

Seminar on

A Low-Cost MIMO DBF Radar Concept Based on A Single Transceiver

by

Prof. Yilong Lu

Nanyang Technological University, Singapore

Abstract

Digital beamforming (DBF) is an emerging technology desired by modern radar and communication systems for flexible and agile beam scanning and nulling. Though DBF technology is very attractive, its high performance is traditionally associated with heavy usage of microwave and digital components so the high cost. Multiple-Input Multiple-Output (MIMO) radar is another new technology originated from communications engineering and now find attractive applications in radar engineering.

In this presentation, a novel MIMO DBF radar new concept that uses only one transceiver (T/R) module and a time division multiplexing (TDM) signal selection scheme is introduced. In this system concept, the number of required microwave digital transmitter and receiver modules is reduced from the N+M for a conventional MIMO radar to 2 so as to drastically reduce system cost while maintain necessary and satisfactory radar performance.

Biography

LU Yilong received the B.Eng degree from Harbin Institute of Technology, the M.Eng degree from Tsinghua University, and the Ph.D degree from University College London (UCL). All degrees are in electronic engineering. He joined the School of Electrical and Electronic Engineering, Nanyang Technological University (NTU) in December 1991 and he is now a full Professor in the Communication Engineering Division. He was a Visiting Scientist at University of California - Los Angeles (UCLA) from October 1998 to June 1999.

His research interests include radar systems, antennas, array based signal processing, microwave devices, computational electromagnetics, and evolutionary computation for optimization of complex problems. Dr Lu has authored/co-authored about 300 journal and conference papers in his research areas. He served as the General Chair for 2009 Asia Pacific Microwave Conference and has been a member of Editorial Board for the research journal IET Radar, Sonar & Navigation since 2008.

Date : 19 Jul., 2012 (Thursday)
Time : 11:00am – 12:00noon
Venue : P4302, Academic 1,
City University of Hong Kong

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

Enquiries: Prof Kwok Wa Leung, Department of Electronic Engineering
Tel. : 3442 9659 Fax : 2788 7791 e-mail: eekleung@cityu.edu.hk