

INVITATION TO TECHNICAL TALK

“CURRENT DEVELOPMENT IN RADAR APPLICATION”

By

Assoc. Prof. Lt. Col. Dr. Khairol Amali Ahmad

Date: 6th Dec 2018 (Thursday)

Time: 2.00pm-3.30pm

Venue: NMES Lab, 1st Floor, Block B, Faculty of Engineering,
Multimedia University, Cyberjaya, Selangor
Related majoring: Telecommunication and Microwave

Abstract: Since the time when the first patented radar was used as a simple ship detection device to help avoid collisions in fog, the applications became numerous and the system concepts have been adapted to the available technologies. Common applications are speed control, air traffic control, airborne and space borne missions, military applications and remote sensing. Research for medical radar applications is well progressing and applications in automobile for safe and autonomous driving are also increasing. Nowadays, Radar sensors are omnipresent and can be found in many situations of everyday life. Consequently, advanced radar technologies are needed to face the problem of complex environments, with changing electromagnetic properties of targets, for different frequencies, polarimetric modes and configurations. Many of the upcoming sectors of technology growth, such as autonomous vehicles, unmanned aerial vehicles (UAV) and various commercial/civilian applications, rely upon solid-state radar and new methods of fabrication and programming. Such examples are GaN power transistors, low noise amplifiers (LNA) and active electronically steered array (AESA) antennas. Researchers are also developing sophisticated techniques that leverage sparsely populated arrays that are combined to form larger virtual arrays using multiple-input multiple-output (MIMO) technology. At Universiti Pertahanan Nasional Malaysia (UPNM), several researchers are engaging on some works related to Radar. The topics include PRI classification for ELINT, Interception and signal analysis of S band radar, Aircraft monitoring system based on secondary radar, Plasma antenna for RCS reduction, anti-radar coating, reflected Doppler spectrum characteristic of helicopter, helicopter flight path with minimisation to radar exposure and buried material classification and identification using GPR signal.

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Khairol Amali bin Ahmad obtained a BSc in Electrical Engineering in 1992 from the United States Military Academy, West Point and an MSc in Military Electronic Systems Engineering in 1999 from Cranfield University. While serving in the Malaysian Army, he was positioned in various posts and units including those dealing with engineering maintenance and procurement consultation of equipment. He then joined the National Defence University of Malaysia (NDUM) and completed his PhD from ISAE-SUPAERO, France in 2015. Currently, he is the Dean of the Engineering Faculty and an associate to Centre for Tropicalization (CENTROP) and Centre of Defence Research and Technology (CODRAT) in NDUM. He serves as a Vice Chairman of Malaysia Radar and Navigation Interest Group (MyRANig) of MySET. He is also a member of Institution of Engineering and Technology (IET), Board of Engineer Malaysia (BEM) and Malaysia Board of Technologists (MBOT). He has served as Organizing Chair of several international conferences such as DSTC2016, DSTC2018, IntCET2017 and IntCET2018. He has also delivered talk, guest lecturers in conference and serving as reviewer for several conferences and journals. Among his current research interests include signal processing related to signal propagation and radar performance in Tropical area, mesh networks for IoT applications and Delay\Disruption Tolerant Network (DTN).