REPORT ON THE RADIONET3 NETWORKING ACTIVITY

TITLE:THE SCIENTIFIC EVENT (E1.10) TITLED "THE SHARPEST VIEW OF THE RADIO UNIVERSE – RESULTS FROM THE RADIOASTRON (SPEKTR-R) MISSION"

DATE: *7-8 AUGUST 2014* **TIME:** 1,5 DAYS

LOCATION: *LOMONOSOV MOSCOW STATE UNIVERSITY, RUSSIAN FEDERATION*

MEETING WEBPAGE *https://www.cospar-assembly.org*
http://cospar2014moscow.com

HOST INSTITUTE: *MOSCOW STATE UNIVERSITY, MOSCOW, RUSSIA*

PARTICIPANTS NO: *25*

MAIN LEADER: *INAF*

Project supported by the European Commission
Contract no.: 283393

REPORT:

1. Agenda of the meeting

Thursday, August 7th, 2014

Morning session 09:30-13:00

Three years of RadioAstron in flight and future prospects	Kardashev N., ASC, Russia
Results of the RadioAstron AGN survey	Kovalev Y.Y.,ASC, Russia
Zooming into the high-redshift Universe	Frey S., FOMI, Hungary

Coffee break

Physics of ultracompact reletivistic jets with RadioAstron	Lobanov A., MPIfR, Germany
The nuclear structure in nearby AGN with RadioAstron	Savolainen T., MPIfR, Germany
Probing the innermost regions of AGN jets and their magnetic fields	Gomez J.L.,IAA-CSIC, Spain

Lunch

Afternoon session 15:00-18:30

The nuclear structure in 3C 84	Giovannini G., IRA, Italy
The first dual-band 5-22 GHz RadioAstron Space-VLBI observations of quasar 3C 48 and TXS 2013+370	Sokolovsky K., ASC, Russia
TANAMI and RadioAstron observations of AGN	Edwards P., ATNF, Australia
RadioAstron perigee imaging and brightness temperature survey with the Long Baseline Array	Reynolds C., ATNF, Australia

Coffee break

RadioAstron observations of pulsars and interstellar scattering	Gwinn C., UCSB, USA
RadioAstron space-ground interferometer at 324 MHz: interstellar plasma in the direction to PSR B1919+21	Smirnova T., PRAO, Russia
Pulsar B0329+54: scattering disk resolved by RadioAstron interferometer at 324 MHz	Popov M., ASC, Russia
Preliminary results of giant pulses investigation from Crab pulsar with RadioAstron	Rudnitskiy A., ASC, Russia

Friday, August 8th, 2014

Morning session 09:30-13:00

«But clouds got in my way»: interstellar scintillation and how it may affect SVLBI observations	Jauncey D., ATNF, Australia
Interstellar scattering and VLBI observations of AGN	Pushkarev A., CRAO, Russia
RadioAstron results on extremely small structures in cosmic masers	Sobolev A., UFU, Russia
Gravitational redshift experiment on RadioAstron	Litvinov D., SAI, Russia

Coffee break

Data processing center of RadioAstron project	Shatskaya M., ASC, Russia
Data processing in RadioAstron mission: ASC correlator	Andrianov A., ASC, Russia
Data processing in RadioAstron mission: pulsar mode	Andrianov A., ASC, Russia
RadioAstron data processing at the MPIfR DiFX correlator	Gabriele B., MPIfR, Germany

