

Report on the *RadioNet3* Networking Activities

Please fill out the fields below

Event

- Title: *Resolving the Sky - Radio Interferometry: Past, Present and Future*
- Date: 18-20 April 2012
- Location: Manchester, UK

Participants number: 101

Home institutes: See participants list

Please attach the following:

- Agenda and/or programme of the meeting
- Summary of the discussions and conclusions of the event
- Attendance list (incl. participant names, affiliation and country) signed by the participants and confirmed by the organizer
- Financial report detailing the use of *RadioNet3* funding

Presentations made at the meeting should be posted on the *RadioNet3* wiki
<http://www.radionet-eu.org/radionet3wiki/doku.php?id=na:management:presentations>

A handwritten signature in black ink that reads "Colin Greenwood".

COLIN GREENWOOD - 2 MAY 2012

.....
Signature of the event organizer name & date

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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Resolving The Sky - Radio Interferometry: Past, Present and Future

chaired by *Michael Garrett (ASTRON)*

from Tuesday 17 April 2012 at **17:30** to Friday 20 April 2012 at **18:20** (Europe/London)
at **The Lowry Hotel (Ballroom 1)**

Description

For more than half a century, radio interferometry has revolutionised our view of the Universe. New phenomena, such as relativistic motion in AGN have been discovered, and a wealth of detail has been revealed about a wide variety of astronomical sources, from nearby stars to the most distant galaxies. These discoveries have been enabled by radio interferometry's routine capability to deliver images with sub-milliarcsecond resolution and micro-arcsecond precision astrometry. Major new advances in both the interferometric technique and the science it delivers are expected over the coming decade. This conference will take a look at the past, present and future of radio interferometry, as the astronomical community prepares for the next big step forward, the Square Kilometre Array (SKA).

The meeting coincides with the retirement of *Prof. Richard T. Schilizzi*, Director of the SKA Project Development Office (SPDO) and past director of the Joint Institute for VLBI in Europe (JIVE). We celebrate the major contribution Richard has made to the field with a scientific programme that will address the following topics: key historical developments in interferometry, the study of micro-quasars and AGN, the development of advanced interferometry techniques and new calibration algorithms, future interferometers (incl. ALMA, SKA and the SKA pathfinders & precursors), mm and sub-mm interferometry, precision spacecraft navigation, geodetic VLBI and Space VLBI.

Tuesday 17 April 2012

17:30 - 20:30 Reception and Registration 3h00' (Manchester Town Hall (Banqueting Hall))

Wednesday 18 April 2012

08:00 - 09:00 Registration and Tea, Coffee & Danish Pastries 1h00'

09:00 - 09:10 Introduction to RTS 2012 and Logistics 10'

Speakers: Michael Garrett (ASTRON) , Colin Greenwood (SPDO)

09:10 - 10:30 PAST

SESSION 1-1

Convener: Alan Whitney (MIT Haystack Observatory)

09:10 **First Interferometry in Radio Astronomy: Ruby Payne-Scott Observes Solar Type I Bursts Australia Day, 26 January 1946** 20'

Speakers: Miller Goss (NRAO)

09:30 **The Structure of Radio Sources: the Molonglo Papers** 20'

Speakers: Bruce McAdam (University of Sydney)

09:50 **Breaking the Milliarcsecond Barrier** 20'

Speakers: Kenneth Kellermann (NRAO)

10:10 **Early VLBI observations in the Soviet Union** 20'

Speakers: Leonid Matveenko (Space Research Institute, head VLBI Laboratory)

10:30 - 11:00 TEA, COFFEE & BISCUITS

11:00 - 12:40 PAST

SESSION 1-2

Convener: Richard PORCAS (Max-Planck-Institut fuer Radioastronomie, Bonn)

11:00 **The Beginnings of the EVN and JIVE in Europe** 20'

Speakers: Roy Booth (Hartebeeshoek Radio Astronomy Observatory)

11:20 **Highlights of the Expansion of SN1993J** 20'

Speakers: Jon Marcaide (Univ Valencia)

11:40 **The History of the SKA - Born Global** 20'

Speakers: Ron Ekers (CSIRO)

12:00 **The Start of SKA: What Really Happened** 20'

Speakers: Jan Noordam (ASTRON)

