



# **Framework and Funding guide for the Namibian Research Chair In Multiwavelength Astronomy and Astrophysics**

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## 1. Introduction

The availability and supply of highly skilled researchers and scientists capable of the highest quality of research and innovation, through the production of new knowledge, is of utmost importance for the sustained growth of the Namibian and South African economy, and its improved competitiveness in a world economy that is increasingly becoming knowledge-based. Namibia and South are experiencing a disjuncture between the demands and needs of a rapidly modernising economy, and the requisite improvement in the supply, quality, composition and allocation of researchers and scientists produced by its national science system. Coupled to this, the rate of production of new knowledge and its application across many academic fields is lagging behind those of many countries with a comparative level of development.

In response to this challenge, the Namibian and the South African government has joined hands to collaborate in the field of Astronomy and Astrophysics through the establishment of a joint Namibian/South African Research Chair Initiative (NAM/SARCHI). The programme is designed to significantly expand the scientific research base in support of key government strategies for human capital development, the generation of research outputs, the development of the country's national science system and its international competitiveness, and the regeneration of its researcher cohort. The NAM/SARCHI programme is managed by the National Commission on Research, Science and Technology in Namibia and by the National Research Foundation (NRF) in South Africa , in their role as an implementing agency mandated by the Acts of Parliament, on behalf of the Ministry of High Education, Training and Innovation and the Department of Science and Technology (DST) respectively. In implementing the programme, the NCRST and NRF shall employ their established system of peer-review, and other standard procedures for grants management, monitoring and evaluation. In implementing the programme, the choice of science domains in which to establish Research Chairs may be strategically guided by the need to leverage other investments made in certain strategic research and development domains, however, the selection and awarding of individual Research Chairs is done on an open and competitive basis.

## **2. An international bilateral approach to Research Chairs**

South African science\* activities and outputs are increasingly internationally embedded and involve an increasing number of international science collaborations. As a result, South African researchers have significantly increased their overall publication rate and international recognition of their outputs. In 1981, only 11% of papers authored by South African scientists featured an international co-author, while in 2012, this fraction had increased to 52%. South Africa attaches great strategic and scientific importance to deepening international research cooperation through the pursuit of specific strategic bilateral partnerships. In this respect,

Namibia and South Africa have always been key partners in terms of Science and technology collaborations. The success emanating from the South Africa Research Chairs Initiatives (SARCHI) programme, the DST has decided to explore with selected international bilateral partners the feasibility of establishing joint, bilateral Research Chairs in strategic scientific domains of mutual interest. The Department believes that the establishment of such Chairs would:

- support the research and innovation capacity of South Africa for their long term sustainable growth and enhance the establishment of enduring international research networks
- bring together national and international expertise to enrich the research programme;
- strengthen and deepen bilateral research cooperation and the bilateral relationship between the two countries; and
- lead to economies of scale, thereby enhancing the efficiency of the bilateral investment made.

Its against this background that Namibia took a strategic decision to partner with South Africa to establish a joint, bilateral Research Chairs in strategic scientific domains of mutual interest, especially in the Astronomy and Astrophysics related fields.

## **3. Background to the Namibian– South African Research Chair**

Namibia and South Africa have a long history of strong relations in many fields of scientific cooperation, since Namibia's independence in 1990. Particularly exciting opportunities for

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\* Throughout this document the term "science" is used to denote all areas of intellectual enquiry, including natural, physical, engineering, medical, human and social sciences.

world-leading scientific activities in Namibia and South Africa have emerged over the past ~ 20 years: In 2002, the High Energy Stereoscopic System (H.E.S.S.) started operations in Namibia. It is the world's largest ground-based gamma-ray astronomy facility, located southwest of Windhoek, and operated by an international collaboration of about 260 scientists from 12 countries in Europe and Southern Africa. Since 2005, South Africa hosts the largest single-dish optical telescope in the southern hemisphere, the Southern African Large Telescope (SALT) near Sutherland, in addition to a number of smaller, world-class research telescopes. In 2012, South Africa has been chosen as the core site for the construction of the Square Kilometre Array (SKA), the largest telescope project ever built by mankind, which will consist of hundreds of radio telescopes spread out over the entire continent, including two dishes in Namibia. As a predecessor to the development of the SKA, South Africa has built the 7-dish Karoo Array Telescope (KAT-7), and the MeerKAT array, which will ultimately consist of 64 radio telescopes near the core site of the future SKA, saw the inauguration of its first dish in March 2014. In tandem, an African Very Long Baseline Interferometry (VLBI) Network (AVN) is currently being established (since 2009) in 9 partner countries throughout Africa: Botswana, Ghana, Kenya, Madagascar, Mauritius, Mozambique, Namibia, South Africa, and Zambia. Both Namibia and South Africa are also among the 28 partner countries (representing about 1200 scientists on 6 continents) in the development of the next-generation ground-based gamma-ray astronomy facility, the Cherenkov Telescope Array (CTA), which will include an array of about 100 Cherenkov telescopes of three different sizes in the southern hemisphere. Namibia and Chile have been selected as potential host countries for CTA-South, and the CTA Observatory GmbH awarded the bid to Chile.. All of these developments illustrate the standing of the southern African region as one of the world's leading hubs for multi-wavelength astronomy.

