

CEA/DSM

## Service de **PHYSIQUE THEORIQUE** de Saclay

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Séminaire général du SPhT

(Séminaire général commun SPhT-SPEC)

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### **Metal-insulator transition in two dimensions**

The observation of a 2D metal-insulator transition was first reported by S. V. Kravchenko, G. V. Kravchenko, J. E. Furneaux, V. M. Pudalov (Phys. Rev. B 50, 8038 (1994)). A recent theory of this transition (Punnoose and Finkelstein, Science 310, 289 (2005)) explains all the most striking features of this phenomenon, including the temperature-independent separatrix between metallic and insulating phases, quenching of the metallic state by a magnetic field, critical behavior of the spin susceptibility and dramatic enhancement of the effective mass in the vicinity of the transition. I will review the key experimental facts and make a detailed comparison between experiments and the theory.

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*Orme des Merisiers, CEA/Saclay*

**Bt. 774 - Salle Claude ITZYKSON**

**Mardi 9 mai 2006**

**11h00**