12:20 **Connecting Early VLBI to SKA Capabilities** 20'

Speakers: Arnold van Ardenne (ASTRON)

12:40 - 13:40 LUNCH

13:40 - 15:00 PAST

SESSION 1-3

Convener: Harry van der LAAN (ASTRON & Leiden Observatory)

13:40 **The Story of Space VLBI** 20'

Speakers: Richard Schilizzi (SPDO)

14:00 **Space VLBI as Seen from Japan** 20'

Speakers: Hisashi Hirabayashi (The Institute of Space and Astronautical Science/Japan Aerospace Exploration Agency (retired))

14:20 **The Development of VLBI in China and its Relation to the EVN** 20'

Speakers: Xiaoyu Hong (Shanghai Astronomical Observatory)

14:40 **Beyond VLBI - Microarcsecond Resolution with Inter-Stellar Scintillation** 20'

Speakers: David Jauncey (CASS & MSO)

15:00 - 15:30 TEA, COFFEE & CAKE

15:30 - 20:00 VISIT TO JODRELL BANK 4h30' (JBO (Lovell Telescope))

Thursday 19 April 2012

- 08:30 - 09:00 TEA, COFFEE & DANISH PASTRIES
- 09:00 - 10:40 PRESENT
SESSION 2-1
Convener: Anton Zensus (*Max-Planck Institut für Radioastronomie*)
- 09:00 **The 'Never-ending' Story of J1819+3845 and Some New Results on BLLac's Faraday Fog** 20'
Speakers: Ger de Bruyn (*ASTRON*)
- 09:20 **Combining VLBI and MASIV – How Intrinsic Properties Influence Interstellar Scintillation of AGN** 20'
Speakers: Hayley Bignall (*ICRAR/Curtin University*)
- 09:40 **The Evolution of Compact Radio Sources** 20'
Speakers: Paul Alexander (*University of Cambridge*)
- 10:00 **Cold Gas in the Life Cycle of Radio Sources** 20'
Speakers: Raffaella Morganti (*ASTRON*)
- 10:20 **Poster Roulette Session** 20'
Sub-mm: VLBI toward a shadow image of a super massive black hole – M. Inoue.
The SKA Molonglo Prototype (SKAMP) Project – A. Green.
Flux density variations of radio sources in M82 – M. Gendre.
Nuclear opacity in compact AGN jets - A. Pushkarev
WSRT and LOFAR observations of the Lockman Hole – G. Guglielmo.
- 10:40 - 11:10 TEA, COFFEE & BISCUITS
- 11:10 - 12:30 PRESENT
SESSION 2-2
Convener: Ignas Snellen (*Leiden Observatory, Leiden University*)
- 11:10 **The High Frequency Flares in the BAL QSO, Mrk 231** 20'
Speakers: Cormac Reynolds (*International Centre for Radio Astronomy*)
- 11:30 **X-shaped Radio Sources as the Parent Population of Core-dominated Triple Blazars** 20'
Speakers: Andrzej Marecki (*Toruń Centre for Astronomy*)
- 11:50 **FR Dichotomy, Accretion Modes and Environmental Factors in the Local Universe** 20'
Speakers: Melanie Gendre (*JBCA*)
- 12:10 **Core Motion in 0851+202 (OJ287)** 20'
Speakers: Marshall Cohen (*Caltech*)
- 12:30 - 13:30 LUNCH
- 13:30 - 14:50 PRESENT
SESSION 2-3 (Convener tbc)
- 13:30 **A Search for the Third Lensed Image in JVAS B1030+074** 20'
Speakers: Ming Zhang (*XAO-CAS*)
- 13:50 **SS433, Microquasars and Other Transients** 20'
Speakers: Zsolt Paragi (*Joint Institute for VLBI in Europe*)
- 14:10 **VERA and the East Asian VLBI Network** 20'
Speakers: Hideyuki Kobayashi (*National Astronomical Observatory of Japan*)
- 14:30 **High Angular Resolution Radio Observations of (U-)LIRGs** 20'
Speakers: Antxon Alberdi (*IAA-CSIC*)
- 14:50 - 15:10 TEA, COFFEE & CAKES
- 15:10 - 16:10 PRESENT
SESSION 2-4
Convener: Michiel van Haarlem (*ASTRON*)
- 15:10 **The MeerKAT Radio Telescope** 20'
Speakers: Justin Jonas (*Rhodes University*)
- 15:30 **Australian SKA Pathfinder (ASKAP)** 20'
Speakers: Philip Diamond (*CSIRO*)
- 15:50 **SKA Project Status Update** 20'
Speakers: John Womersley (*Science and Technology Facilities Council*)
- 17:15 - 22:45 CONFERENCE DINNER 5h30' (Manchester Museum of Science and Industry (Revolution Gallery))

