

## DUAL THZ COMB SPECTROSCOPY

TAKESHI YASUI, *Graduate School of Technology, Industrial and Social Sciences, Tokushima University, Tokushima, Japan.*

Optical frequency combs are innovative tools for broadband spectroscopy because a series of comb modes can serve as frequency markers that are traceable to a microwave frequency standard. However, a mode distribution that is too discrete limits the spectral sampling interval to the mode frequency spacing even though individual mode linewidth is sufficiently narrow. Here, using a combination of a spectral interleaving and dual-comb spectroscopy in the terahertz (THz) region, we achieved a spectral sampling interval equal to the mode linewidth rather than the mode spacing. The spectrally interleaved THz comb was realized by sweeping the laser repetition frequency and interleaving additional frequency marks. In low-pressure gas spectroscopy, we achieved an improved spectral sampling density of 2.5MHz and enhanced spectral accuracy of  $8.39 \times 10^{-7}$  in the THz region. The proposed method is a powerful tool for simultaneously achieving high resolution, high accuracy, and broad spectral coverage in THz spectroscopy.