SEMINAR

TOPIC	**Recent Progress in Low-Profile Modern Antennas**
SPEAKER	**Prof. Hisamatsu Nakano,** Hosei University, Tokyo, Japan
HOST	**Prof Yi Huang**
DATE	**Monday 13th August, 2018**
TIME	**10:00 – 11:00**
VENUE	**6th floor Conference Room, EEE Building**

SYNOPSIS

With rapid growth in modern communication systems, counter circularly polarized (CP) antennas, hyper-wideband antennas, and reconfigurable antennas have been receiving considerable attention. This seminar presents recent progress in these antennas, and is composed of three chapters. **Chapter 1** describes a metaline-based counter CP antenna, which radiates a left-handed CP wave across a specific frequency band and a right-handed CP wave across a different frequency band, without changing the feed point. This dual-band counter CP antenna is suitable for use in, for example, satellite communications. **Chapter 2** presents an antenna that shows hyper-wideband radiation characteristics ranging from 3 GHz to 50 GHz, which includes the frequency range for Ultra-Wide-Band systems (3.1 GHz to 10.6 GHz). The evolution from a body of revolution (BOR) antenna to the hyper-wideband antenna is presented for a better understanding of the radiation mechanism. **Chapter 3** investigates multi-beam reconfigurable antennas. Each antenna is composed of a single fed disc backed by a ground plane and multiple parasitic elements surrounding the disc. Analysis reveals reconfigurablity of the antenna characteristics, including the radiation pattern, input impedance, and gain, when the connection state (open or closed circuit with respect to the ground plane) of the bottom end of the parasitic elements is changed. Note that all antennas in this seminar have a low-profile structure.

BIOGRAPHY

About the Speaker

Dr. Hisamasu Nakano has been with Hosei University since 1973, where he is now a professor emeritus and a special-appointment researcher at the *Electromagnetic Wave Engineering Research Institute* attached to the graduate school of the same university. His research topics include numerical methods for low- and high-frequency antennas and optical waveguides. He has published over 300 articles in major journals and 11 books/book-chapters, including "*Low-profile Natural and Metamaterial Antennas* (IEEE Press, Wiley)." His significant contributions are the development of five integral equations for line antennas and the realization of numerous wideband antennas, including curl, spiral, helical, and cross-wire antennas. His other accomplishments include antennas for GPS, personal handy phone, space radio, electronic toll collection, RFID, UWB, and radar. Prof. Nakano received the "*H. A. Wheeler Award"* in 1994, "*Chen-To Tai Distinguished Educator Award"* in 2006, and "*Distinguished Achievement Award*" in 2016, all from IEEE ANTENNAS AND PROPAGATION SOCIETY. He was also the recipient of "*The Prize for Science and Technology*" from Japan's Minister of Education, Culture, and Sports, in 2010. Prof. Nakano is an Associate Editor of several journals and magazines, such as Electromagnetics and the IEEE Antennas and Propagation Magazine.