IEEE Transactions on Antennas and Propagation
Announces a Special Issue on
"Antennas and Propagation at mm- and sub mm-waves"

Millimeter and sub-millimeter waves have been the focus of intensive research activities over the past several years. Application of these technologies has advanced beyond traditional high-cost niche uses - mostly related to radio astronomy and space applications - to embrace widespread new consumer applications, some of which show significant market potential. Increased opportunity to exploit these bands is in part created by the spectrum availability that enables extremely high data rates and the inherent miniaturizability of the radio front-ends. This naturally drives concomitant advancements in semiconductor technology at mm-waves and sub-millimeter waves that lower technology deployment cost and make it affordable for applications such as home multi-gigabit wireless systems, active and passive high resolution imaging for medical diagnostic or civil security applications, automotive radar, and body-area networks.

Despite recent advances in these technologies, a wide range of problems remain to be solved for both high-end and consumer applications, particularly within the scope of antennas and propagation. For example, cost reduction and antenna efficiency improvements remain key challenges whose solution depends upon continued research efforts focusing on integration of the antenna with the front-end in a single MMIC, implying co-design. The development of practical implementable solutions is also a key challenge in these bands where established lower frequency solutions are not scalable. Challenges remain for antennas in package, antennas on chip, phased arrays, lens antennas and focusing systems. The development of new integration solutions, new materials (including metamaterials), and new guiding structures as well as the improvement of modeling techniques, analysis methods, CAD design tools, antenna and system measurement techniques, and propagation models will all contribute to the successful deployment of new systems.

The objective of this special issue is to provide an overview of recent advances and emerging applications in millimeter and sub-millimeter waves, especially beyond 60 GHz up to terahertz, with strong focus towards practical implementable solutions. This issue will consist of invited and contributed papers on a broad range of topics including antennas, propagation, technology and measurement techniques, numerical methods, new applications, or other relevant related aspects. Manuscripts should conform to the requirements for regular papers in the Transactions on Antennas and Propagation as specified in the information for Authors in the inside back cover of a recent issue or on the web site (http://ieeeaps.org/aps_trans/index.htm). Potential contributors may contact one of the Guest Editors by email to determine the suitability of their contribution to the special issue. All papers must be submitted online through the AP Transactions Manuscript Central web site (http://mc.manuscriptcentral.com/tap-ieee). During submission, please (1) choose "Special Issue Paper" as the manuscript type and (2) include in the cover letter a statement to the Editor-in-Chief that the manuscript is intended for this special issue.

Guest Editors (alphabetic order)

Prof. Carlos Fernandes Instituto de Telecomunicações / IST-UTL, Portugal (carlos.fernandes@lx.it.pt)	Dr. Duixian Liu IBM Thomas J. Watson Research Center, USA (duixian@us.ibm.com)	Prof. Jiro Hirokawa Tokyo Institute of Technology, Japan (jiro@antenna.ee.titech.ac.jp)
Prof. Jorge Costa Instituto de Telecomunicações / ISCTE-IUL, Portugal (jorge.costa@lx.it.pt)	Prof. Ronan Sauleau University of Rennes 1, France (Ronan.Sauleau@univ-rennes1.fr)	

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