



Functional oxides


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EU

Functional oxides – areas of interest

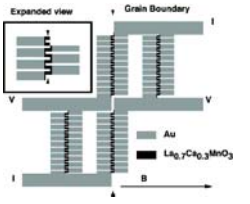
Manganites
Fascinating interplay between magnetic/electronic/crystal structures

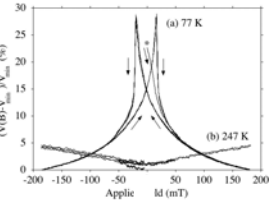
Multiferroics & magnetoelectrics
Interconversion of magnetic and electrical signals

Spintronics
Exploiting spin in electronics

Ferrocalorics
Solid-state heat pumps

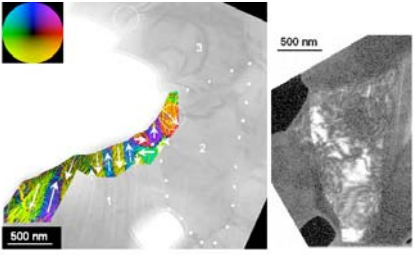
Manganites: large grain boundary magnetoresistance





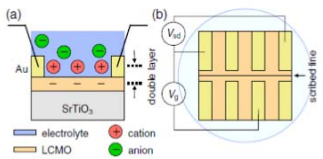
Nature **387** (1997) 266

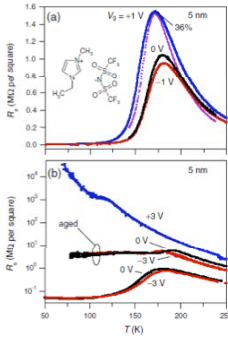
Manganites: discovery of charge-ordered ferromagnetic phase



