

SKA-France

Monthly bulletin

June 2017

SKA-France

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News from the SKA-France coordination

Active French participation to the 2017 SKA Engineering Meeting

The SKA-France coordination participated actively to the 2017 SKA Engineering Meeting, being represented by its coordinator (C. Ferrari, OCA), industry liaison (G. Marquette, CNRS/INSU) and project assistants (M. Caillat, OBSPM, and K. Barrière, CNRS/INSU), as well as by one of the engineers most involved in the preparation of SKA1 (S. Gauffre, LAB).

During the meeting, C. Ferrari was nominated by SKAO as one of the five members of the team that will be in charge of selecting the final design of the SKA1-LOW antennae. The recommendations of the group, lead by W. van Cappellen (ASTRON), will be communicated to the SKA Board by the end of July.

The participation to the meeting of two major SKA-France industrial partners (Air Liquide and Ariane Group, previously Airbus Safran Launchers/ASL) stressed the great interest that the SKA project represents for such big companies. Very importantly, based on its worldwide acknowledge expertise in system engineering, Ariane Group was invited to present two talks during the session “Collaborative Engineering in Megaprojects”, held on June 15, 2017. All the invited speakers of the session came from major international research facilities and organisations, such as ESO, ESA, EGO, SymTech and, as mentioned above, Ariane Group.



Cover page of the invited talk “Highlights on SESAR and SESAR Industrial Support”, by André Ayoun (Ariane Group) at the 2017 SKA Engineering Meeting. SESAR (“Single European Sky ATM Research”) is the technological program aiming at deploying a highly performing Air Traffic Management (ATM) over Europe from 2020 onwards. A second invited talk “System Engineering practices at ASL” was presented by A. Ayoun in the same session.



2017 SKA Engineering Meeting

The 2017 SKA Engineering Meeting was held in Rotterdam (The Netherlands) from June 12 to June 16, 2017.

As in the previous four SKAO Engineering Meetings, the conference consisted of plenary updates from the SKA office on the project, as well as updates from each of the twelve international engineering consortia.

The SKA being *en route* towards the milestone of next year Critical Design Review (CDR), more than 300 participants from 17 countries convened in Rotterdam, making it the largest SKA Engineering Meeting ever held. The meeting was organised by SKAO in collaboration with ASTRON and NWO.

Activities

SKA presented to CNRS committees

On June 6, 2017, the SKA-France coordination was invited to present the SKA project and its scientific, technological and industrial preparation in France to the Commission spécialisée Astronomie Astrophysique (CSAA) of CNRS/INSU.

The day after (June 7, 2017) the board of the CNRS Mission pour l'Interdisciplinarité (MI) invited the SKA-France team to give an overview of the multidisciplinary nature of the SKA. The great variety of challenges presented by this project were illustrated to the committee, in order to show that the SKA will not only address open questions in astronomy and fundamental physics, but will also be a huge “machine” requiring step forwards in the domains of energy and informatics, as well as an international organisation which will demand a fully multi-cultural management approach.

The idea of involving different CNRS institutes in planning a **signal processing workshop that will use the SKA as test case** emerged as a first promising way to exploit the multi-interdisciplinary nature of this project.

SKA Advanced Instrumentation Program (AIP) meeting

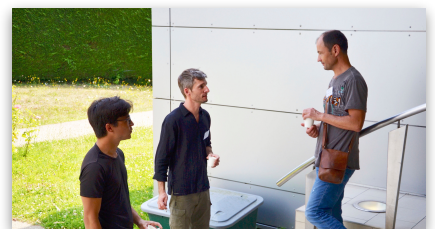
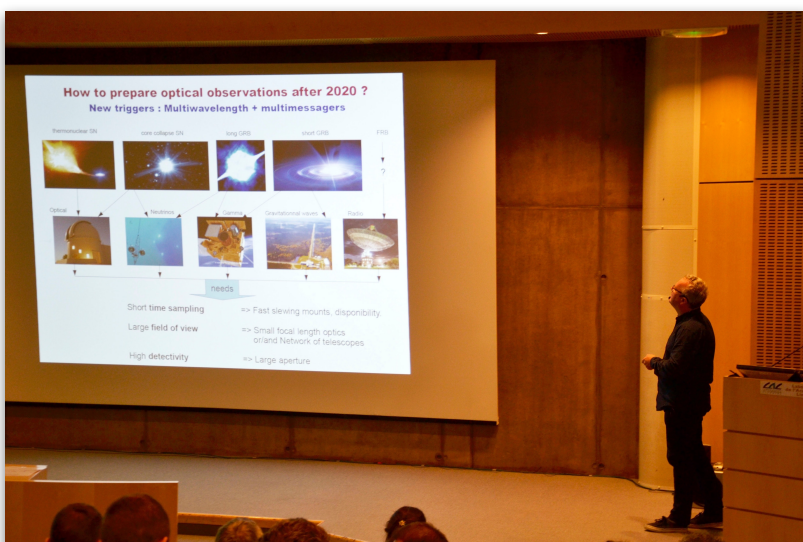
A meeting to discuss new technologies that can improve the scientific capabilities of the SKA beyond Phase 1 was held on June 8 and 9, 2017, at ASTRON (Dwingeloo, The Netherlands). The workshop, which was organised by SKAO, ASTRON and the MFAA/PAF/WBSPF SKA consortia, was attended by engineers of French institutes (OBSPM and LAB) already deeply involved in the preparation of the radio instrumentation R&D beyond the SKA-1 technology, aimed at later extensions of SKA capabilities.

