3.1. Application to Host the Research Chair by University

The Research Chair will be awarded in an open and competitive process. The application must include, (i) *the motivation by the South African public university to host the Research Chair (ii) the suitability of a candidate for appointment to the Chair position; (iii) a research and activity plan drafted* by the approved candidate.

The application must therefore demonstrate the following:
- Alignment of the proposed Research Chair with the university's research strategy and PQM;
- Alignment of the proposed Research Chair's focus with that of existing research activities or capacity;
- University commitment for creating an enabling environment with regard to:

> ➢ Office and/or laboratory space.

> ➢ Infrastructure (equipment, IT facilities, etc.);

> ➢ Academic support (information, resource facilities and related research groups);

> ➢ Management and leadership; and

> ➢ Financial support (direct and indirect);

- Reporting lines and location of the Research Chair within the university structure.

The selection of candidates will be based on the merits of each candidate's full research proposal. This will include the strength of the candidate's profile, including her/his qualifications and experience, publications in the discipline of the Research Chair and postgraduate student supervision track records. This will also include an assessment of the candidate's research and activity plan in respect of its ability to deliver on SARChI objectives, as well as a proposed budget (see Section 3.3. of this document for Funding Levels).

The full proposal must also give specific details on:
- Proposed teaching[3] to research time ratio;
- Research objectives for the five year period;
- Expected knowledge[4] outputs in the first five year period;
- Expected human capital[5] outputs in the first five year period; and
- Existing and planned collaborations in the first five-year period.

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[3]   Teaching of postgraduate students only. Note: Chairholders may not spend more than 20% of their time on undergraduate teaching and/or management responsibilities not related to activities of the Research Chair.

[4]   Peer-reviewed journal articles, peer-reviewed conference proceedings, scholarly books and book chapters, patents, invited keynote presentations, conference presentations etc.

[5]   Numbers of Masters and Doctoral graduates and completed postdoctoral fellowships.

3. Management of the Research Chairs

This section of the Framework and Funding Guide for Applications describes what follows after the Research Chair has been awarded to the university.

3.1.   Duration of the Research Chair

Research Chairs with a Tier 1 Chair, will be tenable for five years, renewable for two further five-year periods giving a total lifespan of 15 years. Research Chairs with Tier 2 Chairs will be tenable for five years, renewable for a further five-year period giving a total lifespan of 10 years. Eligibility for renewal will be entirely performance-linked and Tier 2 Chairs may be upgraded to a Tier 1 after the first or second five-year funding period based on the recommendations of a five-year term review.

3.2.   Management of Research Chairs

The management of SARChI grants is illustrated in **Figure 1** and described below.

On accepting the award and signing the *Conditions of Grant,* the newly appointed incumbent of the Research Chair will be required to deliver on the research activity plan that formed part of the accepted full proposal. At the end of each financial year the incumbent will be required to submit to the NRF an Annual Progress Report (APR) addressing the milestones and expected outcomes as presented in the research activity plan in the application.

During year five, of the five-year funding cycle, the Research Chair will be subjected to an in depth evaluation undertaken by peers following the framework set out in the *SARChI Monitoring and Evaluation Framework*.
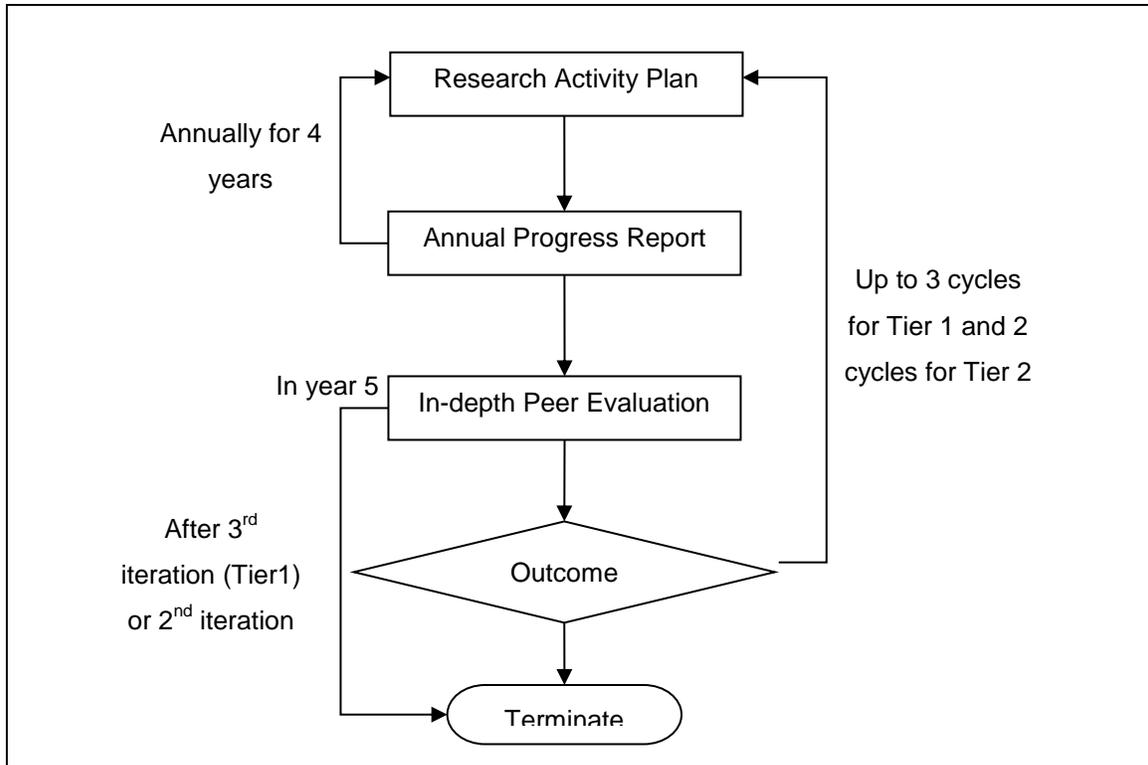
Figure 1: Management of Research Chairs over the tenure of the Research Chair

