IEEE ICC 2016 Workshop on Massive Uncoordinated Access Protocols (MASSAP)

Kuala Lumpur, Malaysia, May 2016

Call for Papers

Uncoordinated multiple access protocols, with random access protocols as their best-known class, represent a key element of wireless communication networks where users in a very large and dense population wish to exchange data over a shared medium. These protocols become especially relevant for systems that feature sporadic and unpredictable access activity and/or support delay-critical applications, such as real-time machine-type communications, interactive satellite communications, etc. While traditional access protocols consider collisions as a loss of signaling resources and therefore are designed to avoid them, in recent years several innovative developments have been proposed, such as physical layer network coding and various techniques based on successive interference cancellation (SIC), where interference is embraced and utilized creatively. These developments have opened a completely new perspective for uncoordinated protocols, paving the way to dramatic performance improvements, and rendering the throughput of random access channels competitive with that of typical coordinated protocols. Besides the performance improvement, these new approaches created a novel conceptual link to error control codes and brain-inspired massive networks, thereby opening fundamentally new problems for two rather separated research communities. Finally, low-complexity and spectrally efficient random access protocols may completely change the way scheduled and random access are supported in future standards. The goal of this workshop is to stimulate innovative contributions to the topic, with emphasis on the fundamental limits, on the cross-layer interactions between the MAC and PHY layers, and on connections to coding theory. Topics of interest include, but are not limited to:

- Fundamental limits on uncoordinated random access protocols
- Fundamental limits on random access with successive interference cancellation
- Network coding and physical-layer network coding in multiple access schemes
- Signal processing for successive interference cancellation
- Joint multiuser detection
- Wireless access protocols for:
    - Massive M2M communications
    - Massive Internet-of-Everything
    - Ultra-dense wireless networks
    - Vehicular and satellite networks
    - Large-scale wireless sensor networks
- Innovative techniques for 5G radio access networks
- Random access with spatial diversity
- Random access protocols for real-time applications
- Information flow in brain-inspired massive networks

The IEEE ICC MASSAP 2016 will feature a keynote speech by Krishna Narayanan (Texas A&M University). The workshop accepts only novel, previously unpublished papers. All submitted papers should be written in English with a maximum paper length of six (6) printed pages (10-point font) including figures. Depending on the number of submissions, some of the accepted papers may be selected for a poster presentation and some for an oral presentation. There will be no distinction in the proceedings between the two presentation formats. Accepted papers will be submitted for inclusion in IEEE Xplore/IEEE Digital Library, provided they are covered by one registration and they are presented at the workshop.

Important dates: Full paper submissions: **04 Dec. 2015**. Notification of acceptance: **21 Feb. 2016**. Final manuscript: **13 Mar. 2016**

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