

# SKA-France

Monthly bulletin

December 2017

## SKA-France

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## News from the SKA-France coordination

### SKA-France in the SKAO News

The SKA Organisation keeps following with interest all the SKA-France activities. A summary of the **SKA-France initiatives from August to November 2017** is included in the December edition of the [SKA eNewsletter](#), in the section “[News from Observer Countries](#)”.

The [PDF version](#) of the SKA eNews is also available on line.

### French SKA White Book on arXiv

The **French SKA White Book** is now available through the [arXiv](#) electronic archive and distribution server for research articles.

Cornell University Library  
arXiv.org > astro-ph > arXiv:1712.06950  
Search or Article ID All papers (112) | Advanced search

Astrophysics > Instrumentation and Methods for Astrophysics

### French SKA White Book - The French Community towards the Square Kilometre Array

F. Acero, J.-T. Acquaviva, R. Adam, M. Aghanim, M. Allen, M. Alves, R. Ammanouil, R. Ansari, A. Araudo, E. Armengaud, B. Ascaso, E. Athanassaoula, D. Aubert, S. Babak, A. Bacmann, A. Banday, K. Barriere, F. Bellotti, J.-P. Bernard, M. G. Bernardini, M. Béthermin, E. Blanc, L. Blanchet, J. Bobin, S. Boissier, C. Bosson, A. Boselli, A. Bosma, S. Bosse, S. Bottinelli, F. Boulanger, R. Boyer, A. Bracco, C. Briand, M. Bucher, V. Buari, L. Cambresy, M. Caillaud, J.-M. Casandjian, E. Claux, S. Célestin, M. Cerruti, P. Charlot, E. Chassande-Mottin, S. Chazy, N. Christensen, L. Ciesla, N. Clerc, J. Cohen-Tanugi, I. Cognard, F. Combes, B. Comis, S. Corbel, B. Cordier, M. Coriat, R. Courtin, H. Courtois, B. Da Silva, E. Daddi, R. Dailier, E. Dartyois, K. Demyk, J.-M. Denis, L. Denis, A. Djannati-Atai, et al. (112 additional authors not shown)

Submitted on 19 Dec 2017

The "Square Kilometre Array" (SKA) is a large international radio telescope project characterised, as suggested by its name, by a total collecting area of approximately one square kilometre, and consisting of several interferometric arrays to observe at metric and centimetric wavelengths. The deployment of the SKA will take place in two sites, in South Africa and Australia, and in two successive phases. From its Phase 1, the SKA will be one of the most formidable scientific machines ever deployed by mankind, and by far the most impressive in terms of data throughput and required computing power. With the participation of almost 200 authors from forty research institutes and six private companies, the publication of this French SKA white paper illustrates the strong involvement in the SKA project of the French astronomical community and of a rapidly growing number of major scientific and technological players in the fields of Big Data, high performance computing, energy production and storage, as well as system integration.

Comments: Editor in chief: C. Ferrari; Editors: M. Alves, S. Bosse, S. Corbel, A. Ferrari, K. Ferri, S. Gauffre, E. Josselin, G. Lagache, S. Lambert, G. Marquette, J.-M. Martin, M.-A. Miville-Desch, A. Nenes, L. Montier, B. Semelin, G. Theureau, S. Vergani, N. Vilmer, P. Zarka; Original file with high resolution figures at SKA-France link: this Mitsp URL.

Subjects: Instrumentation and Methods for Astrophysics (astro-ph.IM)  
Cite as: arXiv:1712.06950 [astro-ph.IM] (or arXiv:1712.06950v1 [astro-ph.IM] for this version)

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### Main SKA steps in 2017

A complete overview of the main steps of the project during the last twelve months is given by Philip Diamond (SKA DG) in the [last SKAO Bulletin of 2017](#).

- A non-exhaustive list includes:
- the Cost Control Project (CCP), leading to the definition of the “deployment baseline”, which can be delivered for the cost cap of 674 M€;
  - the ground-breaking for the extension of the SKA Headquarters;
  - extensive preparation for the Critical Design Reviews, which get underway early in 2018;
  - the negotiation of the SKA Observatory Convention and associated protocols, nearing a conclusion;
  - the signing of cooperation agreements with CERN and NRAO.

