



CEIES Short Course

Speaker: Prof. Christophe Caloz

Ecole Polytechnique de Montréal, Canada

Distinguished HiCi Adjunct Professor
King Abdulaziz University

Christophe Caloz received the Diplôme d'Ingénieur en Électricité and the Ph.D. degree from École Polytechnique Fédérale de Lausanne (EPFL), Switzerland, in 1995 and 2000, respectively. From 2001 to 2004, he was a Postdoctoral Research Fellow at the Microwave Electronics Laboratory, University of California at Los Angeles (UCLA). In June 2004, Dr. Caloz joined École Polytechnique of Montréal, where he is now a Full Professor, the holder of a Canada Research Chair (CRC) and the head of the Electromagnetics Research Group. He has authored and co-authored over 500 technical conference, letter and journal papers, 12 books and book chapters, and he holds several patents. His research interests include all fields of theoretical, computational and technological electromagnetics, with strong emphasis on emergent and multidisciplinary topics, including particularly metamaterials, nanoelectromagnetics, exotic antenna systems and real-time radio.

Session	Day	Date	Time
First	Wednesday	6/5/2015	10:00 – 10:45
Second	Wednesday	6/5/2015	11:00 – 11:45
Third	Wednesday	6/5/2015	13:00 – 13:45

Venue: Engineering Building, Second floor,
Room 24C28 (ECE Seminar Room)

Title

ELECTROMAGNETIC METAMSURFACES

Abstract

Metasurfaces, which may be seen as dimensional reductions of volumetric metamaterials and functional extensions of frequency selective surfaces represent a novel paradigm in modern science and technology. They offer indeed unprecedented solutions to manipulation electromagnetic waves in space and time, over a huge frequency range extending from microwaves to the visible. This is an emerging research field, but the potential application areas are huge, including material sciences, information and communication technologies, security, defense, transportation, aeronautics, environment, chemistry, medicine, biology and astronomy.

First, the course will introduce metasurfaces in the general context of metamaterials. Next, it will overview a number of recently reported metasurface concepts and applications. The third part will present two metasurface synthesis techniques – the first general and systematic ones reported to date: a spectral-momentum technique and a spatial-susceptibility technique. This will be followed by directions for practical meta-atom designs. Finally, some potential applications will be discussed.

ALL ARE CORDIALLY INVITED