

Seminar On

Meta-mirror: Toward Efficient Control of Electromagnetic Wave Scattering

By

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Time : 04:00 pm – 05:00 pm

**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

Controlling the electromagnetic (EM) wave scattering is an important issue in many practical applications such as in the EM interference, EM compatibility, as well as in antenna technique. Recently, the newly developed metasurface concept which represents for planar metamaterial composed of two-dimensionally arranged sub-wavelength meta-atoms has demonstrated its substantial ability to generate arbitrary wavefront by imparting spatially varying phase-discontinuities to the incident EM wave. Among various kinds of metasurfaces, the reflective ones, or called the meta-mirrors, have provided a new way for EM wave scattering control. In this talk, I will present our recent research works of applying meta-mirrors to EM wave abnormal reflection, orbital angular momentum (OAM) generation, EM scattering control, and radar cross section (RCS) reduction. As an interesting example of how the meta-mirror can improve the conventional method of EM scattering control, I will demonstrate its manipulation of EM wave scattering within deep-subwavelength thickness in a frequency-selective manner. Besides, I will show how the meta-mirrors can be applied to improve antenna performances. It is believed such concepts could open new routes to more diverse electromagnetic wave management and novel device designs, for example, the OAM wave radiation, camouflaged or invisible EM emitter, and low RCS antenna.

Biography

Yijun Feng received the Ph.D. degrees from the Department of Electronic Science and Engineering, Nanjing University, in 1992. Since then he has been a faculty member and is currently a full professor and the Deputy Dean of the School of Electronic Science and Engineering, Nanjing University. From September 1995 to July 1996, he was a visiting scientist with the Physics Department, Technical University of Denmark. From August 2001 to August 2002, he was a visiting researcher with the University of California at Berkeley.

Prof. Feng's research interests include the electromagnetic metamaterial and application to microwave and photonic devices, electromagnetic wave theory, and novel microwave functional materials. He has conducted more than twenty scientific research projects including National 973, 863 Projects, the National Natural Science Foundation projects and the National Key Research and Development Program in China. He has received the 2010 Science and Technology Award (First grade) of Jiangsu Province, China, and the 1995 Scientific and Technological Progress Award by Minister of Education, China. He has authored or co-authored over 180 peer-reviewed journal papers including in Science, Adv. Mater., Phys. Rev. Applied, Phys. Rev. B, Appl. Phys. Lett., Opt. Express, IEEE TAP, IEEE AWPL, etc, and over 150 referred international conference papers.

*** ALL ARE WELCOME ***

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