In August 2014, ministerial delegations from Namibia and South Africa met in Windhoek to discuss ways to strengthen the mutual collaborations between the two countries in the areas of Astronomy and Space Science. Specifically, as documented by the joint ministerial statement of August 12, 2014 (attached), the two ministries re-affirmed their mutual support for Namibia's bid to host the southern CTA, for the continued, successful science operations of H.E.S.S., and their commitment to the establishment of the SKA and the AVN. At that meeting, the establishment of a joint Namibian- South African Research Chair Initiative was also discussed as a promising avenue to capitalise on Southern Africa's geographic advantage for multi-wavelength astronomy.

#### **4. The Objectives of the Namibian– Namibian Research Chairs**

The focus of the Namibian– South African Research Chair Initiative will be on multi-wavelength astronomy and astrophysics. The successful candidate is expected to have a strong track record and promise for future significant contributions in a research field that capitalises on southern Africa’s geographic advantage and existing research strengths. In particular, he/she should bridge the gap between the radio and gamma-ray astronomy communities in Namibia and South Africa by emphasizing research areas of common interest. These include, but are not limited to, extragalactic high-energy astrophysics and astrophysical transients (including gamma-ray bursts and tidal disruption events).

In achieving these goals, the Namibian– South African Research Chair Initiative will:

- Help to strengthen research and innovation capacities in Namibia and South Africa at the highest scientific level in a selected research domain in which both Namibia and Southern Africa has a distinctive geographic advantage;
- Promote international exchange and cooperation of Namibian and South African scientists with each other and with the international partners in other H.E.S.S., CTA, SKA, and AVN, partner countries;
- Attract and retain excellent researchers and scientists;
- Foster excellence in education and research, with specific focus on emerging researchers and scientists;
- Increase the production of master’s and doctoral graduates in a selected research area; and
- Create research career pathways for young and mid-career researchers, with a strong research, innovation and human capital development output trajectory.

#### **5. Implementation of the Namibian- South African Research Chair Initiative**

##### **5.1. Institutional Location**

The core of this partnership is a joint bilateral Research Chair, which will be occupied on an approximately 50 - 50 share basis at two host institutions, one in Namibia and one in South Africa. Universities shall bid for the Research Chair in an open and competitive process as the Chair will not be pre-allocated to any institution. The Namibian portion of the Research Chair will be awarded to a public university in Namibia that can host such a Research Chair

in its own right, or in partnership with a public research institution in South Africa; such as another university, a science council, a national research facility or an academic health complex. ***Only institutions that adequately demonstrate research strength, excellence and competencies in the research domain of the Research Chair and have the required research infrastructure will be considered for awarding of the Research Chair.*** The bid to host a Research Chair must include up to two named candidates for the chair.

## **5.2. The candidate**

The appointment of the Research Chair will follow a call advertised in Namibia and South Africa, and to be successful, institutions must have named such a candidate as a researcher who has produced outstanding research in the area of multi-wavelength astronomy and astrophysics capitalizing on radio and gamma-ray astronomy, and has experience in international scientific cooperation. The Research Chair will be awarded in an open and competitive process. The application and selection process will be conducted in a one-phase process, which will include, (i) *the motivation by the Namibian/South African public university to host the Research Chair;* (ii) *the nomination of a candidate for appointment to the Chair position;* (iii) *a research and activity plan drafted by the nominated candidate.*

*The decisive criteria for selecting the Chair will be the nominee's academic qualification, research and postgraduate student training track record, scientific excellence and, the persuasiveness of the proposed research programme outlining the nominee's prospective involvement in the process of achieving the nominating institution's strategic goals.*

Other key criteria in the selection of candidates include the prospects for exerting lasting effects on the scientific structures in Namibia/South Africa, for establishing long-term scientific cooperation with the two countries and the possibility of integrating and supporting the capacity building of emerging researchers.