2. Scientific Summary

The scientific event (E1.10) titled “The Sharpest View of the Radio Universe – Results from the RadioAstron (Spektr-R) Mission” was organized to provide an overview of major scientific results obtained during the first two years of in-orbit operations of the Space-Earth radio interferometer RadioAstron. The RadioAstron project is an international endeavor, involving a free-flying satellite Spektr-R that carries a 10-m space-borne radio telescope (SRT) on an elliptical orbit around the Earth. This space-borne telescope conducts radio astronomical observations using in conjunction with Earth-based radio telescopes using the technique of Very Long Baseline (VLBI). The orbit of the RadioAstron satellite has an apogee between 280,000 and 350,000 km, thus providing the highest angular resolution of any astronomical observations. RadioAstron operates at the standard radio astronomy wavelengths of 1.3cm (K-band), 6 cm (C-band), 18-cm (L-band), and 92 cm (P-band). The Spectr-R spacecraft was launched from Baikonur on July 18, 2011. The observatory then underwent a detailed in-orbit checkout. The scientific commissioning phase consisted of tests of the SRT science payload in VLBI mode (Fringe Search Program) together with large Earth-based radio telescopes. Interferometric responses (fringes) were successfully detected in all RadioAstron wavebands. After the fringe searches, the mission began the Early Science Program (ESP) which started in February 2012 and finished in June 2013.

Attendants of the E1.10 COSPAR event in the first day of the 2014 meeting
of the RADIOASTRON Intrnational Sceince Council, held at the Sternberg Institute of the Moscow State University.

The ESP objectives were to explore the previously unstudied range of interferometer baselines beyond a few Earth diameters and provide a bridge to full science operations, which started in July 2013 with the Key Science Programs selected in open competition from scientific proposals.

During the COSPAR-2014 scientific session, the KSP programs and representatives of ESP working teams presented an overview of results obtained with the highest angular resolution (down to few tens of micro arcseconds) that provided a new view at the properties of radio emission from active galactic nuclei, quasars, pulsars, and cosmic masers.

During three half-day sessions on 7-8 of August, a total of 22 oral presentations were given by scientists from Australia, Germany, Hungary, Italy, Russia, Spain and USA. On the basis of these presentations the main achievements of RadioAstron project were discussed: results of RadioAstron AGN survey, physics of ultracompact relativistic jets, nuclear structure in nearby AGN, properties of the innermost regions of AGN jets and their magnetic fields, the nuclear structure in 3C84, the first dual band 5-22 GHz space VLBI observations of quasars 3C 418 and TXS 2013+370, TANAMI and RadioAstron observations of AGN, RadioAstron perigee imaging with the Long Baseline Array, RadioAstron observations of pulsars probing the interstelar plasma, and extremely small structure in cosmic masers.

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

Andrianov A.,	ASC,	Russia
Bartel N.,	YorkU,	Canada
Edwards P.,	ATNF,	Australia
Frey S.,	FOMI,	Hangary
Gabriele B.,	MPIfR,	Germany
Giovannini G.,	IRA,	Italy
Gomez J.L.,	IAA-CSIC	Spain
Gurvits L.,	JIVE,	The Netherlands
Gwinn, C.	UCSB,	USA
Jauncey D.,	ATNF,	Australia
Kardashev N.,	ASC,	Russia
Kostenko V.,	ASC,	Russia
Kovalev Yu.Yu.,	ASC,	Russia
Litvinov D.,	SAI,	Russia
Lobanov, A.	MPIfR,	Germany
Popov M.,	ASC,	Russia
Pushkarev A.,	CRAO,	Russia
Reynolds C.,	ATNF,	Australia
Rudnitskiy A.,	ASC,	Russia
Savolainen T.,	MPIfR,	Germany
Shatskaya M.,	ASC,	Russia
Smirnova T.,	PRAO,	Russia
Sokolovsky K.,	ASC,	Russia
Sobolev A.,	UFU,	Russia
Zensus A.	MPIfR	Germany

Main Scientific Organizer: M. Popov

4. Financial Report / RadioNet3 contribution

RadioNet3 contribution to the event cost was 3000 EURO.
The money was allocated for logistics, but mainly to provide financial support for following participants

- Litvinov Dmitry (Russia), 450 EURO
- Gomes Jose (Spain), 450 EURO for the registration fee
- Pushkarev Alexander (Russia), 900 EURO for the registration fee, travel and accommodation
- Sobolev Andrey (Russia), 450 EURO for the registration fee

5. Conference Proceedings and Web page

The Scientific organizing committee decided not to publish presentations in conference proceedings in order to present results in scientific journals in full volume.