Terahertz Emission Spectroscopy and Microscopy on Semiconductors

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3:00pm – 4:00pm
Monday 23 Nov
Join via Zoom

* Registration is required to attend the seminar.

One can observe terahertz (THz) radiation from various materials when excited with a femtosecond laser. The excited carriers travel by their diffusion or drift according to the density gradient, the mobility difference, or built-in/external fields, inducing ultrafast photocurrent. THz waves reflect various kinds of ultrafast spatiotemporal carrier dynamics in their THz emission waveforms. The observation of the waveforms enables us to explore the ultrafast nature of electronic materials and devices as THz emission spectroscopy.

Since 1994, we have been working on THz emission spectroscopy and microscopy, and we named the system as a Laser THz Emission Microscope known as LTEM widely. We have applied LTEM to evaluate materials and devices for real use in the field of semiconductor R&D as well as fundamental material characterization. Here we explain some examples on semiconductors. The applications are MIS surface potential, solar cells, and wide bandgap semiconductors.

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