THz–fingerprint vibrational spectroscopy at an ultrafast spectral rate

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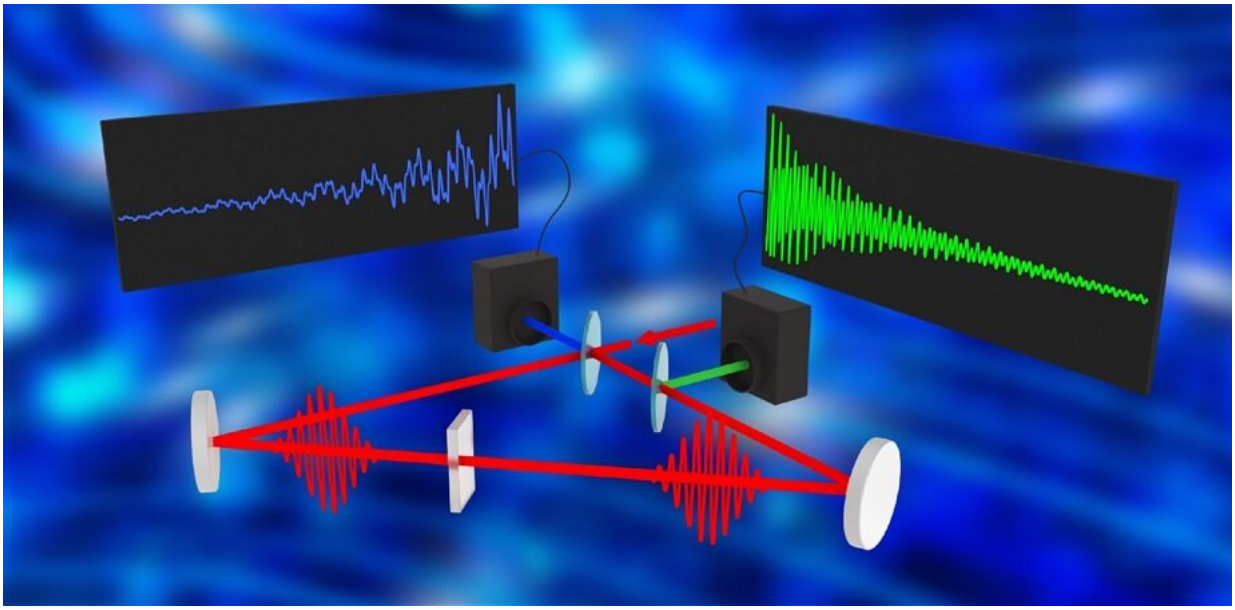

Sagnac interferometry and optical filtering come together to provide dual-region (THz–fingerprint) Raman spectral sensitivity at 24,000 spectra/s. Credit: Walker Peterson, University of Tokyo.

Raman spectroscopy offers a powerful approach to chemical measurement. By directly probing molecular vibrations, it obtains chemical specificity without the need for chemical labels. Thanks to these virtues, it has become an indispensable tool in a diverse range of fields, including materials science, biology, pharmaceuticals, and food science.

Broadband Raman vibrational spectra are commonly segmented into three distinct spectral regions: terahertz (THz), or low-frequency (