IEEE AWPL Special Cluster 2018 on "3D Printed Antennas and Electromagnetic Structures"

IEEE Antennas and Wireless Propagation Letters (AWPL) announces a special issue on "3D Printed Antennas and Electromagnetic Structures." Additive manufacturing technologies, often called 3D printing, have received much attention recently with impressive demonstrations ranging from musical instruments, to vehicles, to housing components or even entire buildings. Different constitutive materials including metal, polymer, ceramics, biological tissues and even concrete, have been incorporated in various 3D printing technologies. Printing dimension ranging from sub-microns to meters has been reported. Besides mechanical objects, 3D electromagnetic structures such as waveguides, antennas, lenses, and holographic devices for GHz to THz operation have also been demonstrated recently. Although it has been argued that 3D printing could be the future of manufacturing, the potential and applicability of these methods for creating advanced and integrated antenna systems still remain largely unexplored. For example, for higher frequency (i.e., millimeter wave and THz) applications, challenges involving more stringent tolerance requirement, surface roughness, etc., need to be adequately addressed. In addition, development of various measurement techniques to validate theoretical results would be very beneficial. For example, establishment of the correlation between various printing qualities (i.e., surface roughness, printing resolution, impact of material anisotropy, etc.) with high frequency performance of 3D printed antennas will be necessary for practical applications. Moreover, additive manufacturing enabled new antennas and electromagnetic structures which may lead to paradigm change in antenna designs have not been explored much. The objective of this special issue of papers is to assemble and establish a body of work that will highlight current research involving 3D printing technology for advanced and novel antenna applications and electromagnetic structures. The focus is on 3D/non-planar devices and structures rather than those that can be designed and fabricated using conventional PCB methods.

The special issue of papers will consider the latest research in but not limited to the following areas:

- New antenna topologies/synthesis/design enabled by 3D printing technology
- Advanced 3D printed antenna and array systems
- 3D printed feed and reflector antennas
- 3D printed phased array antennas
- 3D printable materials for antenna related applications and packaging issues
- 3D printed metasurfaces, and metamaterials for antenna applications
- Key fabrication challenges and potential solutions of 3D printing for antennas

The Guest Editors of this Focused Cluster are:

- Dr. Hao Xin, University of Arizona, USA: hxin@ece.arizona.edu
- Dr. Bae-Ian Wu, Air Force Research Laboratory, USA: bae-ian.wu.1@us.af.mil
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Prospective authors are encouraged to contact the Guest Editors for any questions or to determine the suitability of their contribution for this special cluster.

Papers should be prepared following the same submission instructions as for regular IEEE AWPL manuscripts (four-pages maximum, double-column, IEEE format), available via the Information for Authors website (http://awpl.eleceng.adelaide.edu.au/authors.htm). The authors should indicate in the cover letter to the Editor-in-Chief that the manuscript is being submitted in response to the Call for Papers for the focused cluster on "3D Printed Antennas and Electromagnetic Structures". Prospective authors should refer to the timeline below for key dates. The publication charges will be at the standard rates for AWPL – page one is free, each subsequent page is $200.

Key dates:

Submission deadline: March 31, 2018
First decision: May 15, 2018
Revised manuscript deadline: June 15, 2018
Final decision: July 30, 2018
Final manuscripts due by: September 1, 2018
Online publication: shortly after final manuscript submission
Cluster publication: November 2018 issue of AWPL