

Abstract Submitted
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Combinatorial Deposition of $\text{La}_{2-x}\text{Ba}_x\text{CuO}_4$ Thin Films Across the $x=1/8$ Anomaly¹ JUSTIN LANE, ADAM WEIS, AZTON WELLS, University of Illinois at Urbana-Champaign, SO RA CHUNG, Belmont University, PATHIKUMAR SELLAPPAN, WALTRAUD KRIVEN, DALE VAN HARLINGEN, University of Illinois at Urbana-Champaign — $\text{La}_{2-x}\text{Ba}_x\text{CuO}_4$ (LBCO) has an unusual phase diagram that includes a charge stripe phase in proximity to suppressed superconductivity near $x=1/8$ doping. We will present recent improvements to LBCO thin films grown by pulsed laser deposition from high-quality metalorganic-synthesized ceramics. Using a combination of Ba-poor and Ba-rich deposition sources and a combinatorial pulsed laser deposition technique, we are able to tune doping of LBCO and measure the superconducting transition temperature as a function of doping. We correlate the spatial offset between deposition plume and substrate with the resultant sample's dopant distribution. Characterization of these films by a high-throughput resistance technique and use of the samples in ongoing experiments will be discussed.

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