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**Quantum dots: a new tool for studying quantum phase transitions (QPT)** N. ROCH, S. FLORENS, V. BOUCHIAT, W. WERNSDORFER, F. BALESTRO, Institut Neel, CNRS, Grenoble, France — QPT were studied in many different systems: spin chains, strongly correlated materials, high Tc superconductors, etc. but all the properties (magnetism, superconductivity ...) of these materials can be difficult to control. On the other hand, thanks to microelectronic technologies, it is now possible to obtain tailor-made quantum dots in which all the interactions can be tuned finely. It was then proposed by several theoretic papers [1] to use them as model systems for probing QPT. In this experimental work, we observed a screening/non screening QPT transition in a single-molecule transistor. We will present a full study as a function of magnetic field, bias voltage and temperature [2].

[1] M.Vojta, Philosophical Magazine,86:13,1807 - 1846 (2006)

[2] N.Roch et al. , Nature 453, 633-637 (2008)

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