

Abstract Submitted  
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**Thin Film Growth via Pulsed Laser Deposition and Characterization of the Electron-Doped Superconductor  $\text{Sm}_{2-x}\text{Ce}_x\text{CuO}_{4-y}$**  D. J. SCANDERBEG, B. J. TAYLOR, Y. KIM, M. B. MAPLE, U. California, San Diego — We report the growth and characterization of the electron-doped superconductor  $\text{Sm}_{2-x}\text{Ce}_x\text{CuO}_{4-y}$  (SCCO). The growth conditions and in-situ annealing procedures for the thin films grown on yttria-stabilized zirconia (YSZ) substrates have been established. These are reported along with x-ray diffraction measurements, magnetic susceptibility, and magnetoresistance  $R(H, T)$  data. Scaling analysis of the transport measurements yields a diagram of the vortex-glass melting line. The films have a superconducting transition temperature as high as  $T_c = 17.8$  K and a transition width  $\Delta T_c = 0.93$  K. A comparison between our results on thin films and those on single crystals is also made. The results from additional underdoped ( $x < 0.15$ ) and overdoped ( $x > 0.15$ ) concentrations are also presented. High magnetic field and low temperature data were taken at the National High Magnetic Field Laboratory (NHMFL) in Tallahassee, Florida. This research was supported by the US Department of Energy under Grant No. FG03-86ER-45230 and the CULAR program no. 9985-001.

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