3.3. Funding Levels

SARChI proposes to make an award of up to R2 680 000 and R1 680 000 per annum per Tier 1 and Tier 2 Chair of the Research Chairs, respectively. This award will cover salaries[6], postdoctoral fellowships and postgraduate student bursaries, research operating costs, research equipment and infrastructure and host institution overheads. The guidelines for apportioning of the grant across these categories and the values of fellowships and scholarships are shown in Table 2.

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[6]   Salaries of the incumbent and limited administrative support

Table 2: Guidelines for SARChI annual budget breakdown for Tier 1 and Tier 2 allocated Research Chairs

Budget category	Sub-item	Cost pa	Minimum number of people	Maximum number of people
Salaries	Chair	550 000 to 700 000	1	1
	Admin support	30 000	0	1
	Research assistants (per person)	30 000	0	3
Fellowships	Postdoctoral fellows (per person awarded pro rata)	200 000	1	
Bursaries	Doctoral (full time)	100 000	2	
	Masters (full time)	70 000	2	
	Honours	40 000	4	4
Research equipment or infrastructure	Up to R400 000	400 000		
Running	Up to 30% of total budget			
University Overheads	Up to 10% of total budget			

It is important to note that this budget template provides a guide that stipulates the minimum and maximum amounts per budget category and has the flexibility for the Chair to allocate the SARChI grant based on the research activity plan. The proposed budget will be approved at the commencement of each five-year

funding cycle. The incumbent will be given an opportunity, at the end of each calendar year, to make budget adjustments for the subsequent year, in consultation with the Directors of Research Chairs & Centres of Excellence and the NRF Astronomy sub-Agency.

Tier 1 Chairs will not be eligible for additional NRF parliamentary core grant funding, except in respect of Rated Researchers Incentive Funding. Incumbents must apply for grants for large equipment through the NRF Infrastructure Funding Instrument.

However, Tier 2 Chairs may apply for NRF grants as outlined in the Multiple Grants Eligibility Overview July 2015 (http://www.nrf.ac.za/document/multiple-grants-eligibility-overview-july-2015)

Chairs are expected to dedicate at least 80% of their time conducting research and supervising an average of 10 Masters and Doctoral students per annum. The Chairs are therefore strongly encouraged to attract additional funding for research and human capital development from other national and international funders and donors to supplement the SARChI grant.

3.4. Payment of Grants

The operational value of the grant for year 1 of 5 for the awarded Research Chair will be released to the host institution upon receiving the signed copy of the NRF *'Conditions of Grant'* by the incumbent and paid upon the claim of expenses by the university   Student funding will be made available to successful nomination of postgraduate students and postdoctoral fellows. Grants will thereafter be disbursed to the universities on an annual basis, for the approved funding period, subject to the appointed Chair meeting the *'Conditions of Grant'* and submitting an APR*.*

3.5. Evaluation and Impact of Research Chairs

A baseline study of Research Chairs, their institutional and intellectual environments will be conducted with each round of new awards. These studies, together with the universities' Strategic Research Plans and the Research Chair's research and activity plan, will serve as the baseline to evaluate impact on the discipline and at the institutional level.

4. References

South Africa. (1996). White Paper on Science and Technology - *'Preparing for the 21st Century'.* http://www.dst.gov.za/index.php/legal-statutory/white-papers/361-science-a-technology-white-paper (Accessed: October 2014)

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5. NRF Contact Persons

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