

Seminar On**From FSS to PRS to PRS/AMC arrays, a historic advance for their use in high gain antennas****Professor Yiannis Vardaxoglou****Emeritus Professor of Wireless Communications****Loughborough University, The United Kingdom****Date : 17 December 2024 (Tuesday)****Time : 11:00 am – 12:00 nn****Venue : Room 15-202, 15/F, State Key Laboratory of Terahertz and Millimeter Waves,
Lau Ming Wai Academic Building, City University of Hong Kong****Abstract**

The talk will begin by covering the origins of Frequency Selective Surfaces (FSS) and how these simple geometrical periodic elements were first instigated for their implementation in high gain reflector antennas. Many satellite and base station antennas utilize FSS for multi banding and beam construction. As manufacturing processes and material properties improved, their resonant and passband characteristics also improved, so implementing them in commercial products became a reality. With regards to low profile antennas, placing a planar FSS at a $\lambda/2$ distance from a grounded prime radiator increased its gain by about 12 fold. The FSS has now become a Partial Reflecting Surface (PRS) as we utilize its reflection (amplitude and phase) only properties. We have then made the low profile antennas even more slick by introducing an Artificial Magnetic Conductor (AMC) ground, where the distance of the PRS from the prime radiator has reduced to $\lambda/4$. The talk will highlight some salient results of these surfaces and also discuss the challenges faced in both simulating and measuring the samples.

Biography

Professor Yiannis Vardaxoglou's research focuses primarily on metamaterial structures, additive manufacturing (3D printing) for RF/micro/mm wave engineering, Frequency Selective Surfaces (FSS) and antenna, as well as material, measurement techniques. He has founded the antennas and microwaves group at Loughborough university and recently led a team of the Symeta research centre (symeta.co.uk) funded by an EPSRC Grand Challenge award, researching in a wide-ranging metamaterial topics. He has served the EURAP, IEEE and IET communities and has been Dean at Loughborough University. He has founded and run the Loughborough Antennas and Propagation Conference (LAPC) for a decade. Professor Yiannis over the years has collaborated with many internationally leading universities and companies. He has authored over six hundred publications, several book chapters and a seminal book on FSS. He has several patents and is the founding director of antrum.co.uk.

***** ALL ARE WELCOME *******Enquiries:**

Prof. Chi Hou Chan, State Key Laboratory of Terahertz and Millimeter Waves, City University of Hong Kong

Email: eechic@cityu.edu.hk