Colloquium

Date: Dec 9, 2014

Time: 12:00 – 1:00 pm

Place: LB270 (Dean's CR)

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Status and Current Trends on Time-Modulated Arrays at the ELEDIA Research Center

Time modulated arrays (TMAs) are antenna systems where a set of radio frequency (RF) switches is used in the beam forming network to modulate the static excitation weights of an ordinary phased array. The key features and advantages of TMA are: (i) the introduction of time as an additional degree of freedom in the array design requires the use of suitable and effective design/optimization methods to achieve the desired performance; (ii) the simplicity of the antenna reconfiguration based on the redefinition of the pulse sequence controlling the RF switches makes TMA an enabling technology for software-defined antenna systems; (iii) the multiple harmonics exploitation enables the use of TMAs for innovative applications where classical phased arrays are not applicable. The seminar is aimed at presenting an overview of the status as well as the current trends on TMAs at the ELEDIA Research Center, also envisaging further potential developments and applications.

Paolo Rocca received the MS degree in Telecommunications Engineering from the University of Trento (2005) and the PhD in Information and Communication Technologies (2008). He is an Assistant Professor at the Department of Information Engineering and Computer Science (University of Trento) and a member of the ELEDIA Research Center. He is the author/co-author of over 230 peer reviewed papers on international journals and conferences. He has been a visiting Ph.D. student at the Pennsylvania State University (USA.) and at the University Mediterranea of Reggio Calabria (Italy) and a visiting researcher at the Ecole Supérieure d'Electricité (Paris). His main interests are in the framework of antenna array synthesis and design, electromagnetic inverse scattering, and optimization techniques for electromagnetics. He serves as an Associate Editor of the IEEE Antennas and Wireless Propagation Letters.

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