Applicants should have proven close contacts and collaborations with researchers and universities or research institutions within the H.E.S.S., CTA, SKA, and/or AVN consortia, as the strengthening of international scientific cooperation is one of the central tasks of the Research Chair incumbent.

Candidates nominated for a Research Chair must be an established researchers that hold a doctoral degree or an equivalent research qualification. Research Chairs may be approved at a Tier 1 or Tier 2 level based on the candidate's past research and innovation outputs,

track record in supervising & mentoring postgraduate students including postdoctoral fellows at national and international recognition for their research contributions. The criteria that must be met by nominated candidates for approval at the Tier 1 or Tier 2 level are detailed in Table 1.

**Table1.** Criteria for NAM/SARCHI Tier 1 and Tier 2 Chairs

Tier I Research Chairs	Tier 2 Research Chairs
<ul style="list-style-type: none"> <li>• Should be appointed at the level of a full Professor at a Higher Education Institution, and have held a research position for a minimum of five years;</li> <li>• Should be an outstanding and innovative researcher whose accomplishments have made a major impact in their field;</li> <li>• Should be recognised internationally as an undisputed leader in their field and/or have received substantial international recognition for their research contributions;</li> <li>• Should have a superior record in attracting and supervising post graduate students and postdoctoral fellows, taking into account the practices of the field; and</li> <li>• Should spend a minimum of 50% of their time in Namibia/South Africa for the duration of the award.</li> </ul>	<ul style="list-style-type: none"> <li>• Should be appointed at the level of an Associate Professor or full Professor at a Higher Education Institution, and have held a research position for a minimum of five years;</li> <li>• Should be an established researcher, generally under the age of 40 (forty) years, with a strong research, innovation and human capital development output trajectory;</li> <li>• Should have the potential to achieve substantial international recognition for their research contributions in the next five to ten years;</li> <li>• Should have demonstrated the ability to attract and successfully supervise postgraduate students and postdoctoral fellows; and</li> <li>• Should spend a minimum of 50% of their time in Namibia/South Africa for the duration of the award.</li> </ul>

### 5.3. Application and Selection Process

The NAM/SARCHI recruiting process will be in one phase which will be carried out by the National Commission for Research, Science, and Technology (NCRST) in conjunction with a public University in Namibia and the National Research Foundation, based on mutually agreed selection procedures. All call documents will have joint Namibia – South Africa co-branding and all review committee meetings will be convened by the NCRST/NRF using video conferencing where necessary. The NRF and the NCRST will be in regular communication throughout the application and review processes.

An open call will be advertised to all Namibian public universities to host the Research Chair. At the same time a communication will be sent out to the Namibian research community to alert them to the call and inform them of the mechanism by which Namibian researchers can put themselves forward to be potential candidates for institutional bids to host a Research Chair. Each university will be entitled to nominate up to two candidates, with a full proposal for each of the two candidates. In a competitive selection process, a ranked list of outstanding research proposals and Chair-holders to whom the chair will be offered will be prepared.

- 1) The drafting of call documents will be done by the NRF with inputs sourced from the NCRST.
- 2) All proposals will be submitted on the NRF online system. The NCRST will be granted access to all submitted proposals on the NRF online system.
- 3) The NRF will set up a selection committee consisting of an equal number of independent subject experts nominated by the NRF and the NCRST respectively. The NRF and NCRST will each nominate up to three experts.
- 4) The committee members will review the applications with regard to:
  - the nominee's academic qualification;
  - research and postgraduate student training track record with evidence of post-doctoral and emerging researcher supervision;
  - scientific excellence of the nominated candidate;
  - proposed research programme and its relevance to economic and social development of South Africa;
  - the nominee's prospective involvement in the process of achieving the nominating institution's strategic goals;
  - their standing in international collaboration.

- 5) A recommendation for awarding of the research chair will be made by the selection committee. For a positive decision on an application, both the majority of the Namibian and of the NCRST committee members must vote in favour of the application.
- 6) The NRF will make the final decision, taking into account the recommendations of subject experts and communicate the outcomes of the application process to the universities.
- 7) The Research Chairs will be managed by the NRF in accordance with the Public Finance Management Act and NRF granting processes.

