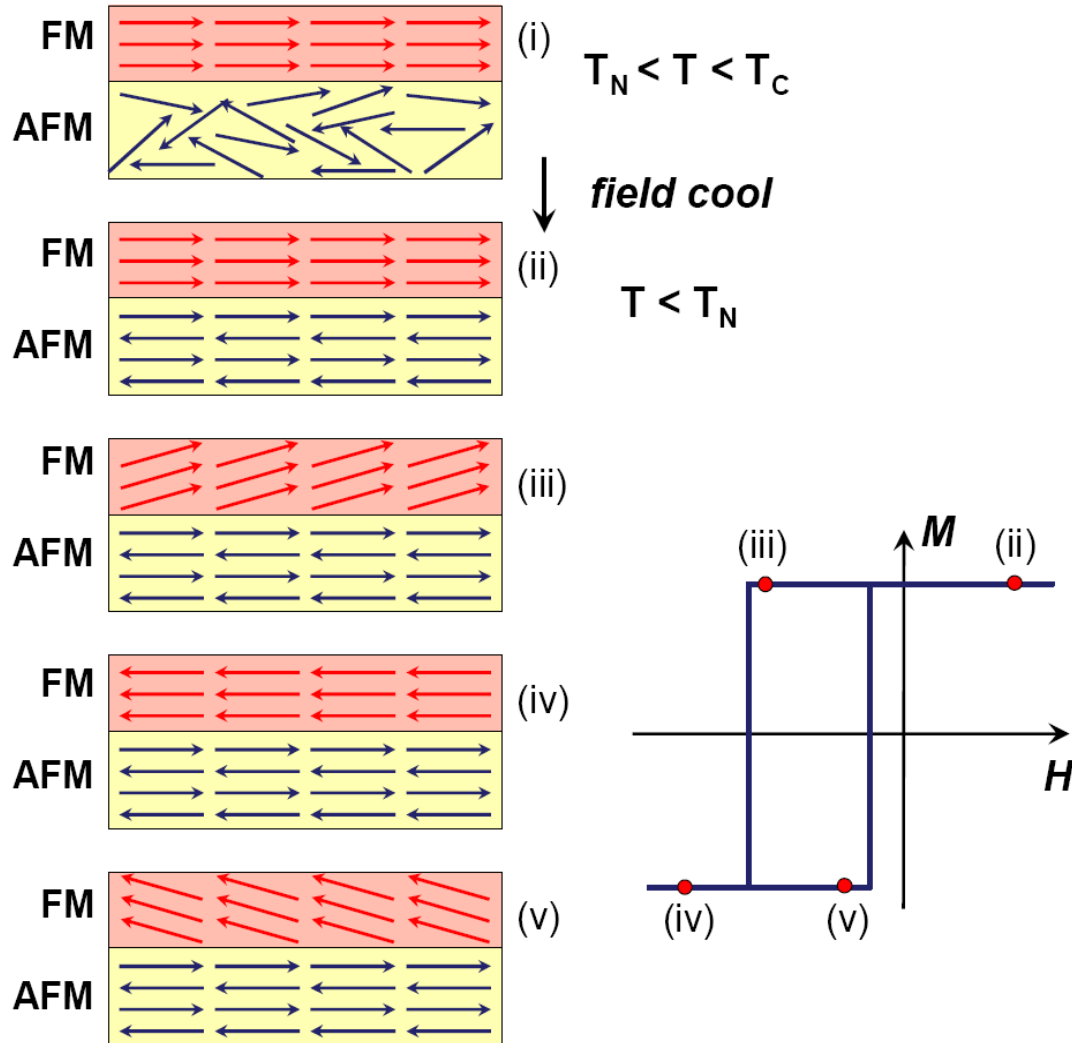
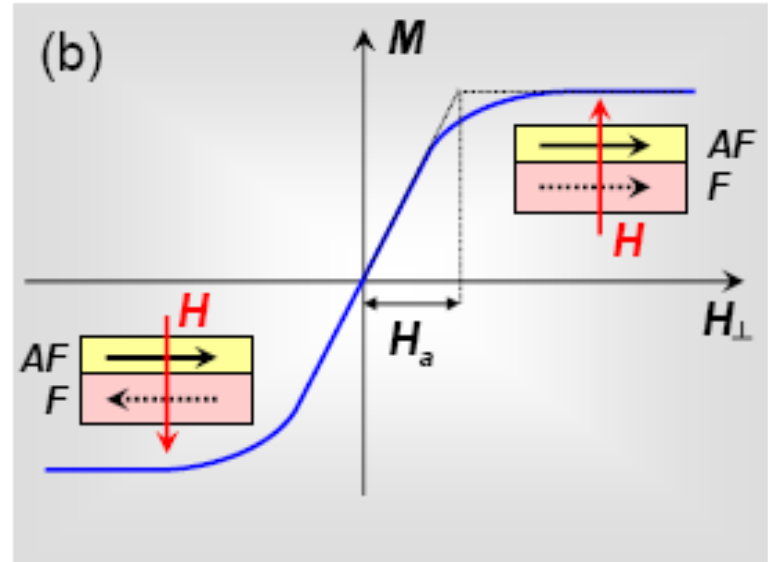
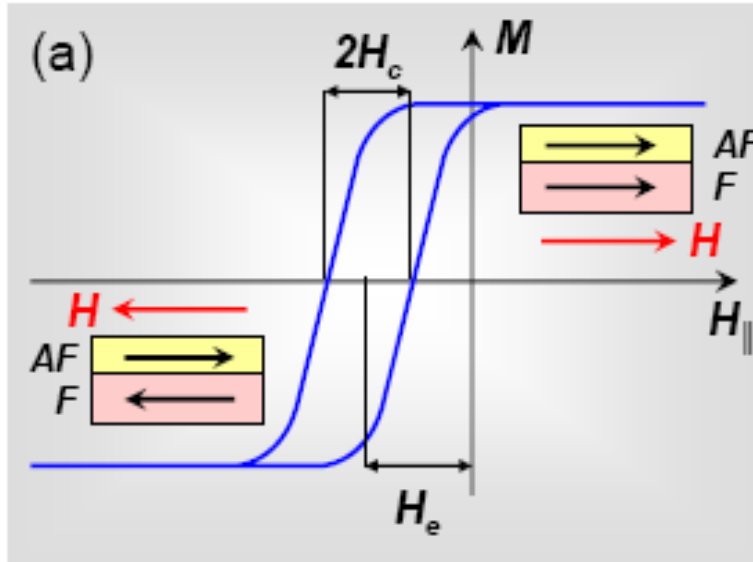


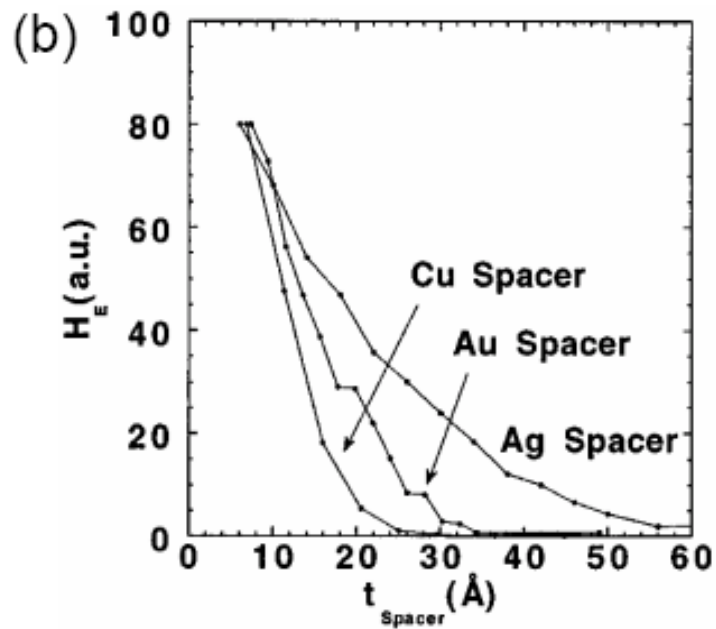
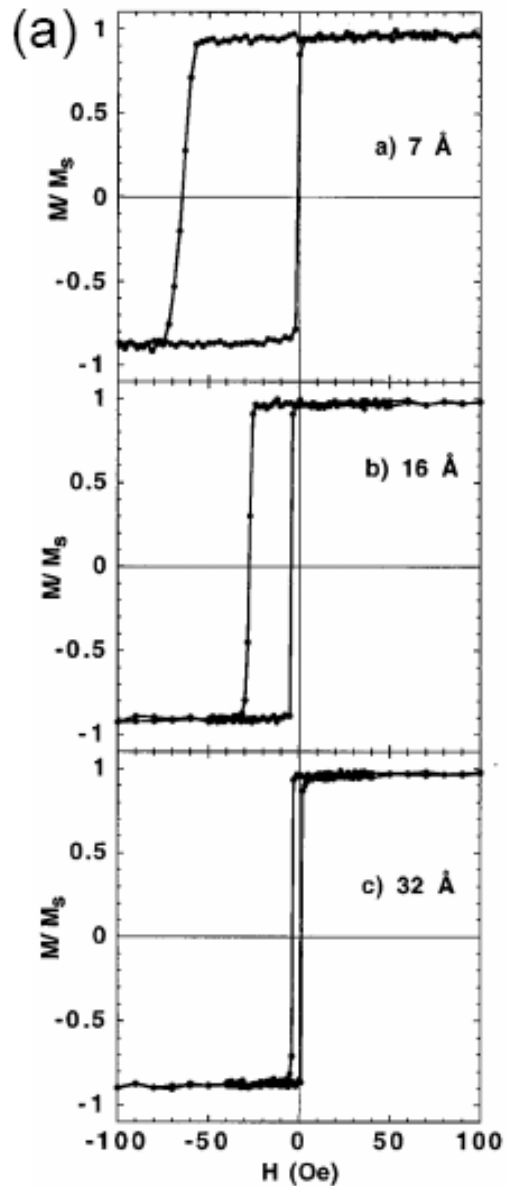
