

REPORT ON THE RADIONet3 NETWORKING ACTIVITY

**TITLE: LOFAR COSMIC MAGNETISM KEY SCIENCE PROJECT ANNUAL MEETING
AND BUSY DAYS**

DATE: 9 -12 MARCH 2015

TIME: ALL DAY

LOCATION: SOETERBEECK CONFERENCE CENTER IN RAVENSTEIN, THE NETHERLANDS

MEETING WEBPAGE: <http://astro.ru.nl/~djones/mksp2015/>

HOST INSTITUTE: RADBOUD UNIVERSITY

PARTICIPANTS NO: 39

MAIN LEADER: INAF

REPORT:

1. Programme of the meeting

See attachement.

2. Scientific Summary

This meeting of the LOFAR Magnetism Key Science Project (MKSP) Consortium is annually recurring and is the most important event in which MKSP consortium members meet. The meeting consisted of two parts:

- (1) a conference/workshop which contained talks and discussions (9-10 March)
- (2) Busy Days, which consisted of discussions and hands-on work in small groups (11-12 March)

The workshop part was attended by 39 people and lasted 1.5 days. The meeting was started by an afternoon of updates and progress reports regarding LOFAR in general and the LOFAR Multi-Snapshot Sky Survey (MSSS). This was a very useful start of the meeting, and generated discussion on how the MSSS survey could be put to use for the science goals of the MKSP.

An invited guest from one of the other Key Science Projects (Tim Shimwell from the Surveys KSP) gave a presentation about the large sky surveys that he was working on, and discussion ensued on (continued) collaboration within the KSPs on these surveys.

The MKSP has five active working groups, and representatives of these groups all presented a progress report on their work at the end of the afternoon of the first day. For logistics reasons, some of these working group progress reports were combined with scientific talks by the same presenters. At dinner, a guest speaker from the host university was invited to give a special lecture about "Megalithic Astronomy", which was very well received by the participants.

On the second day, the morning was reserved for science talks, mostly in the form of updates on data processing and science plans. Notable was the presentation by David Mulcahy, showing the first published science results on nearby galaxies from the Magnetism KSP based on LOFAR data (Mulcahy et al 2014). Figure 1, taken from his presentation, clearly shows the progression of quality of LOFAR observations the past few years. The most recent image is used in the aforementioned paper.

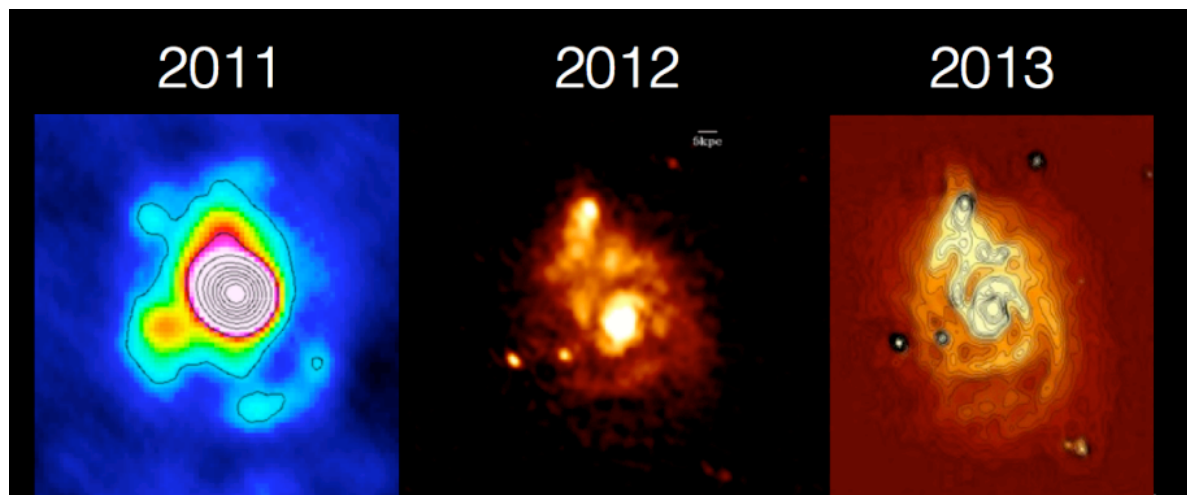


Figure 1: progress in LOFAR observations of M51, indicating the greatly improved capabilities of LOFAR through the years (image courtesy David Mulcahy).

