

**Call For Papers–IEEE Journal of Selected Topics in Signal Processing Special Issue**  
**INDEX MODULATION FOR FUTURE WIRELESS NETWORKS:**  
**A SIGNAL PROCESSING PERSPECTIVE**

Unprecedented levels of spectral and energy efficiency are expected from next-generation wireless networks to achieve ubiquitous communications between anybody, anything, and anytime. In order to reach the challenging objectives of next-generation wireless networks, the researchers have envisioned novel physical layer (PHY) concepts such as massive multiple-input multiple-output (MIMO) systems and non-orthogonal multi-carrier communications. However, wireless communication and signal processing communities are still working relentlessly to come up with new and more effective PHY solutions towards next-generation wireless networks. There has been a growing interest on index modulation (IM) techniques over the past few years. IM, in which the indices of the building blocks of the considered communications systems are used to convey additional information bits, is a novel digital modulation scheme with high spectral and energy efficiency. IM schemes may have remarkable potential and impact to shape 5G and beyond radio access technologies due to their inherently available advantages over conventional systems. Since the initial skepticism of both academia and industry on the potential and applicability of IM technologies has now gone away, we strongly believe that IM is not another simple digital modulation alternative, but rather can be a game-changing communication paradigm whose time has come!

Motivated by these observations, this Special Issue in IEEE J-STSP aims to capture the state-of-the-art advances in IM concepts and to collect the latest advances on the signal processing aspects of IM techniques. The topics of interest include, but are not limited to the following:

- Novel signal processing techniques and algorithms for IM-based systems
- Signal processing theories for new spectrum opportunities with IM techniques: massive MIMO, millimeter wave, full-duplex transmission and license assisted access
- Design of generalized/enhanced/quadrature/coded/differential IM systems
- Novel single/multi-carrier IM systems
- Practical implementation and performance analysis of IM systems
- Application of IM systems for multi-user and cooperative communication systems
- IM techniques for optical wireless communications
- Reconfigurable antenna based IM (media-based modulation) schemes
- IM-based non-orthogonal multiple access, energy harvesting, and cognitive radio schemes.

We also invite high quality submissions of a tutorial or overview nature, including accessible summaries of important results to date, and/or visionary articles about future trends.

**Submission Guidelines** Prospective authors should follow the instructions given on IEEE J-STSP webpages <https://goo.gl/X9hBE5> and submit their manuscripts through <https://mc.manuscriptcentral.com/jstsp-ieee> according to the following schedule:

Manuscript submission: <b>December 31, 2018</b>	2nd review completed: June 1, 2019
1st review completed: February 1, 2019	Final manuscript due: July 1, 2019
Revised manuscript due: April 1, 2019	Publication: October 2019

**Guest Editors**

Ertugrul Basar (*Lead Guest Editor*), Istanbul Technical University, Turkey. [basarer@itu.edu.tr](mailto:basarer@itu.edu.tr)  
Miaowen Wen, South China University of Technology, China. [eemwwen@scut.edu.cn](mailto:eemwwen@scut.edu.cn)  
Marco Di Renzo, Universite Paris-Saclay, France. [marco.direnzo@12s.centralesupelec.fr](mailto:marco.direnzo@12s.centralesupelec.fr)  
Raed Mesleh, German Jordanian University, Jordan. [raed.mesleh@gju.edu.jo](mailto:raed.mesleh@gju.edu.jo)  
Luiqing Yang, Colorado State University, USA. [lqyang@engr.colostate.edu](mailto:lqyang@engr.colostate.edu)  
Octavia Dobre, Memorial University of Newfoundland, Canada. [odobre@mun.ca](mailto:odobre@mun.ca)  
Ananthanarayanan Chockalingam, Indian Institute of Science, India. [achockal@iisc.ac.in](mailto:achockal@iisc.ac.in)