

## ***REPORT ON THE RADIO NET3 NETWORKING ACTIVITY***

**TITLE:**

**IYAS (INTERNATIONAL YOUNG ASTRONOMER SCHOOL)**

**LARGE GROUND-BASED 21ST CENTURY RADIO INSTRUMENTS : ALMA/NOEMA -  
SKA/LOFAR/NEUFAR (2015)**

**DATE: NOVEMBER 16 TO 20, 2015**

**TIME: WHOLE DAY**

**LOCATION: CENTRE INTERNATIONAL D'ÉTUDES PÉDAGOGIQUES (CIEP) 1 AVENUE LÉON JOURNAULT, 92310 SEVRES, FRANCE**

**MEETING WEBPAGE** [HTTP://UFE.OBSPM.FR/ECOLE-DOCTORALE/DURANT-LA-THESE/6-INTERNATIONAL-YOUNG-ASTRONOMERS-SCHOOL/INTERNATIONAL-YOUNG-ASTRONOMERS-SCHOOL-ON-LARGE-GROUND-BASED-21ST-CENTURY-RADIO/](http://ufe.obspm.fr/ECOLE-DOCTORALE/DURANT-LA-THESE/6-INTERNATIONAL-YOUNG-ASTRONOMERS-SCHOOL/INTERNATIONAL-YOUNG-ASTRONOMERS-SCHOOL-ON-LARGE-GROUND-BASED-21ST-CENTURY-RADIO/)

**HOST INSTITUTE:** *ECOLE DOCTORALE D'ÎLE DE FRANCE (ED 127)*

**PARTICIPANTS NO:** 44

## REPORT:

### 1. Agenda and/or programme of the meeting

#### PRELIMINARY PLANNING

IYAS

Large ground-based 21st century radio instruments:  
ALMA/NOEMA/SKA/LOFAR/NenuFAR

16th-20th, November 2015

Heures	Monday 16th	Tuesday 17th	Wednesday 18th	Thursday 19th	Friday 20th
9h00-10h00	LOFAR and its science : <b>R. Pizzo</b>	9h00-9h45 : NOEMA observatory and science results <b>K. Schuster</b>	<b>VISIT TO NANCAY</b>  7h30-11h15 : Departure from CIEP to Nancy	SKA and its science <b>T. Bourke</b>	Molecular gas as a tracer of astrodynamics (turbulence, shocks, streaming motions) <b>F. Bournaud</b>
10h00-10h30	Pulsars and fast radio bursts in the context of LOFAR and SKA <b>J. Hessels (45min)</b>	9h45-10h30 : ALMA observatory and science results <b>A. Wootten</b>	10h45-11h30 : From LOFAR to NenuFAR <b>C. Ferrari</b>	Radio Transients <b>R. Fender (45min)</b>	ALMA/NOEMA and the ISM <b>J. Goicoechea</b>
10h30-11h00		ALMA/NOEMA for extragalactic astronomy from low to high redshift <b>A. Saintonge</b>	11h30-12h15 : NenuFAR, a SKA pathfinder <b>P. Zarka</b>		ALMA/NOEMA : early stages of star formation <b>S. Bontemps</b>
11h00-11h30	<b>Discussion</b>	<b>Discussion</b>		<b>Discussion</b>	<b>Discussion</b>
11h30-12h00	Imaging and Calibration with new generation radio interferometers <b>O. Smirnov</b>	Modeling : PdR, XDR, LVG... ISM in galaxies, low metallicity <b>F. Levrier / M. Galametz</b>	<b>12h15-13h45 : Lunch</b>	The epoch of reionization <b>B. Semelin</b>	mm/submm tracers: dust, CO and molecules near and far (physical mechanisms / proxies)
12h00-12h30			14h00-14h30 : Cosmic Rays and CODALEMA <b>L. Martin</b>	Polarimetry and the magnetic field <b>F. Boulanger</b>	<b>M. Gerin</b>
12h30-14h00	<b>Lunch</b>	<b>Lunch</b>		<b>Lunch</b>	<b>Lunch</b>
14h00-15h45	ALMA / NOEMA (gp 1 & gp2)	ALMA / NOEMA (gp 1 & gp2)	14h30 : Visit of the Nancy station	SKA / LOFAR / NenuFAR	SKA / LOFAR / NenuFAR
15h45-16h00	<b>Break</b>	<b>Break</b>	16h45-19h30 : Departure from Nancy and arrival to CIEP	<b>Break</b>	<b>Break</b>
16h00-18h00	ALMA / NOEMA (gp 1 & gp2)	ALMA / NOEMA (gp 1 & gp2)		SKA / LOFAR / NenuFAR	SKA / LOFAR / NenuFAR

