IEEE (HK) Section AP/MTT

State Key Laboratory of Terahertz and Millimeter Waves
香港城市大學
City University of Hong Kong

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Seminar

Recent Developments in the Science and Application of Metamaterials

Prof. Ashwin K. Iyer
University of Alberta, Canada

Date: 3 December, 2021
Time: 10:00 am to 11:00 am (Hong Kong, UTC+8:00)
Venue: Online
Registration link: https://events.vtools.ieee.org/event/register/291019

Abstract

The spectacular early growth of metamaterials research was fueled by fantastic ideas like invisibility and subdiffraction imaging. These ideas, however, are just manifestations of a much more tangible and exciting concept: that metamaterials and metasurfaces afford unprecedented control over electromagnetic waves. Our group at the University of Alberta is focused on the theoretical understanding and experimental validation of new metamaterial phenomena, with a view to leveraging metamaterial-enabled functionalities in applications across the electromagnetic spectrum. In this talk, I will describe a few of our discoveries in antenna and waveguide miniaturization, novel sensors, and new mechanisms of imaging and wave manipulation using metasurfaces.

Biography

Ashwin K. Iyer received the Ph.D. degree in electrical engineering from the University of Toronto, Canada in 2009. He joined the faculty of the University of Alberta Dept. of Electrical & Computer Engineering in the fall of the same year and now holds the titles of Professor and Associate Chair (Undergraduate). He leads a team of talented graduate students in several areas of RF/microwave/millimeter-wave and antenna engineering. A large focus of his research involves the analysis, characterization, and experimental validation of metamaterial/metasurface phenomena and their applications.

Dr. Iyer was part of the pioneering effort at the University of Toronto in the early 2000s in developing metamaterials that exhibit a negative refractive index and demonstrating free-space subdiffraction imaging – contributions that have shaped the evolution of metamaterials research and mobilized later work in this area. He is an author of several papers in the fields of RF/microwave engineering, antennas, physics, and optics, and he has co-authored 4 invited chapters appearing in the earliest textbook references on the subject of metamaterials.

Dr. Iyer has received numerous awards, including the IEEE AP-S R. W. P. King Award (2008) and Donald G. Dudley Jr. Undergraduate Teaching Award (2015) and both of the University of Alberta's premier undergraduate teaching awards (2014, 2018). He serves the IEEE AP-S in many capacities, most recently as an elected member of the AP-S Administrative Committee. He was an Associate Editor of the IEEE Transactions on Antennas and Propagation (T-AP) from 2012 to 2018 and now serves as one of 10 international Track Editors. He was also the Lead Guest Editor for the IEEE T-AP Special Issue on Recent Advances in Metamaterials and Metasurfaces, which was the largest special issue in the history of the T-AP. He serves on the AP-S Education Committee and the AP-S Member Benefits Committees, under which he introduced the (now perennial) AP-S Master Class series, and he has served as a TPC Co-Chair for the AP-S/URSI Symposium three times (2015, 2016, 2020). Dr. Iyer is a registered member of the Association of Professional Engineers and Geoscientists of Alberta (APEGA).

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

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