

Abstract Submitted
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Nano-imaging in the black-body infrared near-field. ANDREW C. JONES, MARKUS B. RASCHKE, Departments of Chemistry and Physics, University of Washington — In order to probe material properties on the nanoscale, Scanning Near-field Optical Microscopy (SNOM) traditionally relies on the use of external far-field light sources. Recent experiments have demonstrated the alternative use of the evanescent thermal black-body radiation in scattering-SNOM [1]. Here, we explore the use of both heated samples and heated probe tips for scattering type SNOM in combination with Fourier transform infrared spectroscopy (FTIR) of the scattered thermal blackbody near-field radiation of IR nano-antennas and surface phonon excitations. We relate the observed and theoretically expected signal strength with the resonantly enhanced electromagnetic near-field density of states. Our result illustrates the potential as well as the limitations of the use of thermal evanescent fields for nano-imaging. [1] De Wilde, Y. et al. *Nature*. 444:740-743 (2006)

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