

# **SCHOOL ON RADIO BASED COMPUTER NETWORKING FOR RESEARCH AND TRAINING IN DEVELOPING COUNTRIES**

7 February - 4 March 2005  
Miramare - Trieste, Italy

The Abdus Salam International Centre for Theoretical Physics (ICTP) will organize a **"School on Radio Based Computer Networking for Research and Training in Developing Countries"**, to be held from 7 February to 4 March 2005 in Trieste, Italy.

Cooperating institutions are:

- **ITU Telecommunication Development Bureau**
  - **EsLaRed (ULA, Venezuela)**
- and other organizations.

## **DIRECTORS**

Prof. Sandro M. Radicella (Head, Aeronomy and Radiopropagation Laboratory - ICTP)  
Prof. Ryszard Struzak (Former Vice-Chairman of the Radio Regulation Board - ITU - Geneva, Switzerland)

## **PURPOSE AND NATURE**

The School will cover radio-based computer networking in academic and research environment focusing on specific issues of Developing Countries. It will include tutorial lectures and laboratory work, where both radio techniques for digital communications and computer networking will be experienced, with emphasis on Open Source Software.

**The Laboratory work** will be dedicated to technical planning and implementation of wide-area computer networks using digital radio links, with practical exercises on:

- Network configuration using Linux; measurements on an RF chain; microwave antennas building, installation and measurements; WiFi equipment installation, configuration and cabling; remote site powering; radiolink planning; voice and video over IP; security and authentication systems for WLANs; setup of long and medium distance microwave links.

**The last week of the activity will be dedicated to:**

- a Round Table on the Role of ICT for Research and Training in Developing Countries, with the participation of international experts;
- presentation of case studies by the school participants;
- demonstrations of telecommunications technologies related to the topics of the School by selected experts from the industry.

This School is the follow-up of the previous schools on the use of radio for digital communications held yearly since 1998 and of other related training activities.

## **PARTICIPATION**

Scientists and students, not more than 45 years of age, from all countries that are members of the United Nations, UNESCO or IAEA may attend the School. Although the main purpose of the ICTP is to help researchers from developing nations through a programme of training activities within a framework of international cooperation, students and postdoctoral scientists from developed countries are also welcome to attend. As the School will be conducted in English, participants must have a good working knowledge of that language.

As a rule, travel and subsistence expenses of the participants are borne by the home institution. However, limited funds are available for some participants(\*) from, and working in, developing countries, to be selected by the organizers. Such financial support is available only for those who attend the entire activity. Every effort should be made by candidates to secure support for their fare (or at least half fare) from their home country. There is no registration fee to attend the School.

Those wishing to participate should complete and return the "Request for Participation" form, to arrive no later than **15 September 2004**.

The application form can be downloaded from the School web page <http://wireless.ictp.trieste.it> or sending an e-mail message to [smr1644@ictp.trieste.it](mailto:smr1644@ictp.trieste.it), using as subject "get index".

## **Deadline for applications 15 September 2004**

(\*) The preference will be given to groups of 2 or 3 participants applying from the same academic or research institution from a Developing Country, planning or involved in a practical implementation of WLANs.

Please send your completed application form via e-mail, fax, or post to:

The Abdus Salam International Centre for Theoretical Physics  
**" School on Radio Based Computer Networking for Research and Training in  
Developing Countries"**  
c/o K. Mabilo  
Strada Costiera, 11  
34014 Trieste, Italy

Email: [smr1644@ictp.trieste.it](mailto:smr1644@ictp.trieste.it) Tel.no.: +39-040-2240455 Fax no.: +39-040-224163

**School home page: <http://wireless.ictp.trieste.it>  
ICTP home page: <http://www.ictp.trieste.it>**

June 2004

## **MAIN TOPICS:**

- Use of radio in ICT for Research and Training in Developing Countries.
- Open Source Software.
- TCP/IP Networking.
- Digital modulations and coding.
- Data radio links and wireless computer networking.
- 802.11 and 802.16 communication protocols families for WiFi and WiMAX.
- Security of wireless networks.
- Mesh topology networks.
- Antennas: theory, building, installation and measurements.
- Radiopropagation, Spectrum management and regulatory issues.
- Network planning, design of radio links using Digital Terrain Models and Site Survey.
- Remote sites powering issues.
- Long-range HF data communications.
- Satellite communications in Developing Countries.
- Power Line Communications.
- Voice over IP and multimedia over wireless networks.
- Economic and financial aspects of wireless networks.
- Frontiers of radiocommunication technology.

## **Local Organizer**

S.M. Radicella (ICTP)

## **Deadline for applications**

**15 September 2004**