ALMA/NOEMA tutors : S. Bardeau, J. Boissier, F. Boone, A. Richards, P. Salomé, E. Chapillon, R. Moreno, A. Avison, S. Etoka, R. Paladino  
SKA / LOFAR tutors : J. Girard, A. Loh, S. Daiboo, C. Tasse, P. Zarka, C. Ferrari, I. Martí-Vidal, J.-M. Griessmeier, M. Serylak, B. Censier

#### Lecturers :

- Sylvain Bontemps - OASU/LAB - [PDF](#)
- François Boulanger - IAS - [PDF](#)
- Tyler Bourke - SKAO, Jodrell Bank - [PDF](#)
- Frédéric Bournaud - AIM/Irfu/SAP/CEA-Saclay - [PDF](#)
- Rob Fender - Oxford - [PDF](#) - [SN movie](#)
- Chiara Ferrari - OCA - [PDF](#)
- Maud Galametz - ESO - [PDF](#)
- Maryvonne Gerin - LERMA/OP - [PDF](#)
- Javier Goicoechea - CSIC - [PDF](#)
- Jason Hessels - ASTRON - [PDF](#)
- François Levrier - LERMA/OP - [PDF](#)
- Lilian Martin - Nançay - - [PDF](#)
- Rosita Paladino - INAF - [PDF](#)
- Roberto Pizzo - ASTRON/UvA - [PDF](#)

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- Anita Richards - Manchester University - [PDF](#)
  - Karl Schuster - IRAM - [PDF](#)
  - Benoit Semelin - LERMA/OP - [PDF](#)
  - Amélie Saintonge - UCL - [PDF](#)
  - Oleg Smirnov - Univ. Cape, SA - [PDF](#)
  - Al Wootten - NRAO - [PDF](#)
  - Philippe Zarka - LESIA/OP - [PDF](#)
- Hands on : ...Some lecturers, and :
- Adam Avison - Manchester University - [PDF](#)
  - Sébastien Bardeau - IRAM
  - Jérémie Boissier - IRAM - see [slides](#)
  - Frédéric Boone - IRAP
  - Benjamin Censier - USN/OP
  - Edwige Chapillon - IRAM - [PDF](#)
  - Soobash Daiboo - LESIA/OP
  - Sandra Etoka - University of Hamburg - [PDF](#) - [Data](#)
  - Julien Girard - AIM/Irfu/SAP/CEA-Saclay
  - Jean-Mathias Griessmeier - LPC2E/Orléans
  - Alan Loh - AIM/Irfu/SAP/CEA-Saclay
  - Ivan Marti-Vidal - OSO
  - Raphael Moreno - OP/LESIA
  - Philippe Salomé - LERMA/OP
  - Maciej Serylak - Univ. Cape Town, SA
  - Cyril Tasse - GEPI/OP

## 2. Scientific Summary

Since the recent opening of ALMA to the astrophysical community, large ground based observational facilities in the radio centimeter and millimeter range are preparing a new era of radioastronomy for the coming century.

In the (sub)millimeter range, ALMA has already provided exciting observations that challenge our vision of, e.g., star and planetary systems formation processes. The NOEMA project upgrade of the Plateau de Bure interferometer will provide in the northern hemisphere a welcomed complement to this world wide observatory.

In the near future, LOFAR and the local facility NENUFAR at Nançay Observatory will offer a prefiguration of the major Square Kilometer Array (SKA) project that will open a new window to the distant Universe.

All fields of Astrophysics are impacted, from planetary sciences to cosmology and including all scales of galactic studies. However, such large interferometer instruments are far from trivial to use, and getting the best scientific output from the time and resources invested requires new skills from the coming generation of young astronomers.

The goal of the present school is to introduce PhD students and Post-Doc researchers to these exciting developments. They will have the occasion to follow courses from some of the top scientists in the field. Ample time for discussions is scheduled, as well as various hands on sessions.

