1st Announcement

Fourth School on Spectrum Management for Radio Astronomy

Held at the Joint ALMA Observatory (JAO), Av. Alonso de Cordova 3107, Vitacura Santiago, Chile

7-11 April, 2014

Sponsored by IUCAF, CORF, CRAF and RAFCAP

The 4th IUCAF School on Spectrum Management offers a comprehensive view of both technical and regulatory issues related to radio astronomers' use of the spectrum. Spectrum management is a task of rapidly growing importance, for radio astronomy as well as for other radio services; however, it is not part of any academic curriculum; radio astronomers have to learn it by doing it. The IUCAF School in Spectrum Management will be an opportunity to profit from the experience of colleagues. These skills have critical application to science, commerce and government.

The expected audience would be members of the radio astronomy and related radio engineering community, who are becoming active in this area at the local, national or international level, and regulators whose task is to protect passive services and science services.

Venue:

Joint ALMA Observatory (JAO)

Scientific Organizing Committee:

M. Ohishi (Japan), A. Tzioumis (Australia), D. DeBoer (USA), H. van der Marel (The Netherlands), T. Gergely (USA), Y. Murata (Japan), and W. Baan (China, The Netherlands)

Local Organizing Committee:

T. Gergely (USA), H.S. Liszt (USA), A. Tzioumis (Australia), and R. Ogasawara (Chile)

Purpose of the School:

The School will train the next generation of Scientists, Engineers and Administrators in the skills enabling discoveries via observations using the radio spectrum.

Over 80 years have passed since K. G. Jansky first detected radio emission from the Galaxy, while searching for the origin of the weak static that was causing interference to communications. Since then, radio astronomy has revolutionized our view of the Universe through the discovery of quasars, pulsars, the Cosmic Microwave Background, surveys of our Galaxy in the 21-cm hydrogen line, molecular lines, and many other phenomena. The radio window was the first non-optical window in the electromagnetic spectrum explored by astronomers, and radio techniques continue to be a prime tool in the exploration of the Universe. At the same time, radio astronomy retains close ties to the world of radio communications, adopting some of its leading technologies, and sometimes giving rise to technologies of its own adopted by radio engineers for commercial applications.

During the 20th century, radio astronomers enjoyed relatively easy and interference free access to large portions of the spectrum, by locating telescopes far from potential sources of man-made noise. A small number of specialists took care of regulatory issues that arose in national and international fora that rarely required attention from the broader astronomy community. This state of affairs has been changing rapidly in the 21st century, as demands on the spectrum increase due to huge increases in the demand and availability of wireless applications (mobile phones, Wireless LANs, and many others), communication satellites and marketing of new technologies, such as ultra-wide band systems, power line telecommunication systems, cognitive radio systems and dynamic spectrum access (DSA). The development and health of radio astronomy depend critically on astronomers' continued access to the radio spectrum, and this in turn demands that astronomers and particularly radio observatories pay closer attention to the technical and regulatory issues that arise in relation to managing the radio spectrum, particularly as they relate to radio astronomy.

Spectrum management is critical for the future of radio astronomy. It is also interesting and even challenging, as it requires a combination of scientific motivation, technical background, legal knowledge and diplomatic skills. These skills are normally not taught as part of science curricula.

The IUCAF Spectrum Management School provides an introduction to a unique combination of technology, science and international diplomacy by experts in this field. At this school, special emphasis will be given to millimeter-wave technologies and spectrum issues.

- Topics to be Discussed -

Radio Astronomy Techniques and Observations
Earth Remote Sensing & Space RA Observations
Spectrum: Frequency Allocation, Bands and Uses
International Telecommunication Union (ITU) and other Regulatory Agencies
Recommendations, Reports and Notification
Radio Science & Technology
Antennas, Propagation, Receivers, Data Acquisition Equipment
Interference to Radio Astronomy
Interference to RA and mitigation techniques
International, National and Regional Regulatory Structure
Coordination with other Radio Services
RFI from New Technologies and Unlicensed Devices
New Frontiers in Spectrum Management
The submm/Terahertz regime, Radio Quiet Zones and SKA
Units and working with the Numbers

Lecturers will include experts from the Americas, Asia-Pacific region and Europe.

Due to limited capacity at the Joint ALMA Observatory in Santiago, participation in the IUCAF school may be limited to 50 persons. Preference will be given to younger radio astronomers and engineers, who are or expect to be involved in spectrum management activities.

Important Dates:

Submission of expression of interest:	November 30, 2013
Deadline for final Registration:	TBD, 2014

Pre-Registration/ Expression of Interest

All expressions of interest should be submitted via the web-based form available from the IUCAF website at http://www.iucaf.org/sms2014

If you encounter problems with the web form, contact the LOC.

Visa Requirement:

Nationals of Argentina, Brazil, Peru, Uruguay and Paraguay need only their national identity cards to enter Chile. For other nationals of other countries, passports are

obligatory. Citizens of Canada, the UK, USA, Australia, New Zealand and most Western European countries need passports only, no separate visa is necessary. The Chilean government collects a USD 132/ 56/132 "reciprocity" fee from arriving US/ Australian/Canadian citizens in response to these governments imposing a similar fee on Chilean citizens applying for visas. The payment applies only to tourists arriving by air in Santiago and is valid for the life of the passport. Payment must be made in cash; exact change necessary.

A visa may be required for nationals of other countries, please check at your local Chilean consulate. Should a visa be needed, the LOC will assist participants as much as possible.

Accommodations:

Information will be provided with the second circular.

Financial Support:

Limited financial support may be available. Please indicate if you need support on the registration form.

Access to the JAO, Santiago, Chile:

Details will be provided with the second circular

Visit to the ALMA telescope:

An optional visit is planned for participants to the ALMA Telescope following the workshop, leaving Santiago de Chile on the afternoon of Friday, April 11 and returning to Santiago on Sunday, April 13. Please be advised that the visit requires flying to the town of Calama, Chile, and two nights of stay at the town of San Pedro de Atacama, implying an extra expense estimated to be about USD 1 000. The LOC will facilitate arrangements for the visit, but no financial support will be provided for this purpose to participants.

Due to the height of the ALMA Observatory (over 5,000 m above sea level) the visit is not advisable for persons, unless they are in good health. Participants should obtain a medical exam prior to the visit. Please indicate in the registration form if you plan to participate in the ALMA visit.

Inquiries:

Inquiries should be sent to the LOC chair

[Dr. Tomas Gergely, e-mail: tgergely@verizon.net]

Pre-Registration Form

The Fourth IUCAF School on Spectrum Management
Joint ALMA Observatory, Santiago, Chile
7-11 April, 2014
***Please use the web form at* the IUCAF website at http://www.iucaf.org/sms2014**

Please indicate tentative interest by November 30, 2013.