40th RAP Seminar

The 40th Seminar on RIKEN Center for Advanced Photonics

Language: Japanese

Date: **Feb.17(Fri) 16:00 - 17:00, 2017**

Location: **Cooperation Center, 3F, W319, Wako Campus, RIKEN**

(理研 和光キャンパス 研究交流棟 3階会議室 W319)

Title: **Room-temperature terahertz sources using resonant tunneling diodes**

共鳴トンネルダイオードによる半導体室温テラヘルツ光源の実現

Speaker: **Prof. Masahiro ASADA**

(Institute of Innovative Research, Tokyo Institute of Technology)

浅田　雅洋

（東京工業大学 科学技術創成研究院　教授）

In the terahertz (THz) frequency range between millimeter and light waves, various applications are expected, such as imaging, spectroscopy in chemistry and biotechnology, and high-speed communications. For these applications, a compact source for the THz wave is an important key component. Various semiconductor THz sources are being investigated now with optical and electronic devices. Resonant tunneling diodes (RTDs) are considered as one of the candidates for room-temperature THz sources from the electronic device side.
In this seminar, recent progress of RTD oscillators for the THz source will be introduced. Up to now, a fundamental oscillation close to 2 THz has been obtained at room temperature. This is the highest frequency of room-temperature electronic single sources to date. Structures toward high output power with various types of antennas and arrays are also discussed. For some applications, high-speed multi-channel wireless data transmission and spectroscopy with frequency-tunable oscillators are also shown.

Contact: rap-seminar_contact@riken.jp（ext.8532）　連絡先：光量子工学研究領域 セミナー担当