# Spin Valves (I) Exchange Coupling



# Spin Valves (I) Exchange Coupling



# Spin Valves (I) Exchange Coupling

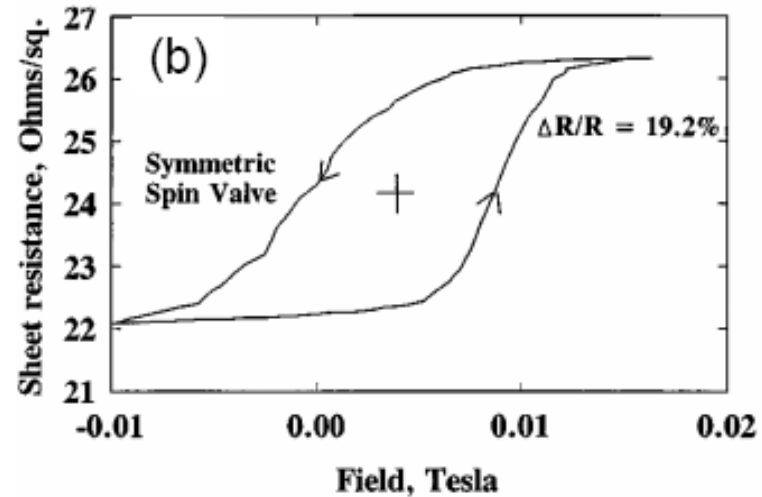
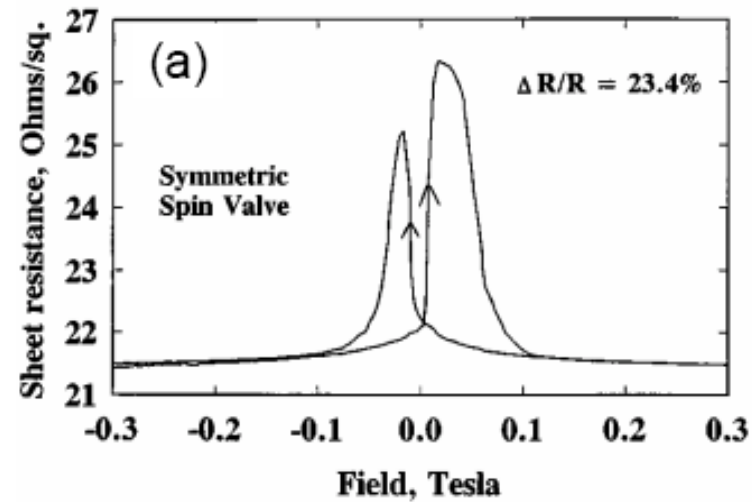
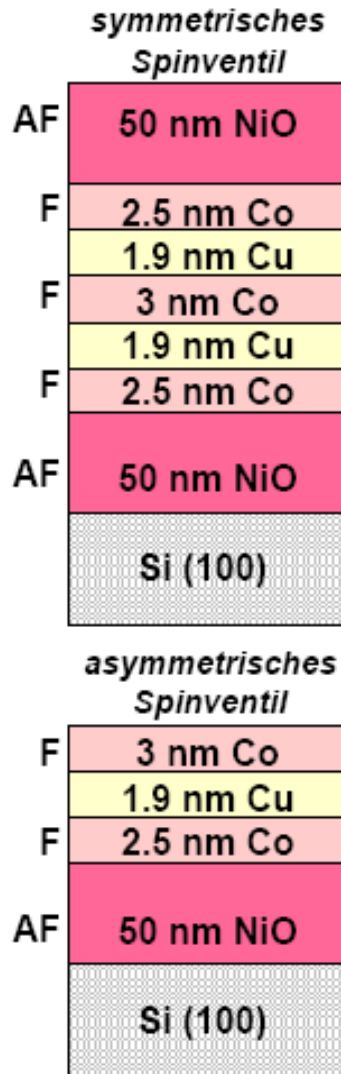


