

**ON THE RANGE OF INTERACTIONS FROM FINITE SIZE
SCALING IN MAGNETIC Ni NANOWIRES**

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A recent experiment [PRB 61 (2000) R6463] which reports a dependence of magnetic properties of Ni nanowires on their size has been reinterpreted in terms of localized spin model with spin-spin interactions ranging beyond nearest neighbors. Two possible mechanisms of variation of magnetic properties have been considered. Firstly, a simple finite size scaling with a shift of *pseudocritical* temperature with the size of the system. Secondly, a crossover to classical critical behavior [PRE 59 (1999) 4997] as a function of the range of interactions R between spins – with R treated as a parameter. Finally, the value of $R \approx 1nm$ of the exchange interactions has been found by a fit to a literature experiment on Ni nanowires.

9.7 cm

13.4 cm

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