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Imaging Locally Oriented Charge Modulations in a Cuprate Superconductor JENNIFER HOFFMAN, ELIZABETH MAIN, Harvard University, BENJAMIN PHILLABAUM, Purdue University, HIROSHI IKUTA, Nagoya University, ERIC HUDSON, Penn State University, KARIN DAHMEN, University of Illinois, Urbana-Champaign, ERICA CARLSON, Purdue University — We use scanning tunneling microscopy to image the local orientation of the static charge modulations in $Bi_{2-y}Pb_ySr_{2-z}LazCuO_{6+x}$, for samples spanning a wide range of doping. For each sample, we compute the size distribution of locally x-oriented and locally y-oriented clusters. We analyze the size distributions within a random field Ising model to obtain the fractal dimension and other critical exponents. We discuss the utility of scaling collapse to extract the critical doping x_c of the smectic charge order in $Bi_{2-y}Pb_ySr_{2-z}LazCuO_{6+x}$.

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