



## 1st International Workshop on Communication Systems with Extreme Contexts (xCOM)

With the advances of the hardware/software capabilities and application needs, communication systems are used or expected to be used in extreme situations, such as deep-ground, deep-water, deep-space, or deeply-embedded systems. Such extreme scenarios may require transformative techniques to realize communication systems for them. For example, deep-ground applications may need communication systems working in extremely low frequency channels while the size and the energy consumption of such systems are challenging factors. Another example is that research on satellite communications leads to innovations in Terahertz communication systems. There also exists a good amount of work that focuses on reducing energy consumption of communication systems to extremely-low levels. Recent journal special issues, such as JSAC on “Emerging Technologies in Communications” related to the communication systems in extreme spectrum and extreme energy consumption levels underline the timeliness of the topic.

### Committee

#### Organizing Chairs:

Prof. Liang Cheng, Lehigh University, USA

Prof. Christian Wietfeld, TU Dortmund, Germany

#### Technical Program Committee (tentative):

Prof. Alejandro Alonso, Universidad Politécnica de Madrid, Spain

Dr. Dmitri Botvich, Waterford Institute of Technology, Ireland

Prof. Frank Fitzek, Aalborg University, Denmark

Prof. Tadao Nagatsuma, Osaka University, Japan

Prof. Andreas Timm-Giehl, TU Hamburg-Harburg, Germany

Prof. Mehmet Can Vuran, University of Nebraska-Lincoln, USA

Prof. Xiaotong Zhang, University of Science and Technology of Beijing, China

### Technical Topics

Wireless communications systems operating in extremely challenging environments, such as:

- Underground communications in deep earth
- Underwater communications in deep sea
- Air-borne communications in deep space
- Communications in extremely remote areas
- Communications in extremely low power in highly noisy environments

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Requiring new approaches in:

- Spectrum utilization in very/extremely low or high frequencies, e.g. THz, and radio resource management
- System architecture design and realization, e.g. form factor miniaturization and energy efficiency maximization
- Protocol design and system applications
- ...

### Call for Papers

Proposals for papers related to the topics listed above are solicited. Maximum paper length is five pages. IEEE paper template is to be used.

### Call for Exhibits & Demonstrations

During the workshop, participants are welcome to show current prototypes and demonstrators to underline research progress.

### Important Dates

**Paper Submission: 29 October 2012**

**Notification of Acceptance: 08 Dec 2012**

**Final Paper: 08 Jan 2013**

**Workshop date: 7 April 2013**