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Near-Field Infrared Microspectroscopy for Chemical Imaging

[Satoshi KAWATA](#)¹⁾³⁾⁴⁾ and [Yasushi INOUYE](#)²⁾³⁾⁴⁾

- 1) Department of Applied Physics, Osaka University
- 2) Graduate School of Frontier Biosciences, Osaka University
- 3) RIKEN
- 4) JST-CREST

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Abstract: Near-field optical microscopy provides us with super-resolving capability of optical and spectroscopic imaging/sensing by confining photons within a much smaller region than their wavelength. In this article, we review near-field infrared microscopy and spectroscopy for chemical analysis and imaging of materials at nanometric scale. After brief introduction to near-field optics, key elements for realization of near-field IR microscopy are described. Then, we show several experimental results of near-field IR spectroscopy using a several kinds of IR light sources and near-field probes. Possibility for application of FEL to near-field IR spectroscopy is also discussed.

Key Words: [Near-Field Optics](#), [NSOM](#), [Infrared Microspectroscopy](#), [FEL](#), [Nanoscience](#), [Nanotechnology](#)

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