

筑波大学大学院数理物質科学研究科 電子・物理工学専攻
専攻セミナーのご案内(2014)

講演者: Prof. Emmanuel Abraham (LOMA, Univ. Bordeaux 1, France)*

日時: 6月6日(金) 16:30 から

場所: 3F800 にて

題目: **From fundamental research to applications with Terahertz radiation**
(テラヘルツ波の基礎から応用まで)

概要:

Terahertz (THz) electromagnetic waves propose attractive features such as non-destructive analysis, transparency and good penetration depth through various materials, low scattering and broad spectral bandwidth. This presentation will focus on two research topics developed in LOMA (Univ. Bordeaux, France):

- Generation of intense THz sources and applications to nonlinear optics and spectroscopy. More specifically, I will present the observation of Kerr effect induced by an intense terahertz pulse in a (100) Gallium Phosphide crystal. The temporal and angular behaviors of the phase retardation have been measured and agree well with theoretical predictions. From these measurements, we extracted the two nonzero tensor elements of the third-order response function of the crystal in the terahertz range.

- THz imaging for the analysis of artifacts related to art conservation science, in collaboration with the Museum of Aquitaine. By using a portable 110 GHz 3D scanner, I will present the analysis of a 3500 years old Egyptian pottery and compared 3D THz imaging to X-ray and neutron beam imaging.

*<http://www.loma.cnrs.fr/spip.php?auteur6&lang=fr>