



THE CHINESE UNIVERSITY OF HONG KONG
Department of Electronic Engineering

Seminar

3D Glass Antennas

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Time: 11:00 a.m.
Place: Rm 222, Ho Sin Hang Engineering Building, CUHK

Abstract

For a long time, transparent antennas have been of planar (2D) structures that are based on the theory of patch antenna. Very recently, 3D transparent antennas have also been developed. The principle of 3D transparent antenna is based on the theory of dielectric resonator antenna (DRA); the resonance is caused by the whole 3D structure rather than a confined cavity as found in the patch-antenna case. The basic characteristics of glass DRA will be elucidated through the design of a hemispherical glass DRA. This glass DRA has been used as a focusing lens for a solar-cell panel, and the results of both the antenna and solar-cell panel parts will be shown.

Today, many modern buildings have antennas installed for indoor wireless communications. By using transparent DRAs as covers of the light sources, the antenna and lighting systems can be combined into one. Their installations can be done in one go, reducing the overall installation work and cost of the two systems. Also, since the light-cover DRA simply appears as part of the lighting system, it is an excellent camouflage antenna. Different light-cover DRAs will be given in this talk.

3D transparent antennas can also be designed as aesthetic glass wares or artworks. This idea is especially useful when camouflage antennas are needed due to psychological reasons. The results of the aesthetic glass antennas will be presented. Finally, glass antennas for other applications will be discussed in this talk.

Biography

Kwok Wa (Ben) Leung was born in Hong Kong. He received the B.Sc. degree in electronics and the Ph.D. degree in electronics engineering from the Chinese University of Hong Kong, Hong Kong, in 1990 and 1993, respectively. In 1994, he joined the Department of Electronic Engineering, City University of Hong Kong (CityU) and is currently a Chair Professor and the Associate Head. From January to June, 2006, he was a Visiting Professor at the Department of Electrical Engineering, The Pennsylvania State University, State College, PA, USA. His research interests include antenna designs and EM theory. Prof. Leung received the International Union of Radio Science (USRI) Young Scientists Awards in Japan and Russia, in 1993 and 1995, respectively. He received the CityU Research Excellence Award 2013 and Departmental Outstanding Teacher Awards in 2005, 2010, and 2011. He also received the prestigious First Class Award (Natural Science) in the 2016 Higher Education Outstanding Scientific Research Output Awards (Science and Technology) of the Ministry of Education, China. His students received the 2015 iWEM Student Best Paper Award, 2015 IEEE AP-S Eugene F. Knott Memorial Pre-Doctoral Research Award, and 2014 IEEE MTT-S Undergraduate/Pre-graduate Scholarship. He was Chair of the IEEE AP/MTT Hong Kong Joint Chapter for 2006 and 2007. He was the Technical Program Chair, 2008 Asia-Pacific Microwave Conference, Hong Kong, and the Technical Program Co-Chair, 2006 IEEE TENCON, Hong Kong. He was a Guest Editor of IET Microwaves, Antennas and Propagation. He served as Associate Editor for the IEEE Antennas and Wireless Propagation Letters. He was also an Associate Editor for the IEEE Transactions on Antennas and Propagation and received Transactions Commendation Certificates twice in 2009 and 2010 for his exceptional performance. He was the Editor-in-Chief of the Transactions from 2013 to 2016, being the first Chinese and also the first appointed from Asia since the journal was founded in 1952. He was a Distinguished Lecturer of the IEEE Antennas and Propagation Society and is currently a member of the AP-S Distinguished Lecturer Program Committee. He is a Fellow of IEEE.

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

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