



## IEEE ICC-2011 Workshop On

### Energy Efficiency in Ad hoc Networks & Ad hoc Networks for Energy Efficiency - E<sup>2</sup>Nets

5 June 2011 Kyoto, Japan

#### Important Dates

**Paper Submission Deadline** October 15, 2010

**Notification of Acceptance** January 11, 2011

**Camera-Ready Submissions** February 11, 2011

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The two seemingly distinct topics of E<sup>2</sup>NETS are very important for overall energy efficiency in the future. Instead of looking at them separately, it is useful to arrange a venue for the researchers and practitioners in these two fields to come together and interact. This workshop aims to build this cooperation. Energy Efficiency in Wireless Networks: According to the GESI study, the ICT sector contributes around 2% of global greenhouse gas emissions. To increase the competitiveness, energy efficiency (E<sup>2</sup>) must also be a design criterion of the network and service architectures. Flexible networks that adapt their capacity to the requirements can lead to significant energy savings. Novel networking paradigms need to be introduced to assure that all components are used with maximum utilization. E<sup>2</sup> network architectures will be the cross-layer, cognitive and cooperative aggregation of techniques and mechanisms to provide a communication infrastructure where the energy consumption is minimized while guaranteeing the grade of service required by the applications. Along with energy efficiency, spectrum utilization is to be optimized and radiation is to be minimized.

In E<sup>2</sup>Nets, the following topics of energy efficiency in sensor, mesh, and ad-hoc networks are considered:

- Physical layer techniques, channel or network coding for energy efficiency
- Methodologies and architectures for energy efficiency
- Energy-efficiency measures
- Energy-efficient flooding and multicast
- Energy-efficient device and service discovery
- Collaborative, cooperative, cognitive networking protocols for energy efficiency
- Algorithms for scheduling and resource management
- Energy harvesting
- Cognitive networking for energy reduction in large scale environments
- Device level collaboration and cognition for energy efficiency
- User mobility modelling to predict and adapt to patterns
- Hybrid fibre-wireless networks for energy-efficient delivery of wireless signals
- Energy efficiency using harvesting in sensor, ad hoc, mesh and vehicular networks.

To address the other 98% of the global CHG emissions, wireless networks can be used to reduce the energy consumption of industrial, home, office environments, applications. For example, along with the research in low-carbon road transportation technologies, wireless networks can be employed to analyze the traffic jams and help navigators to find a suitable route leading energy savings. To this extent, in this workshop the topics of wireless networks for energy efficiency consist of:

- ICT for minimization of the energy consumption of other systems such as transportation, houses, offices and industrial buildings.
- Energy efficient cloud computing and emerging applications,
- Sensor and ad hoc networks for energy efficiency in industrial/harsh environments
- Vehicular networks to reduce the CHG emissions
- ICT for energy-efficient data centers

The first workshop in Cape Town with ICC-2010 was well received with approximately 33% acceptance ratio. The highlights of the workshop were: (a) an open forum allowing everyone to participate actively and debating the ideas to be pursued further; and (b) papers from many fields and areas focusing on energy efficiency issues related to ICT.

**Accepted papers will be published in the proceedings and the IEEE Digital Library. Paper submission is via EDAS. IEEE publication policy and author guidelines can be found on [http://www.ieee-icc.org/2011/author\\_guide.php](http://www.ieee-icc.org/2011/author_guide.php). Paper length should be 5 pages (A4, pdf) max, with *one* page extra at an over-length charge.**