A large step forward was also made by the Pulsar working group: Charlotte Sobey presented the latest results from their sensus observations of 200 pulsars away from the Galactic plane. This has resulted in very precise rotation measure measurements towards 128 pulsars, among which 57 new measurements. These high-latitude pulsars comprise a new and exciting data set for studies of the magnetic field in the gaseous halo of the Milky Way. The science talks gave a good overview of the progress made in the past year, mostly in terms of data analysis. Common challenges were identified, and some problems could be solved on the spot through the expertise present in the consortium.

The afternoon of the second meeting day was mostly reserved for the Business Meeting. During this recurring event at every MKSP annual meeting, important matters within the consortium are discussed such as the overall science goals and how to realize them. This time, the Business Meeting was particularly important because a new management structure for the MKSP was proposed by the current Management Team. The new structure included more direct communication with and responsibility for the working groups. This proposed change was discussed and, in slightly altered form, approved. Since the meeting, the change towards the new management structure has begun. In addition, the original science goals were reviewed, and assessed based on their urgency and on the available people power. Shape and content of collaborations with other Key Science Projects and sharing of data and projects was discussed.

The first part of the meeting finished with a discussion on ways to study Galactic Magnetism with LOFAR. Torsten Ensslin presented his new method to disentangle physical information such as thermal electron density or magnetic field strength and direction from indirect, convoluted measurements such as dispersion measures and rotation measures. This theoretical framework was discussed, just as possible observational data, and how to combine the two.

The Busy Days, on Wednesday and Thursday, were more free-format and were mostly used to discuss more details about progress and challenges in small groups, such as some of the working groups. As working group members are usually dispersed throughout Europe, this annual face-to-face meeting is important in keeping everyone up to date and involved. In particular, the Nearby Galaxies Working Group used the Busy Days to discuss future plans, as did the MKSP members involved in the LOFAR MSSS Survey. Furthermore, the Busy Days were used by the Pulsar and Milky Way working groups to discuss closer collaboration and communication.

Participants from six countries were physically present (Germany, Netherlands, Poland, United Kingdom, Italy and France, in order of decreasing numbers), while MKSP members from three countries (Germany, UK, Sweden) participated through remote access (skype). The physically present participants were mostly young researchers: 8 PhD students, 15 postdocs and 13 staff members. Twelve of the participants were women, which is roughly one third.

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

Please find attached the attendance list, signed by the main organizer.

4. Financial Report / RadioNet3 contribution

Expense (euro)		Income (euro)	
Rent meeting rooms	1425.00	RadioNet3	1500.00
Logistics	2901.25	The Young Academy	2000.00
Misc expenses	220.17	IMAPP ¹	400.00
		Dept of Astrophysics	400.00
TOTAL	4546.42	TOTAL	4300.00

¹IMAPP = Institute for Mathematics, Astrophysics and Particle Physics of the Radboud University in Nijmegen

The Table above shows the expenses made for this meeting, and the organizations that have committed to funding this. The organization has made the choice for a relatively secluded conference center in the small village of Ravenstein near Nijmegen, in order to stimulate and foster coherence and informal discussion between the participants. This choice has turned out well, with generally very positive feedback from the participants on the venue and the atmosphere.

5. Conference Proceedings and Web page

There will be no conference proceedings from this meeting. All talks are or will be available at the meeting webpage. The notes from the Business Meeting have been dispersed among all members of the MKSP consortium.

PROGRAM MKSP MEETING NIJMEGEN 9-12 MARCH 2015

MONDAY 9 MARCH

8:00	Breakfast (room: serre 3)
10:30 – 12:00	Registration (room: Serre)
12:00 - 13:00	Lunch
12:45 – 13:00	Registration
13:00 - 13:15	Welcome words by Paul Groot, chair Radboud Astrophysics (room: Tuinzaal)
13:15 - 13:35	MKSP status update - Rainer Beck
13:35 - 14:05	LOFAR status update - Roberto Pizzo
14:05 - 14:25	MSSS status report – speaker TBC
14:25 - 14:45	MSSS polarization progress – David Mulcahy
14:45 - 15:05	MSSS nearby galaxies – Krzysztof Chyzy
15:05 – 15:30	Discussion LOFAR and MSSS – led by George Heald
15:30 – 16:00	Coffee/Tea break
16:00 - 16:30	Surveys KSP Tier1 survey - Tim Shimwell
16:30 – 17:00	Presentation Cycle 4 proposals
<i>Progress reports of working groups</i>	
17:00 – 17:20	LOFAR HBA observations of IC 342 + progress report WG1: Milky Way - Cameron Van Eck
17:20 – 17:40	Pulsars with LOFAR + progress report WG2: Pulsars – Aristeidis Noutsos
17:40 – 18:00	Progress report WG3: Nearby galaxies - Wojciech Jurusik, Blazej Nikiel-Wroczyński, Natalia Nowak
18:00 – 18:15	Progress report WG4: giant radio galaxies – Emanuela Orru

