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High Resolution Scanning Tunneling Microscopy of  $Na_xCoO_2$ M.C. BOYER, W.D. WISE, KAMALESH CHATTERJEE, M.A. ZIMMERMANN, E.W. HUDSON, MIT — Since the 2003 discovery of superconductivity in water doped sodium cobaltate ( $Na_xCoO_2$ ), many experimental techniques have been brought to bear on not only the superconducting parent state ( $x \sim 0.3$ ) but on other dopings as well. Unfortunately, scanning tunneling microscopy, which has shown so much success in the study of the related cuprates, has not been as successful in the study of  $Na_xCoO_2$ . We will present results from topographic and spectroscopic measurements of  $Na_xCoO_2$  made using our variable temperature scanning tunneling microscope, with a focus on changes observed between 130 K and 4 K.

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