### 3. Attendance list (incl. participant names, affiliation and country) signed by the participants and confirmed by the organizer

Nom	Prenom	Signature
1 Ajay Kumar	Thwart	
2 Amodio	Stefania	<i>Stefania Amodio</i>
3 Audbert	Anelise	<i>Anelise Audbert</i>
4 Berthet	Manuel	<i>Manuel Berthet</i>
5 Bolgar	Florian	<i>Florian Bolgar</i>
6 Bonnasieux	Etienne	<i>Etienne Bonnasieux</i>
7 Capraro	Letizia	<i>Letizia Capraro</i>
8 Chaves Bicalho	Isadora	<i>Isadora Bicalho</i>
9 Clarenco	Benjamin	
10 De Souza Magalhães	Victor	<i>Victor De Souza Magalhães</i>
11 Delfini	Duccio	<i>Duccio Delfini</i>
12 Dimauro	Paola	<i>Paola Dimauro</i>
13 Eames	Evan	<i>Evan Eames</i>
14 El Yajouri	Meriem	
15 Filothodoros	Alexandros	<i>Alexandros Filothodoros</i>

Nom	Prenom	Signature
16 Freundlich	Jonathan	<i>Jonathan Freundlich</i>
17 Gaudel	Mathilde	<i>Mathilde Gaudel</i>
18 Hamini	Abdallah	<i>Abdallah Hamini</i>
19 Herrera Ruiz	Noelia	<i>Noelia Herrera Ruiz</i>
20 Jiang	Ming	<i>Ming Jiang</i>
21 Kakkad	Darshan	<i>Darshan Kakkad</i>
22 Kishore	Pulapalli	<i>Pulapalli Kishore</i>
23 Koprowski	Maciej	<i>Maciej Koprowski</i>
24 Lamy	Laurent	
25 Locher	Miguel	
26 Louis	Corentin	<i>Corentin Louis</i>
27 Mancillas	Brisa	<i>Brisa Mancillas</i>
28 May	Andrew	<i>Andrew May</i>
29 Migliori	Giulia	<i>Giulia Migliori</i>
30 Octau	Franck	<i>Franck Octau</i>

Nom	Prenom	Signature
31 Riv	Macia	
32 Roberts-Borsari	Oydo	
33 Rozko	Karolina	<i>Karolina Rozko</i>
34 Salas	Pedro	<i>Pedro Salas</i>
35 Sauvaget	Tabatha	<i>Tabatha Sauvaget</i>
36 Sharma	Gauri	
37 Skoryk	Anastasia	<i>Anastasia Skoryk</i>
38 Skrzypczak	Anna	<i>Anna Skrzypczak</i>
39 Soares Marques	Manilo	<i>Manilo Soares Marques</i>
40 Sonu	Tabitha	<i>Tabitha Sonu</i>
41 Tabone	Benoit	<i>Benoit Tabone</i>
42 Turner	Jake	<i>Jake Turner</i>
43 Umita	Caterina	<i>Caterina Umita</i>
44 Valentino	Francesco	<i>Francesco Valentino</i>
45 Vasylyeva	Iaroslava	<i>Iaroslava Vasylyeva</i>

Nom	Prenom	Signature
46 Vida	Krisztian	<i>Krisztian Vida</i>
47 Viou	Cedric	<i>Cedric Viou</i>
48 Xu	Yueheng	<i>Yueheng Xu</i>
49 Yang	Chentao	<i>Chentao Yang</i>
50 Yerin	Serge	<i>Serge Yerin</i>
51 Zanella	Anita	<i>Anita Zanella</i>
52 Zoldan	Anna	<i>Anna Zoldan</i>

#### 4. Financial Report / RadioNet3 contribution

Please describe the RadioNet3 contribution to the event cost.

Mission : 1426.60 k€

Please detail how the financial support from RadioNet was used, and provide a list of the participants (including their nationality) which received funding.

Roberto Pizzo (NL, Rotterdam) travel 237 euros  
Serylak Maciej (SA, Cape Town) travel 1104.53 euros  
Sandra Etoke (Germany) mission 85.07 euros

#### 5. Conference Proceedings and Web page

Lectures : <http://ufe.obspm.fr/Ecole-Doctorale/Durant-la-these/6-International-Young-Astronomers-School/International-Young-Astronomers-School-on-Large-Ground-based-21st-Century-Radio/Lecturers/>

Hands-on : <http://ufe.obspm.fr/Ecole-Doctorale/Durant-la-these/6-International-Young-Astronomers-School/International-Young-Astronomers-School-on-Large-Ground-based-21st-Century-Radio/Hands-on-tools/>

Presentations made at the meeting will be posted on the *RadioNet3* wiki of the Networking Activity when possible: <http://www.radionet-eu.org/radionet3wiki/>

The report must be delivered to the chair of the Networking Activity **within 30 days after the end of the event** and then transmitted to the *RadioNet3* Project Manager:

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