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INSTITUTO DE FÍSICA APLICADA E ENGENHARIA DE MATERIAIS
INSTITUTE OF APPLIED PHYSICS AND MATERIALS ENGINEERING

IAPME Seminar

Second Order Optical Nonlinearity in Metasurfaces

Prof. Teruya Ishihara

University of Hong Kong

Date: 10/11/2023; Time: 10:00 – 11:00; Venue: N23-4018

Optical responses of materials are mainly determined by arrangement of electrons in the structure. Traditionally the object of research in this field was various materials in nature but now it was extended to artificial structures searching for drastically novel functionalities. While bulk quantities such as permittivity and permeability are designed in metamaterials, abrupt phase change in a scale much smaller than the wavelength plays a crucial role in metasurfaces. In this talk, I will review my research works along this line, mainly in metallic artificial structures but also in inorganic-organic hybrid perovskites, focusing on second-order optical nonlinearity including Second Harmonic Generation and Optical Rectification and related phenomena.



Prof. Teruya Ishihara graduated from the University of Tokyo in 1981. He joined Tohoku University as an assistant in 1984 until he moved to Hiroshima University in 1993. During this period he received his doctoral degree in physics in 1988 and spent two years at Brown University (USA). In 1999 he participated in an eight-year project in RIKEN. From 2003 to 2023 he was a professor in Department of Physics, Tohoku University. Now he is a visiting scholar at the University of Hong Kong. His research interest has been light-matter interaction specific to spatial arrangement.

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