

SKA-France

Monthly bulletin

December 2019

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SKA1 System Critical Design Review

A review panel of ten members from leading research organisations (ESO, NRAO, LSST, Gemini, NSF, Berkeley and Caltech Universities) has been gathered to conduct the **SKA1 System Critical Design Review (S-CDR)**. The panel was in charge of evaluating how all elements of the SKA1 telescopes, conceived within nine international consortia over the last six years, will work and interact with one another.

After several weeks of intense work on the rich documentation about SKA1 system design, estimated costs and programmatic materials, the panel, chaired by A. Russell (Director of Programmes, ESO), met in person at the SKA HQ from **December 9 to December 13, 2019**. The meeting gave the possibility to analyse in depth the list of Observations raised by panel members in the preceding period, as well as to answer new questions that came up during discussions. After having congratulated the SKA team and technical consortia for the impressive amount of work and for the huge push with the design of the last year, the panel has considered the SKA1 S-CDR passed, providing recommendations that will guide the final preparation work ahead of SKA1 construction.

The warmest congratulations of SKA-France go to the SKAO Office and all international collaborators involved in this major achievement.



Courtesy: SKA Organisation



SKA milestones in 2019

During 2019, the SKA project has gone through key progresses in terms of governance, technological and scientific developments. Among the most relevant milestones, we recall here the [signature of the SKA Observatory convention](#) (March 2019), the [SKA General Science Meeting and Key Science Workshop](#) (April 2019), the [Official Opening of the SKA Global Headquarters](#) (July 2019) the [final SKA Engineering Design Meeting](#) with its evocative title, "Concluding our past, realising our future" (November 2019) and the [System Critical Design Review meeting](#) (December 2019).

Image courtesy: SKAO

Activities

News from France in the last issue of the SKA magazine

The second issue of “Contact”, the new SKA magazine, has been published in December 2019 by the SKAO Communication team.

The magazine provides a beautiful overview of some exciting scientific results from existing radio telescopes, recent news about SKA technical developments, reports about meetings and outreach initiatives, as well as highlights of SKA related activities within different countries involved in the project preparation. In this framework, a page of the magazine is dedicated to the inauguration of the French SKA pathfinder, NenuFAR, which, as reported in the October 2019 issue of the SKA-France monthly bulletin, took place in Nançay (France), on October 3, 2019.

We thank P. Diamond (SKA DG) who, in the foreword of the magazine, nicely acknowledged the French organisation of the last SKA Board of Directors and Council Preparatory Task Force meetings.

Courtesy: SKA Organisation



Announcements

SKAO Current Vacancies

In this intense phase of finalisation of the SKA design towards the beginning of the telescopes' construction and the entering into force of the future Inter Governmental Organisation (IGO), **SKA Organisation is recruiting new personnel**. Open positions currently include (with application closing date indicated within parenthesis):

- * Postdoctoral Position in Fast Radio Burst Science - **Contract Type: Fixed Term Contract** (January 5, 2020)
- * Strategy Support Officer - **Contract Type: Fixed Term Contract** (January 17, 2020)
- * Software Quality Engineer - **Contract type: Permanent** (January 19, 2020)
- * IT Operations Specialist - **Contract type: Permanent** (January 19, 2020)
- * Chief Finance Officer - **Contract type: Permanent** (January 26, 2020)
- * Fixed Term SRC Scientist - **Contract type: Fixed Term Contract** (January 31, 2020)
- * Project Schedule Analyst - **Contract type: Permanent** (February 10, 2020)
- * SKA System Scientist - **Contract type: Permanent** (March 1, 2020)

All information, as well as all new available open positions, can be found at the [SKAO webpage](#).

Summer Research Programme at ASTRON/JIVE

The Netherlands Institute for Radio Astronomy (ASTRON) and the Joint Institute for VLBI ERIC (JIVE) announce the availability of a limited number of grants for their 2020 Summer Research Programme. The Programme enables astronomy students (graduate or advanced under-graduate) with an astronomy, physics or computer science background to spend the summer (10-12 weeks) at the institute in Dwingeloo in the Netherlands, conducting astronomical research under the supervision of ASTRON and JIVE staff members.

Possible topics of study may include radio galaxies and quasars, aspects of observational cosmology, continuum and line mission/absorption from normal and starburst galaxies, stellar maser astrometry, faint radio sources, pulsar timing, pulsar searching, synchrotron transients, fast radio bursts, molecular clouds, cosmic magnetism, space science as well as algorithm development - or similar topics, depending on what supervisors will have to offer. The programme is not aimed at engineering or electronics students, though physics or computer science students with a strong interest in astronomy will be considered.

Applications for the programme should be sent via the web registration form. **Deadline for applications is February 1st, 2020.**

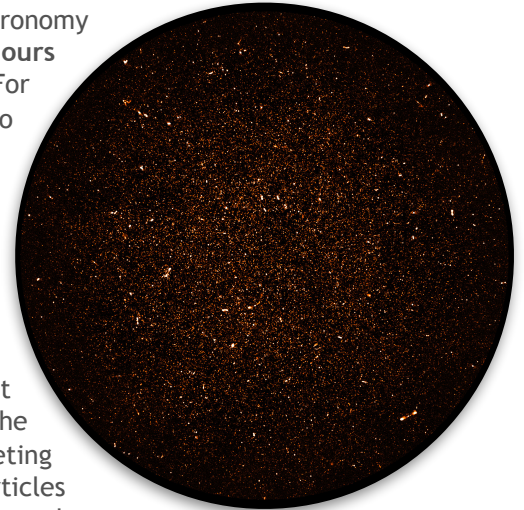
MeerKAT deep image

A team of scientists lead by T. Mauch of the South African Radio Astronomy Observatory (SARAO) observed a square degree of the sky for 130 hours using the 64 antennas of the South African SKA precursor MeerKAT. For the first time, the depth reached by this radio image allowed them to study in unprecedented details the star formation history of the Universe.

The scientists detected thousands of radio sources in the observed region, which covers approximately five times the size of the full Moon (see image on the right). If the brightest spots correspond to so-called “radio galaxies”, most of the fainter sources are more or less distant galaxies similar to our Milky Way. The main difference between these two classes of objects is the origin of their radio emission. In the first case, the very luminous emission of radio galaxies is related to the presence of a supermassive black hole in each of them, which is accreting mass from its surroundings and, in doing so, creates powerful jets of particles travelling close to the speed of light and emitting radio waves. In the second case, the weaker radio emission is associated to new stars that are formed within each galaxy: the more stars are formed, the brighter the galaxy will be in radio.

Thanks to this very deep MeerKAT image of the sky, Mauch and collaborators have been able to look back in time and observe for the first time all galaxies (not only the brightest objects, but also those that are forming just a few stars per year) going back to those epochs of the Universe called “cosmic noon”, between 8 and 11 billions years ago.

For more information, the interested reader can refer to [SARAO media release](#), as well as to the [scientific publication](#) recently accepted by The Astrophysical Journal.



Courtesy:
SARAO; NRAO/AUI/NSF



Courtesy: SKA Organisation

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for the Maison SKA-France