Apart from all such excellent progresses, is also the sad and unexpected passing of Prof Giovanni Bignami in May

## Activities

### Astro-Informatics project submitted

In the framework of the signal processing activities coordinated by SKA-France, a group of researchers from different CNRS institutes (INS2I, INSIS, INSU) has recently answered the [call for projects in Astro-Informatics launched by the Interdisciplinary Mission of CNRS](#).

As indicated by its title (“**SKALLAS: SKA paraLLel Architecture & Software**”), the submitted SKA-related project aims at developing an adequacy algorithm architecture approach to implement new imaging and calibration methods for the SKA by respecting constraints of energy consumption, throughput, cost and calculation precision.

SKALLAS, which is lead by Dr. Nicolas Gac (L2S), sees the participation of researchers from other French laboratories (GEPI, LERMA, Lagrange, IETR, AIM, SATIE), the collaboration with international research institutes in South Africa and New Zealand, as well as the industrial partnership with the Center for Excellence in Parallel Programming of Bull/ATOS. In the framework of the SKALLAS project, the Bull/ATOS company will fund a master internship. The trainee will work with researchers both from research laboratories (GEPI, IETR) and from private companies (Bull/ATOS and DDN), and will be hosted at Atos/Bull with full access to HPC facilities.

### SKA WBSPF project extension

In the last weeks several partners of the SKA-France coordination, including in particular the cryogenics experts of [Callisto](#), have been in close contact with Chalmers University, the institute leading the Wideband Single Pixel Feeds consortium, which is one of the elements of the SKA Advanced Instrumentation Programme. The main idea of these discussions is to **plan future developments and collaborations required to assess the extension of the SKA frequency coverage above 20 GHz**.

Due to the required technological developments and the expected scientific impact on research topics of great interest for the French community, SKA-France is strongly promoting this initiative.

## Announcements

### Signal processing workshop at AIM

On December 19<sup>th</sup> 2017, an informal **workshop on advanced tools for radio imaging** was held at the [AIM laboratory](#), hosted by [Julien Girard](#) and [Anaëlle Maury](#).

Guest speakers were Cyril Tasse (GEPI/Observatoire de Paris) and Mickaël Coriat (IRAP), who gave a demonstration of DDFacet ([Tasse et al., 2017](#)) and KillMS tools on simulated and real data sets. These tools are good candidates to tackle the modern data calibration and imaging challenges raised by SKA-class instruments and their huge data volume.

The workshop attendees could familiarise with DDFacet and KillMS through simple hands-on sessions with the support of the Nançay Radio Observatory, which provided access to its computing facilities. Ten people from various groups and projects (including ALMA) attended the workshop.

Next workshop to be held will focus on the basics of data calibration and imaging for non-expert users of LOFAR and the instruments to come, MeerKAT and NenuFAR, precursor and pathfinder of the SKA.

### Call for proposals of AS SKA-LOFAR

The **Action Spécifique SKA-LOFAR (AS SKA-LOFAR)** has recently opened its **call for proposals for 2018**. Fundings will be distributed preferentially to promote the organisation and participation of the French community to schools, workshops and meetings related to the SKA and its pathfinder and precursor telescopes.

The total available budget for this call is in the range of 15 to 18 k€. The awarded fundings, decided early in 2018 by the Scientific Board of the AS SKA-LOFAR, will have to be used by the end of 2018.

The proposals ([template](#)) must be sent to [Stéphane Corbel](#) by **January 19<sup>th</sup>, 2018**.

## Call for proposals for projects PEPS I3A

In connection with the growing interest aroused by Artificial Intelligence (AI), the CNRS institutes INSMI and INS2I, in collaboration with AMIES (Agency for Interaction in Mathematics with Business and Society), launch a call for projects "PEPS I3A" (Exploratory Project First Support) around the theme of machine learning for AI.

The proposals (consisting of an Excel table and a scientific justification) must be sent by January 31<sup>st</sup>, 2018 to Marine Guerin (subject of the e-mail: "[PEPS I3A]"), with copy to Olivier Cappe, Mathilde Mougeot and contact@agence-maths-entreprises.fr.



*Chiara Ferrari*  
for the SKA-France coordination