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**Magnetic field driven superconductor-insulator transition in  $La_{2-x}Sr_xCuO_4$**  BRIGITTE LERIDON, CNRS, UMR8213/LPEM - ESPCI Paris-Tech - UPMC, 10 rue Vauquelin, 75005 Paris, JOHAN VANACKEN, VICTOR MOSHCHALOV, INPAC, KULeuven, Celestijnenlaan 200 D, B-3001 Heverlee, Belgium, BAPTISTE VIGNOLLE, CNRS/LNCMI, 143 Avenue de Ranguel, 31400 Toulouse, France, RAJNI PORWAL, RAMESH BUDHANI, NPL, CSIR, New Delhi 110012, and IIT Kanpur, Kanpur 208016, India — The magnetic field driven superconductor/insulator transition is studied in a large variety of  $La_{2-x}Sr_xCuO_4$  thin films of various Sr dopings. Temperature dependence of the resistivity down to 4.2 or 1.5 K under high pulsed magnetic field (up to 57 T) is analyzed. In particular, the existence of plateaus in the resistance versus temperature curves for given values of the magnetic field is carefully investigated. For underdoped samples, these plateaus, that are observable only in a limited range of temperatures, are shown to be associated to scaling behaviour of the resistance versus magnetic field curves, evocative of the presence of a quantum critical point. A three-dimensional (H,x,T) phase diagram is proposed, taking into account the intrinsic lamellar nature of the materials by the existence of a temperature crossover from quantum-two-dimensional to three-dimensional behavior.

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