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**Abstract:** Orbital Angular Momentum (OAM) has drawn great attention of worldwide academia in the recent years. The application of OAM in radio domain has gradually become a research hotspot, and the effective technique to generate OAM vortex beams is one of the key issues. In this talk, a new method for the generation of an electromagnetic vortex wave by using reflective metasurfaces, transmitting metasurfaces, and active coding metasurfaces in radio frequency. It can easily avoid the transmission loss, and has the flexibility in phase control for different OAM modes. The proposed method paves a new way to generate the OAM vortex waves for radio and microwave wireless communication applications.

**Biography:** (M'06-SM'11) received the B. E. and Ph. D. degrees in electromagnetic fields and microwave technology from Xidian University, Xi'an, China, in 1998 and 2005, respectively.

He joined the School of Electronic Engineering, Xidian University, in 2005, and became a Full Professor in 2010. He was a Senior Research Associate in the Wireless Communications Research Center, City University of Hong Kong in 2006. He received the Japan Society for Promotion of Science (JSPS) Postdoctoral Fellowship and visited Tohoku University, Sendai, Japan, as a JSPS Fellow from Nov. 2006 to Nov. 2008. He was a Senior Visiting Scholar in the Pennsylvania State University, USA, from Dec. 2013 to July 2014. He is currently a Full Professor in the School of Electronic Engineering, Xidian University. He

is the Director of the Key Lab. of High Speed Circuit Design and EMC, Ministry of Education, China. He has authored or co-authored over 100 papers in refereed journal. His research interests include metamaterials, computational electromagnetics, electromagnetic compatibility, novel antennas, and wireless power transfer and harvesting technology.

Prof. Li received the Nomination Award of National Excellent Doctoral Dissertation of China in 2007. He won the Best Paper Award in the International Symposium on Antennas and Propagation in 2008. He received the Program for New Century Excellent Talents in University of the Ministry of Education of China in 2010. He received the First Prize of Awards for Scientific Research Results offered by Shaanxi Provincial Department of Education, China, in 2013. He received the IEEE APS Raj Mittra Travel Grant Senior Researcher Award in 2014. He received the Shaanxi Youth Science and Technology Award in 2016. Dr. Li is a senior member of the Chinese Institute of Electronics (CIE).