

Distinguished Seminar on

Recent Advance in Field Theory for THz Electronics

by

Professor Ching-Kuang Clive Tzuang

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Professor Emeritus of National Taiwan University

Abstract

Technology development in THz electronics and systems often mandates highly integrated RF electronics on a single chip and a robust integration of THz components and modules. The lecture will report how a sub-micron, nano-meter integrated circuit foundry process altered the conventional transmission line configurations used for THz RF component and module designs. This led to a recently developed field theory technique transforming a classical non-standard eigenvalue problem for solving the complex propagation constant of a hybrid modal field guided-wave structure such as microstrip into a standard eigenvalue problem tackling a general class of guided wave structures for THz electronics. The presentation will show several transmission-line-based design examples, validated by careful measurements.

Biography

Ching-Kuang Clive Tzuang (S'80–M'80–SM'92–F'99) received the B.S. degree in electronic engineering from National Chiao Tung University, Hsinchu, Taiwan, in 1977, the M.S. degree from the University of California at Los Angeles (UCLA), in 1980, and the Ph.D. degree in electrical engineering from The University of Texas at Austin, in 1986. From 1981 to 1984, he was with TRW, Redondo Beach, CA, where he developed high-speed analog and digital data converter integrated circuits (ICs). In 1986, he became an Associate Professor with the Institute of Communication Engineering, National Chiao Tung University, and a Full Professor in 1991. In February 2004, he joined the Graduate Institute of Communication Engineering, Department of Electrical Engineering, National Taiwan University, Taipei, Taiwan, where he conducted research on synthetic guiding structures for research and development of the RF sensor system-on-chip (SOC), integrating active and passive microwave/millimeter-wave RF signal-processing components into a single CMOS chip, including integrated large-array antennas for RF system applications. From 1992 to 1994, he was a team member, supervising the installation of the tracking radar system placed at the Center for Space and Remote Sensing Research, National Central University, Chung Li, Taiwan. He proposed and executed an eight-year Academic Excellent Program (2000–2008) funded by the Ministry of Education and National Science Council of Taiwan, focusing on the advanced microwave/millimeter-wave RF and communication technology development, and leading to the investigation of scaled microwave RF SOC technology, and participation in the IEEE 802.15 TG3c 60-GHz wireless personal area network (WPAN) standardization in collaboration with CoMPA, Yokosuka, Japan. Dr. Tzuang became Professor Emeritus of National Taiwan University in January 2012. He is now a distinguished professor at the School of Electronic Information Engineering, Tianjin University, foreseeing and supervising researches on THz sensor technology development, under the Global Recruit Thousand-Talent Program. In 2006-to-2014, he served the Independent Director of the Board of Directors of CyberTAN Technology Inc. He had supervised 30 Ph.D. students and 77 M.S. students. Dr. Tzuang helped establish the IEEE Microwave Theory and Techniques Society (IEEE MTT-S) Taipei Chapter, and served as secretary, vice chairman, and chairman in 1988, 1989, and 1990, respectively. He was the recipient of the 2008 Excellent Project Award presented by the Ministry of Transportation and Communications for practically demonstrating the real-time multilane traffic sensor using a CMOS-based lightweight radar. He was the editor-in-chief for the IEEE MICROWAVE AND WIRELESS COMPONENTS LETTERS between 2010 and 2012. Since 2013, he became a Board Member of Proceedings of the IEEE.

Date : 30 December 2014 (Tuesday)
Time : 09:30 am – 10:30 am
Venue : Room 15-202, meeting room of State Key Laboratory of Millimeter Waves,
15/F, Academic 3, City University of Hong Kong

*** ALL ARE WELCOME ***

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