18:15 – 18:30 Progress report WG5: Intergalactic filaments – Torsten Ensslin

19:30 DINNER – Presentation by Frank Verbunt “Megalithic Astronomy”

TUESDAY 10 MARCH

Science Talks

09:00 – 9:20 TBD – Katharina Sendlinger

09:20 – 9:40 LOFAR observations of the nearby spiral galaxy, M101 - Sarrvesh Sridhar

09:40 – 10:00 LOFAR observations of Abell 1682 – Alex Clarke

10:00 – 10:20 Investigating the cosmic ray propagation in M51 at LOFAR Frequencies - David Mulcahy

10:20 – 10:40 LOFAR observations of diffuse polarised material at high Galactic latitudes - Vibor Jelic

10:40 – 11:00 Precise LOFAR observations of Rotation Measures towards pulsars – Charlotte Sobey

11:00 – 11:30 Coffee

11:30- 11:50 Observing large-scale structure of the entire northern sky by using TBB data from a LOFAR single station - Jana Koehler

11:50 – 12:10 Statistical methods for the analysis of rotation measure grids in large-scale structures – Valentina Vacca

12:10 – 12:30 The LOFAR view of Massive Star Formation – Marta Alves

12:30 - 13:30 Lunch

13:30 – 13:50 TBD – Henrik Junklewitz

13:50 – 14:10 Experiences in LOFAR HBA processing – Marco Iacobelli

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| 14:10 – 14:30 | NGC 5775 – George Heald |
| 14:30 - 15:30 | First half Business Meeting <ul style="list-style-type: none">- Revision of the management structure- Revision of the science goals- Revision of the working groups- Communication within the MSKP- Cooperation with the other KSPs. |
| 15:30 - 16:00 | Coffee break |
| 16:00 – 17:00 | Second half Business Meeting |
| 17:00 - 18:00 | Discussion on ways to study Galactic Magnetism with LOFAR - led by Torsten Ensslin |

WEDNESDAY 11 MARCH

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|--------------|--|
| 9:30 – 10:00 | Software development: calibration and imaging – George Heald |
| | <ul style="list-style-type: none">- Commissioning progress talks (if any left)- Discussion on commissioning, computing, etc- Plans for Busy Days |
| | Start Busy Days |

THURSDAY 12 MARCH

Busy Days

PARTICIPANTS MKSP MEETING NIJMEGEN

9-12 MARCH 2015

Rainer Beck (MPIfR)
Katharina Sendlinger (Ruhr-University Bochum)
Andreas Horneffer (MPIfR)
Arpad Miskolczi (Ruhr-University Bochum)
Sarrvesh Sridhar (Kapteyn Institute, Groningen)
Enno Middelberg (Ruhr-University Bochum)
Rosita Paladino (Universita' di Bologna - INAF IRA)
Aristeidis Noutsos (MPIfR)
Alex Clarke (University of Manchester)
Roberto Pizzo (ASTRON)
Krzysztof T. Chyzy (Astronomical Observatory of the Jagiellonian University)
Blazej Nikiel-Wroczyński (Astronomical Observatory of the Jagiellonian University)
Wojciech Jurusik (Astronomical Observatory of the Jagiellonian University)
Natalia Nowak (Astronomical Observatory of the Jagiellonian University)
David Mulcahy (University of Manchester)
Emanuela Orru (ASTRON)
George Heald (ASTRON)
Katarzyna Otmianowska (Astronomical Observatory of the Jagiellonian University)
Nadya Ben Bekhti (Argelander-Institut fuer Astronomie, Universitaet Bonn)
Bjoern Adebahr (MPIfR)
Vibor Jelic (ASTRON)
Charlotte Sobey (ASTRON)
Jana Koehler (MPIfR)
Torsten Ensslin (MPI for Astrophysics)
Valentina Vacca (MPI for Astrophysics)
Dominic Schnitzeler (MPIfR)
Ralf-Juergen Dettmar (Ruhr-University Bochum)
Marta Alves (IRAP)
Henrik Junklewitz (AlfA, Bonn)
Marco Iacobelli (ASTRON)
Dominik Bomans (Ruhr-University Bochum)
Anna Scaife (University of Manchester)
Ger de Bruyn (ASTRON/Kapteyn Institute)
Tim Shimwell (Leiden University)
Cameron Van Eck (Radboud University)
Marijke Haverkorn (Radboud University)

Signed by chair of organizing committee, Marijke Haverkorn.

