

Fundamental Experiments about Terahertz Electromagnetic Wave

Purpose: To realize the practical application of terahertz (THz) electromagnetic wave, it is necessary to construct fundamental theories and techniques of propagation and control of THz wave. In constructing them, interaction between THz wave and media needs to be investigated experimentally, and thus the captioned setup has been installed.

Main Specifications:

This setup consists of source of continuous THz wave and spectroscopic system, with which optical properties of media in THz region, including refractive and extinctive indices, can be measured.

(1) Source of continuous THz wave

Backward-wave oscillators (available frequency range...972-1409GHz, available power...1mW), power supply, permanent magnet

(2) Spectroscopic system in THz region

Data acquisition unit, polyethylene lenses, thin-film attenuator set, absorbing apertures, chopper, Golay cell detector, wire grid polarizers, wire grid analyzer, wire grid beam splitter, wire grid beam combiner, sample holder, phase shifter, phase modulator, absorber, optical rails, software for control of the system

Location and Date of Installation:

Komae Campus, September 2004

