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Fluctuating stripes at the onset of the pseudogap in the high-Tc superconductor Bi2Sr2CaCu2O8+x[1] COLIN PARKER, PEGOR AYNAJIAN, EDUARDO H. DA SILVA NETO, AAKASH PUSHP, Princeton University, SHIMPEI ONO, CRIEPI, Japan, JINSHENG WEN, ZHIJUN XU, GENDA GU, Brookhaven National Laboratory, ALI YAZDANI, Princeton University — A long standing question in high-T_c cuprates has been the interplay between pseudogap, which is generic to all hole-doped cuprates, and stripes, whose static form occurs in only one family of cuprates over a narrow range of the phase diagram. I will present new data [1] on the spatial reorganization of electronic states at the onset of the pseudogap state ($T*$) in the high-temperature superconductor $Bi_2Sr_2CaCu_2O_8 + x$ taken with a scanning tunneling microscope (STM). The onset of the pseudogap phase coincides with the appearance of electronic patterns whose doping and energy dependence has the predicted characteristics of fluctuating stripes. While demonstrating that the fluctuating stripes emerge with the onset of the pseudogap state and occur over a large part of the cuprate phase diagram, these experiments indicate that they are a consequence of pseudogap behavior rather than its cause.

[1] C. V. Parker, et al, Nature 2010 (in press) doi:10.1038/nature09597

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