#### **5.4. Number and Duration of the Research Chair**

Following the first call for proposals, one Research Chair, at either Tier 1 or Tier 2 level, will be funded jointly by the NCRST and the DST. The Research Chair will be tenable for five years with the option for renewal for two additional five-year terms. A panel of experts nominated by the NRF and the NCRST will review the chair's activities after the first 4 (9) years of the Chair to decide upon the continuation of the award for a second (third) five-year term. In addition, the results of the term evaluation will determine whether the Chairs initially awarded at Tier 2 level may be upgraded from the Tier 2 to Tier 1 level.

#### **6. Funding levels for the Namibian- South African Research Chair**

The Namibian- South African Research Chairs will be awarded at up to R2.68 million per annum for Tier 1 Research Chairs and R1.34 million per annum for Tier 2 Research Chairs. The research grant will cover salary, postdoctoral fellowship(s) and postgraduate student bursaries, research assistant(s), research operating costs and research equipment, as well as the Chairs research stays at partner institutes in Namibia. Research Chairs are expected to leverage additional funds for cost-intensive research projects. Joint funding for the Research Chairs is initially limited to five years and extension is possible and desirable upon positive evaluation for up to two additional five-year periods.

The NCRST will allocate up to **N\$ 1.34 Million** and DST **N\$1.34 Million** per year for five years, with the first installment being transferred to NRF before ***01 April 2017***. ***Table 2 below illustrates the guideline for Namibian Research Chair annual budget breakdown.***

**Table 2: Guidelines for Namibia Research Chair Initiative grant annual budget breakdown for Tier 1 and Tier 2 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
	Research assistants	30 000		3
Fellowships	Postdoctoral fellows	200 000	1	
Bursaries	Doctoral (full time)	100 000	2	
	Masters (full time)	70 000	2	
Research equipment or infrastructure	Up to N\$240 000	240 000		
Running	Up to 30% of budget			
University Overheads	Up to 10% of 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 Namibia Research Chair Initiative 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 PVCs for Academic and Research at public Universities and the NCRST.

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

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 Namibia Research Chair Initiative grant.

## **7. Transfer of funds**

Upon signing of the contract between the NRF and NCRST, the funding for this Chair will be transferred by the NCRST to the university after an invoice from the university at the end of the first quarter of each year.

## **8. Visa requirements, tenure conditions, and host institution arrangements**

The Research Chair incumbent will be employed by the Namibian host university under the institution's conditions of employment. The DST will facilitate all visa applications to ensure that the necessary visas to enable a Research Chair to operate in both countries, together with dependants, if necessary.

## **9. Intellectual Property arrangements, scientific output, and performance contracts**

Namibian– South African Research Chair holder is expected to set themselves performance targets for their respective research groups/programmes with respect to several standard indicators such as postgraduate student enrolment and scientific output. These will be included in the five year research plan in the full proposal and approved by the peer review panel. Performance monitoring and evaluation will be done jointly by the NRF and the NCRST within the NAM/SARCHI monitoring framework.

The approach to the management of Intellectual Property (IP) and other forms of research outputs should follow established institutional, scientific and domain-specific protocols and practices. With respect to IP management, the prevailing national legal frameworks must be adhered to, and provision made in the inter-institutional agreement between host institutions.

## **10. Branding of bilateral Research Chairs**

The bilateral Research Chair will hold the name of Namibia– South Africa Research Chair followed by the research domain e.g. Namibia – South Africa Research Chair Initiative.

## **11. Implementation Time Table (Tentative)**

<b>Milestone</b>	<b>By When</b>	<b>By Who</b>
1. Agreement signed between NCRST and NRF	Jun 16	NCRST/NRF

2. Developing call and application documents	Jun 16	NCRST/NRF
3. Finalisation of Concept Document - finalisation of the regulations for the use of funds - finalization of the Chair's job description and its embedment in the host institution	Jul 16	NCRST/NRF
4. Appointment of selection committee	July – Aug 16	NCRST/NRF
5. Communication to the University Deputy Vice-Chancellor/Director of Research (South Africa)	1 Jul 16	NRF
6. Call open for applications	1 Jul 16	NCRST/NRF
7. Call closes for applications	31 Aug 16	NRF/NCRST
8. Review application for completeness and eligibility and requests for external review	Oct 16	NCRST/NRF
9. Expert review by selection committee	Oct 16	NCRST/NRF
10. Selection Committee Decision	15 Oct 16	NCRST/NRF
11. Final decision to award the Chair and approval of candidate and full proposal	Jan 17	NCRST/NRF
12. Possible start date for a Chair	<b>01 April 2017</b>	