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Variable Temperature Scanning Tunneling Spectroscopy of Inhomogeneous High Temperature Superconductors E.W. HUDSON, M. C. BOYER, W.D. WISE, KAMALESH CHATTERJEE, YAYU WANG, MIT, TAKESHI KONDO, Ames Laboratory and Department of Physics and Astronomy, Iowa State University, TSUNEHIRO TAKEUCHI, HIROSHI IKUTA, Nagoya University — Scanning Tunneling Microscopy (STM) of the high temperature superconductor $Bi_2Sr_2CaCu_2O_{8+x}$ (Bi-2212) long ago revealed large gap variations on nanometer length scales. In this talk I will discuss new results from our temperature dependent STM studies of Bi-2201. In particular, I will focus on the effects of these variations on other observables, such as the states generated around single atom impurities, as well as on other measurement techniques, such as angle resolved photoemission (ARPES).

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