



3 September 2015

Three SA universities join forces to bolster SKA

New initiative will make SA data science globally competitive

Three South African universities have established a partnership to form the Inter-University Institute for Data Intensive Astronomy (IDIA), a flagship project that responds to the big data challenge of the Square Kilometre Array (SKA). The SKA project is an internationally renowned effort to build the world's largest radio telescope with over a square kilometre of collecting area. It is one of the largest scientific endeavours in history and drives one of the world's most significant big data challenges of the coming decade.

The IDIA - a brainchild of the University of Cape Town, the University of the Western Cape and the North-West University - will bring together researchers in the fields of astronomy, computer science, statistics and eResearch technologies, to create data science capacity for leadership in the MeerKAT SKA precursor projects, other precursor and pathfinder programmes and SKA key science. The IDIA will also establish an SKA-driven Data-Intensive and Research and Training programme.

"Universities that rise to the challenge of the data revolution will be globally competitive in this new era of data intensive research", says IDIA Founding Director, Professor Russ Taylor, who currently holds a Joint UCT and UWC SKA Research Chair.

The IDIA will be the kernel of growth for a larger partnership to include other South African universities, and institutions in other African countries that are part of the continent's SKA partnership.

The project provides an opportunity for the South African university sector to jointly advance within the global SKA project as a leader in SKA data science. The window of opportunity is very short; leading universities at other SKA partner countries are already well advanced. Oxford University, for example, has recently announced the establishment of a Centre for Astrophysical Surveys, and Australia has established a high performance computing and data centre in Perth, the Pawsey Centre. Establishing such an institute in

South Africa is aligned with the prioritized goals of the 10-year strategy for astronomy.

The University of Cape Town hosts one of the leading astronomy research departments on the African continent and hosts several research chairs in observational astronomy. The University of the Western Cape and North-West University are similarly well placed as founding partners, in that they also host research chairs and have built internationally recognised astronomy research groups in the last few years. Collectively the parties have several researchers that are designated leaders on MeerKAT large survey projects, as well as programmes on ASKAP (Australia Square Kilometre Array Pathfinder) and SKA pathfinding programmes at other international facilities. The three universities have funded the IDIA to the tune of R50 million over the next five years.

Both South Africa's Karoo region and Western Australia's Murchison Shire were chosen as co-hosts for SKA locations for many scientific and technical reasons, from the atmospheric conditions above the desert sites through to the radio quietness, which comes from being among the most remote locations on Earth. The Karoo will host the core of the high- and mid-frequency dishes, ultimately extending over the African continent. Australia's Murchison Shire will host the low frequency antennas. There is national interest placed on this development due to the large government financial investment already vested in MeerKAT, the precursor project to SKA.

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Issued by: UCT Communication and Marketing Department

Thami Nkwanyane

Media Liaison and Monitoring Officer
Communication and Marketing Department
University of Cape Town
Rondebosch
Tel: +27 (21) 650 5672
Fax: +27 (21) 650 3780
Cell: +27 (72) 563 9500
Email: thami.nkwanyane@uct.ac.za
Website: www.uct.ac.za