

IEEE AESS Board of Governors Meeting September 14-15, 2012

Disneyland Hotel, Anaheim, CA
Safari Room, Adventure Tower

Space Panel Report

Chair: Cosimo Stallo
Vice-Chair: Marina Ruggieri

The relevant international activities of the Space Systems Panel are:

1. Activities related to the development of the first IEEE AESS ESTEL Conference on *Satellite TELcommunications (ESTEL)* that will take place in Rome, Italy on October 2-5, 2012. This Conference is financially sponsored by IEEE AESS. Conference Record #: 19294 (www.estelconference.org).
2. Activities related to the development and organization of the second IEEE AESS Summer Workshop on **Integrated Satellite Communication and Navigation Systems (ISaCoNaS)**: “*Advanced Services and Applications, Architectures and Terminals To improve Quality of Life*” which will be held in Nicotel Pineto in Castellaneta Marina, Apulia, Italy on July, 25-28 2013. This course is focused on systems, technologies and relative services associated to Earth Observation and Earth Science Applications, Advanced Satellite Communications and Navigation, Swarm Intelligence and Advanced Modulation and Coding Techniques which can significantly improve the Quality of Life (<http://isaconas-workshop.uniroma2.it/>).
Conference Record #: 19177.
3. Activities related to the co-chairing of Track 2 Space Missions, Systems and Architecture of the 2013 IEEE Aerospace Conference that will take place in Big Sky in March 2013.
4. Activities related to the role of Editor of Space Systems of the AES Transactions and for the Systems Magazine.
5. Organisation of training and thesis activities of students at the University of Roma Tor Vergata in the field of space systems.
6. Development of the 9th edition of the Master Course in “Advanced Satellite and Communications Systems” at the University of Roma Tor Vergata and preparation for the 10th edition.
7. The 6th edition of the on line Master Course in “Satellite Communications and Navigation Systems” organised by University of Roma Tor Vergata and Scuola IaD (**Istruzione a Distanza**) is in progress. The 7th edition of this course is in preparation.
8. Activities related to projects, publications and teaching in the space system related topics.

9. Development and publication of several papers about space systems in conference proceedings and journals.
10. Activities related to the IEEE AESS liaison with 2014 ION PLANS Conference.
11. The M. Sc. Course in “Advanced Communication and Navigation Satellite Systems” organised by University of Rome ‘Tor Vergata’ foresees a project work, called the “*Internet of Things: Enabling Technologies and Smart Devices to improve the Quality of Life*”, in the frame of the AESS GOLD activities. The Internet of Things refers to uniquely identifiable objects (e.g. sensors and actuators) and their virtual representations in an Internet-like structure. The Internet of things concept is based on the interaction of different independent systems through the Internet and can be considered as a “System of Systems Interconnected Through Internet”. The project work concerns the realisation of a smart integrated system including a smartphone and new secure low-power wireless standards (as DASH7, 6LoPAN, Bluetooth Low Energy) to support innovative and advanced applications in the fields of healthcare, fitness and homeland security. The project work will be fulfilled in about 10-12 months by nearly 20 students divided in 2 teams. Each team will be involved in one of the following two activities:
 - a. to develop a smart integrated system for healthcare applications (including e.g. a pulse oximeter, glucose and blood pressure monitoring, etc.);
 - b. to develop a smart integrated system for homeland security applications.
12. In the scenario of GOLD for GOLD activities, we are contacting AESS GOLD people to realise tutorials. Among them, we have the confirmation of:

Susanna Spinsante (Department of Information Engineering-Marche Polytechnic University) in order to provide a tutorial on *Home Automation Systems Control by Head Tracking in AAL Applications* during the IEEE ESTEL Conference *Session # 9: Tele Healthcare, Medical Applications & Information Systems, Smart Homes & Assisted Living, Mobile Technologies for Health care Applications* on Wednesday, October 03 2012: *Special Day on Smart Life Technologies*.
13. Support to Durban University of Technology (DUT) in South Africa through the Professor Dimov Stojce Ilcev in order to establish an *Institute of Space Science* (www.dut.ac.za/space_science or <http://www.ist.africa.org/home/default.asp?page=doc-by-id&docid=6077>). The following activities, proposals and projects will be carried out in that Institute on the followings items:
 1. African Satellite Augmentation System (ASAS) as a new project instead of the Extension of EGNOS on Central and South Africa;
 2. Road Traffic Control and Management, which can reduce mortality on the roads up to 30% in Africa;
 3. Satellite DVB-RCS Scenario for Fixed and Mobile Solutions, which provides Voice, Data and Video over IP (VDVoIP), IPTV, IPPC, enhanced Broadcast content, Broadband, fast Internet and all E-solutions (in particular E-education or E-medicine to cover all schools or clinics, respectively);
 4. Satellite Asset Tracking and Fleet Management (SATFM) and SCADA or M2M Systems such as projects for Global Container Tracking (GCT), Global Vehicle Tracking (GVT), Global Wagon Tracking (GWT), Global Ship Tracking (GST), Global Aircraft Tracking (GAT), M2M and so on;

5. Intelligent Transportation Systems (ITS) such as Electronic Vehicle Registration (EVR) and so on;
6. Stratospheric Communication Platforms (SCP);
7. SCP for Transfer of energy from Solar cells in the Space to the Ground;
8. Development of Multipurpose GEO/LEO Space Segment;
9. Homeland Security System (HSS).

Prepared on September 1, 2012 by Cosimo Stallo & Marina Ruggieri