Radio observations of transient sources discussed at the TS2020 meeting



The SKA-France coordination was involved in the organisation of the Transient Sky (TS2020) workshop. The meeting was held from June 20th to June 22th 2017 at LAL in Orsay (France) and supported by the French National Programme for High Energies (PNHE) and Science Department of the University Paris-Sud.

In view of new major facilities that will cover the whole electromagnetic spectrum and additional messengers, like neutrinos and gravitational waves, the main aim of the meeting was to federate the time-domain French astronomy community. The expected contribution of the SKA and pathfinder instruments (including the French NenuFAR array) were presented by two experts of the field, Stéphane Corbel (AIM, USN) and Julien Girard (AIM).



SKA presented at the MAESTRO workshop

Christian Surace (LAM, INSU) and Sofian Maabout (LaBRI, INS2I), persons in charge of the CNRS/MI action "[MAsseS de données En aSTRONomie et astrophysique](#)" (MAESTRO), invited the SKA-France coordinator to present the SKA project to the meeting [Journées MAESTRO 2017](#) (June 23, 2017; Marseille, France).

The talk - focused principally on the SKA requirements in terms of data analysis, processing and storage - interested the audience, which was mostly specialised on Big Data problems and/or solutions in the astronomical field. Very importantly, the two major astronomical facilities that were presented at the meeting (SKA and LSST, this latter introduced by E. Gangler, IN2P3) share similar methodological issues related to data handling, as well as main scientific interests, such as transient sources and cosmological studies.



Extended SKA-France coordination: a step forward

SKA-France has organised on June 28, 2017, the [second meeting](#) of the working group setting in place the **evolution of the SKA-France coordination towards a more extended partnership between public research institutes and private companies**.

The intense and fruitful discussions had been structured around two main points:

- * the **definition of the roadmap of the extended SKA-France coordination**, including its scientific and technological aims, as well as the human and financial means needed to attain these goals;
- * the **identification of the most suitable legal structure for SKA-France**, in such a way to regulate the collaboration by simultaneously optimising the expected results for all the partners.

In addition to the academic institutes which are already members of SKA-France, representatives of Air Liquide, Ariane Group, ATOS Bull, Callisto and DDN-Storage actively participated to the discussions.

Announcements

Important SKA-related result from a French team: an intermediate-mass black hole at the center of the globular cluster NGC 6624?

The Milky Way globular cluster NGC 6624 is known to host at least six radio pulsars. One of them, PSR B1820-30A, is a millisecond pulsar that is the closest known pulsar to the center of any globular cluster. The analysis of more than 25 years of timing data recorded with the Jodrell Bank radio telescope and more than 10 years of timing data collected at the Nançay decimetric Radio Telescope enabled very precise measurements of the apparent variations of the pulsar's rotational frequency over nearly three decades. Detailed studies of these variations suggest that the pulsar is likely orbiting an intermediate-mass black hole of mass larger than 7500 solar masses, located at the cluster center. This result demonstrates the importance of globular cluster pulsar observations and of new searches for globular cluster pulsars. **The future SKA telescope will be a prime instrument for conducting such pulsar search.** For more information, see the [related publication](#) and [INSU News](#) (French contact persons: [Lucas Guillemot](#) and [Ismaël Cognard](#), LPC2E).

International Pulsar Timing Array annual conference

This year, the International Pulsar Timing Array annual conference is organised in Sèvres at the CIEP (Centre International d'Études Pédagogiques) from July 3rd to July 7th, 2017. This conference gathers the world wide community interested by the use of millisecond pulsar timing arrays for detecting low frequency gravitational waves (nHz regime).

At this occasion, **the SOC has decided to organise an open meeting on Wednesday the 5th of July, with a series of scientific reviews on related topics.** If you are interested in participating in this open day meeting, please register by sending an e-mail to [Gilles Theureau](#) before the end of June 2017. Please specify « Inscription IPTA - 5 juillet » in the subject (and indicate if you intend to have lunch at the conference centre).

Chiara Ferrari
for the SKA-France coordination