

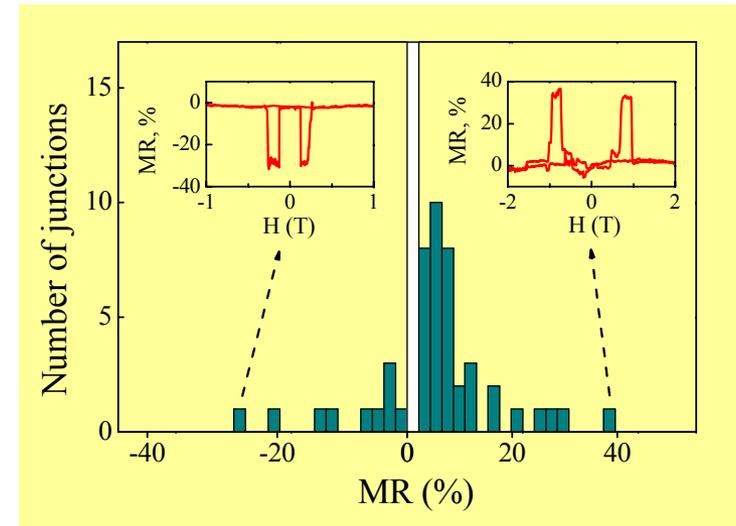
# Magnetoresistance in Ni/NiO/Co Nanojunctions

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Magneto-electronic transport properties of magnetic tunnel junctions are used for magnetic sensors and the next generation of portable high-density memory devices. Testing their properties at the nanoscale allows new physics and enhanced properties to be found.

Experiments performed on electrodeposited Ni/NiO/Co tunnel junctions of cross section smaller than  $0.01\mu\text{m}^2$  show that both positive and negative values of magnetoresistance are possible, with maximum values one order of magnitude larger than what is observed on large-area junctions. A model of resonant tunneling through a randomly positioned impurity explains the statistics of the data.

*Phys. Rev. Lett.* **90**, 186602 (2003).



Magnetoresistance distribution in Ni/NiO/Co nanojunctions. Inserts show MR curves for the highest positive and negative values of MR observed.

