

Abstract Submitted  
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**Superconducting fluctuations in underdoped  $La_{2-x}Sr_xCuO_4$  thin films** BRIGITTE LERIDON, CNRS/ESPCI, 10 rue Vauquelin, 75005 Paris, France, JOHAN VANACKEN<sup>1</sup>, TOM WAMBECQ, VICTOR MOSHCHALOV, INPAC, KU Leuven, Celestijnenelaan 200 D, B-3001 Heverlee, Belgium — Underdoped  $La_{2-x}Sr_xCuO_4$  thin films resistivity was measured under high pulsed magnetic fields (50 T) in order to suppress superconductivity and extract the paraconductivity, or the conductivity due to superconducting fluctuations. Quite surprisingly, this paraconductivity is consistent *without any adjustable parameter* with a Gaussian model for the fluctuations, where both amplitude and phase of the order parameter fluctuate, as calculated by Aslamazov and Larkin (AL). This tends to indicate that the pairs responsible for the transition at  $T_C$  are not preformed, as that would rather lead to Kosterlitz-Thouless type fluctuations. At higher temperature, the paraconductivity departs from AL behavior and follows a power law in  $1/T$ . At intermediate magnetic fields, the possibility of a quantum superconductor/insulator phase transition is investigated, as a plateau in the resistance versus temperature is observed under perpendicular magnetic field for all underdoped films.

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