

## Seminar on

### Recent Progress in Antenna Array Synthesis Methods

by

**Prof Yanhui Liu**

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**Date : 19 September 2017 (Tuesday)**

**Time : 11:00 am – 12:00 noon**

**Venue : Room 15-202, meeting room of State Key Laboratory of Millimeter Waves,  
15/F, Lau Ming Wai Academic Building, City University of Hong Kong**

#### Abstract

Antenna arrays have been widely applied in many high-performance wireless communication and radar systems. Antenna array synthesis techniques are usually developed to provide appropriate element positions and excitations for achieving the desired array pattern performance under some specified constraints. In this talk, we will summarize the array synthesis problems encountered in different applications, and then introduce some recent development in antenna array synthesis methods, mainly including stochastic optimization algorithms (e.g., GA, PSO and DE), mathematical programming (e.g., LP, SOCP and SDP) methods, iterative fast Fourier transform (FFT), adaptive array theory-based synthesis techniques. Most of them can deal with the pattern synthesis problems for arbitrary antenna arrays with diversity of element patterns. Plenty of antenna array synthesis examples will be presented, such as sidelobe suppression, mainlobe shaping, mutual coupling included pattern synthesis, phase-only synthesis, frequency-invariant sparse array synthesis, wideband and wide-angle beam-scanning sparse array synthesis, vectorial pattern synthesis for conformal arrays as well as polarization-reconfigurable array synthesis.

#### Biography

**Yanhui Liu** received the B.S. and Ph.D. degrees both in electrical engineering from the University of Electronic Science and Technology of China (UESTC), in 2004 and 2009, respectively. From September 2007 to June 2009, he was a Visiting Scholar in the Department of Electrical Engineering at Duke University, Durham, NC. From January 2010 to July 2011, he was an Antenna Engineer in Southwest Institute of Electronic Equipment (SWIEE), Chengdu, China. From July 2011, he has been with Xiamen University, China, where he is now a Full Professor and Ph. D supervisor of the Electronic Science and Technology.

Dr. Liu is a Member of IEEE, Senior Member of Chinese Institute of Electronics (CIE), Committee Member of both the CIE Antenna Society and its Electromagnetic Scattering and Inverse Scattering Branch. He was a recipient of the UESTC Outstanding Graduate Award in 2004, the Excellent Doctoral Dissertation Award of Sichuan Province of China in 2012, and the Excellent Supervisor for Master Thesis of Fujian Province of China in 2015. He has authored and co-authored over 100 peer-reviewed journal and conference papers (among them 43 paper have been published in SCI-indexed journals, including 12 papers published in IEEE Transactions). He holds 15 granted/public Chinese patents and owns 2 software copyrights. He is serving as a regular reviewer for several international journals including *IEEE Transactions on Antennas and Propagation*, *IEEE Transactions on Geosciences and Remote Sensing*, *IEEE Antennas and Wireless Propagation Letters*, *IEEE Microwave and Wireless Components Letters*, etc. He has served many times as TPC member or reviewer in IEEE APS, PIERS, APCAP and NCANT, and served as a session chair in NCANT2015, PIERS2016 and ACES2017-China. His research interests include antenna arrays, reconfigurable antennas, array signal processing.

\*\*\* ALL ARE WELCOME \*\*\*

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