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Apertureless scanning near-field microscopy at terahertz frequencies: development and applications H. T. STINSON, J. S. WU, A. S. MCLEOD, Univeristy of California - San Diego, J. RAN, Columbia University, A. STERNBACH, M. M. FOGLER, Univeristy of California - San Diego, D. N. BASOV, Columbia University — We discuss the development of an apertureless near-field scanning microscope capable of nano-scale imaging and spectroscopy measurements in the terahertz frequency range. We describe potential applications of this instrument at both elevated and cryogenic temperatures; such as imaging the metal-insulator transition in vanadium dioxide (VO_2) thin films,[1] and spectroscopy measurements of high-temperature cuprate superconductors.[2]

[1]Qazilbash et. al., **Science** 318, 1750 (2007)
[2]Stinson et. al., **Phys. Rev. B** 90, 014502 (2014)

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