Nature **420** (2002) 797

Manganites: electrostatic doping





Phys Rev Lett **102** (2009) 136402

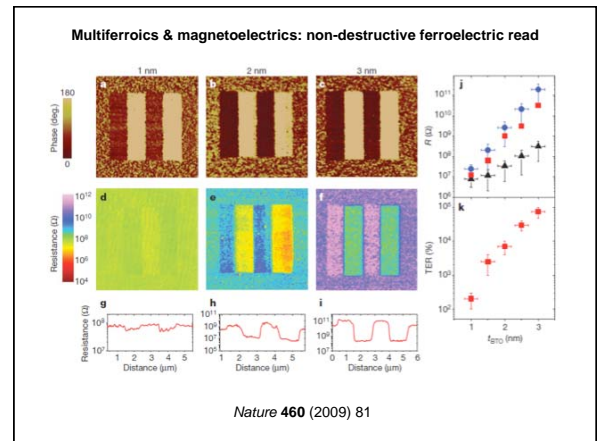
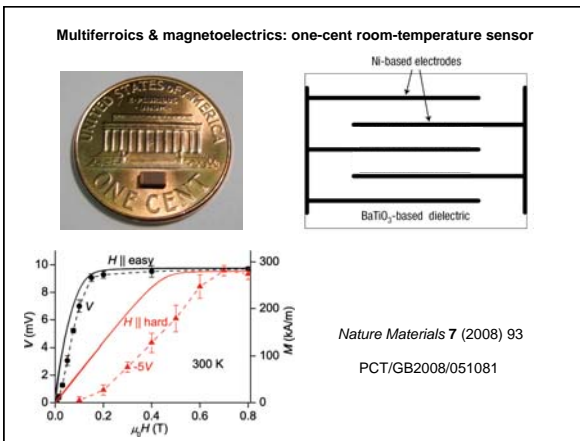
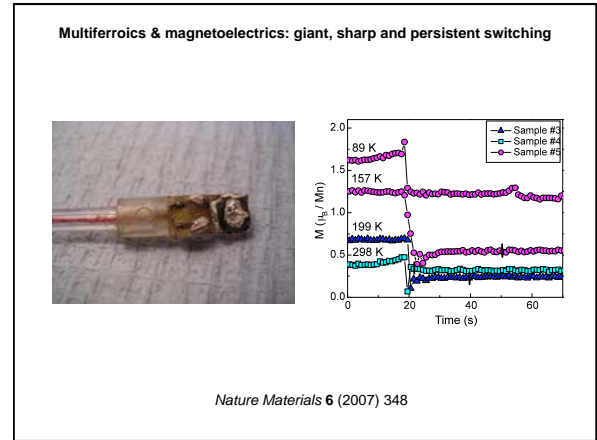
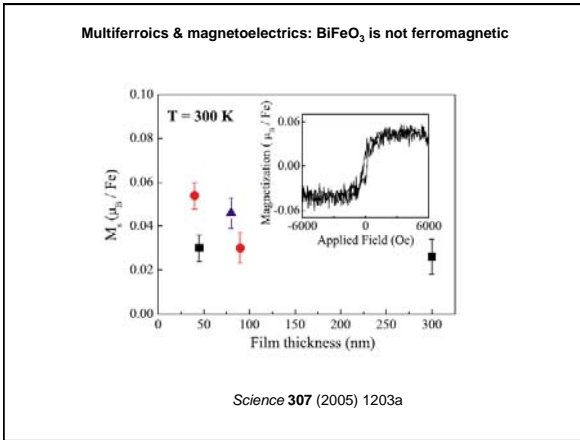
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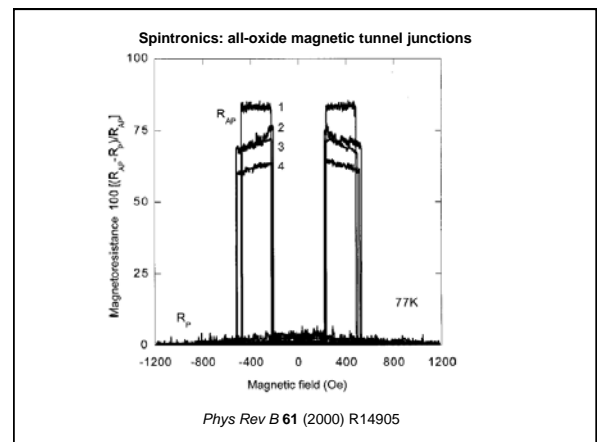
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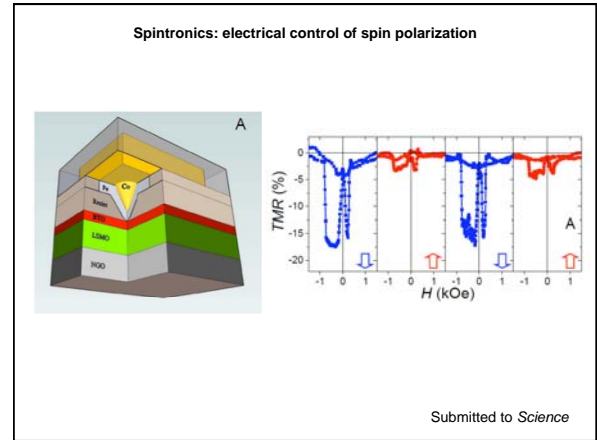
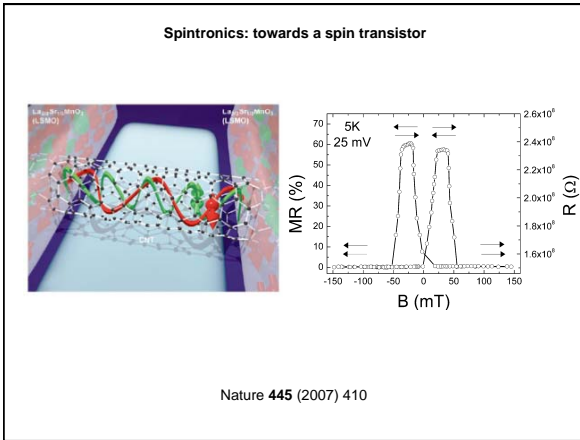
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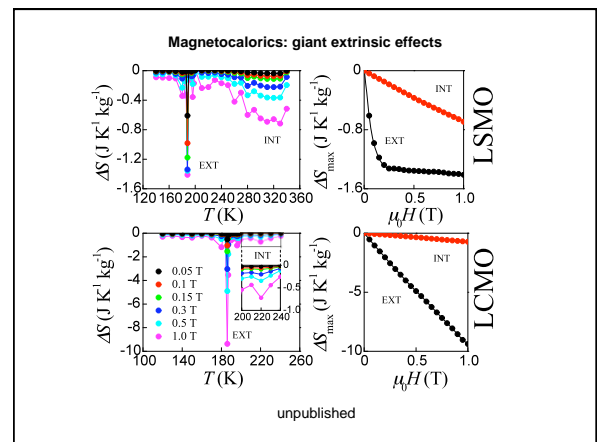
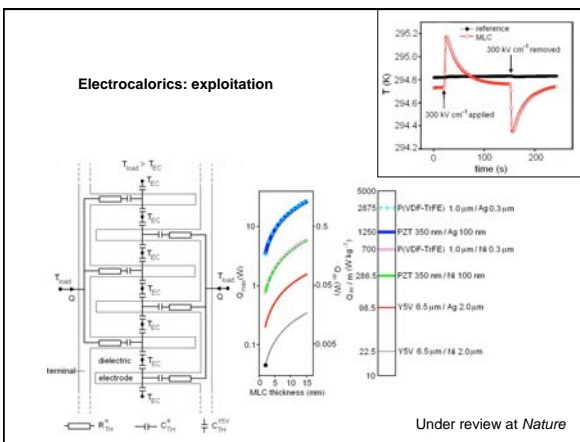
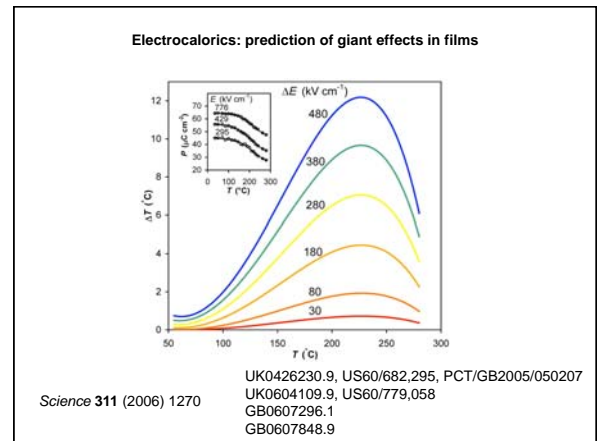
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Functional oxides – future promise

Manganites

Exploit phase separation and 100% spin-polarized electrons

Multiferroics & magnetoelectrics

Sensors / data storage

Spintronics

Non-volatile, low power computing and memory

Ferrocalorics

Energy-efficient cooling