End of Day 2

Friday 20 April 2012

- 08:30 - 09:00 TEA, COFFEE & DANISH PASTRIES
- 09:00 - 10:20 PRESENT & FUTURE
SESSION 3-1
Convener: James Moran (*Harvard-Smithsonian Center for Astrophysics*)
- 09:00 **CMB Interferometry 20'**
Speakers: Clive Dickinson (*Jodrell Bank Centre for Astrophysics, University of Manchester*)
- 09:20 **Resolving The Sky with LOFAR - Status and Results 20'**
Speakers: Rene Vermeulen (*ASTRON*)
- 09:40 **Realisation of a Low Frequency SKA Precursor: The Murchison Widefield Array 20'**
Speakers: Steven Tingay (*International Centre for Radio Astronomy Research*)
- 10:00 **Mid-Frequency Aperture Arrays: the Future of Radio Astronomy 20'**
Speakers: Ilse van Bemmel (*ASTRON*)
- 10:20 - 10:50 TEA, COFFEE & BISCUITS
- 10:50 - 12:30 PRESENT & FUTURE
SESSION 3-2
Convener: Joseph Lazio (*SPDO*)
- 10:50 **Implementing a High Performance Aperture Array (Mid) in SKA2 20'**
Speakers: Andrew Faulkner (*University of Cambridge*)
- 11:10 **Long March with the SKA 20'**
Speakers: Bo Peng (*NAOC*)
- 11:30 **Space VLBI Mission RadioAstron: Current Status and Early Science Program 20'**
Speakers: Yuri Kovalev (*Lebedev Physical Institute*)
- 11:50 **Redshift, Time, Spectrum – the Most Distant Radio Quasars with VLBI 20'**
Speakers: Sandor Frey (*FOMI Satellite Geodetic Observatory*)
- 12:10 **SKA Studies of the Radio Transient Universe 20'**
Speakers: Peter Hall (*ICRAR/Curtin*)
- 12:30 - 13:30 LUNCH
- 13:30 - 15:10 PRESENT & FUTURE
SESSION 3-3
Convener: Peter Dewdney (*SPDO*)
- 13:30 **Fundamental Limits of Radio Interferometers: Calibration and Source Parameter Estimation 20'**
Speakers: Cathryn Trott (*CAASTRO / Curtin University*)
- 13:50 **HI Research in the Era of SKA Pathfinders 20'**
Speakers: Thijs (J.M.) van der Hulst (*Kapteyn Astronomical Institute, University of Groningen*)
- 14:10 **Space Radio Astronomy in the Next 1000001 (Binary) Years 20'**
Speakers: Leonid Gurvits (*JIVE*)
- 14:30 **VLBI Astrometry of Planetary Orbiters 20'**
Speakers: Dayton Jones (*JPL/Caltech*)
- 14:50 **Success Drivers for Large High-Technology Projects: Implications for the SKA 20'**
Speakers: Philip Crosby (*SPDO*)
- 15:10 - 15:30 TEA, COFFEE & CAKES
- 15:30 - 16:20 PRESENT & FUTURE
SESSION 3-4
Convener: Michael Garrett (*ASTRON*)
- 15:30 **Future of VLBI 20'**
Speakers: Huib van Langevelde (*JIVE*)
- 15:50 **After the SKA - Radio Astronomy in 2049 20'**
Speakers: Lisa Harvey-Smith (*CSIRO*)
- 16:10 **Wrap Up 10'**
Speakers: Michael Garrett (*ASTRON*)
- 16:20 - 17:20 CLOSING RECEPTION *1h00'*

LIST OF PARTICIPANTS

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 2 May 2012