Ni<sub>81</sub>Fe<sub>19</sub> (30nm) / Au / CoO (30nm)

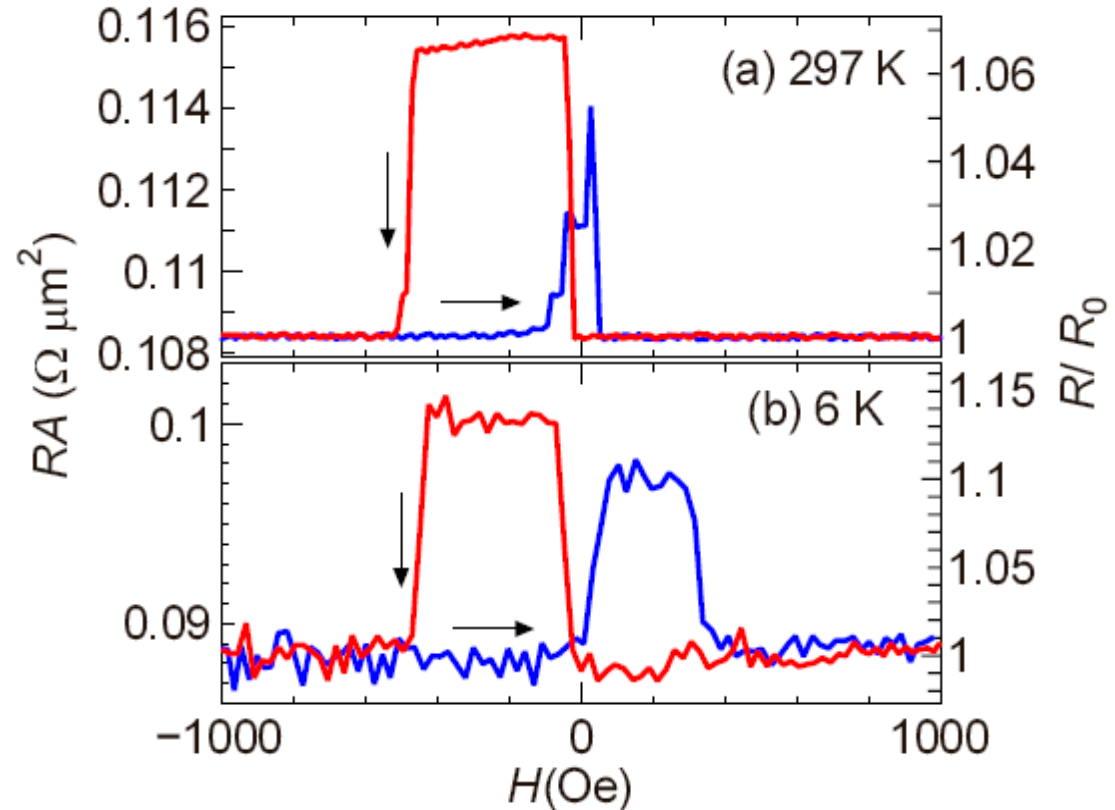
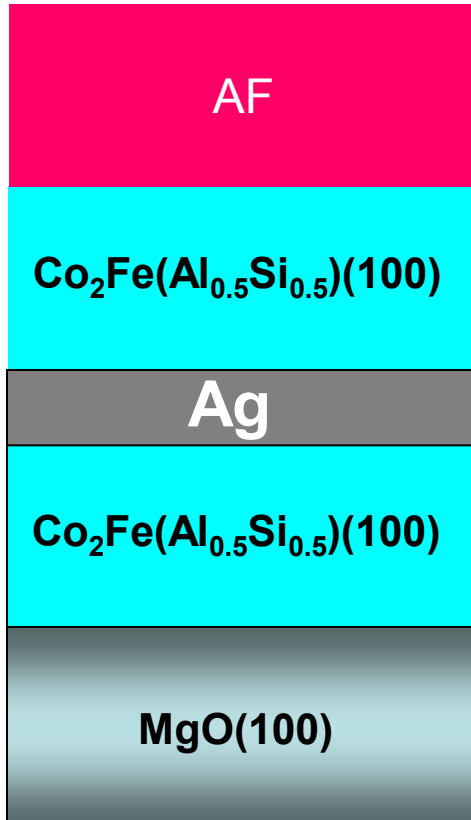
Tabelle 6.1: Vergleich der charakteristischen Parameter und Eigenschaften von antiferromagnetischen Materialien für die Austauschkopplung. <sup>a</sup> A. Veloso et al., IEEE Trans. Magn. 34, 2343 (1998); <sup>b</sup> M. Mao et al., IEEE Trans. Magn. 35, 3913 (1999) und H. Fuke et al., Appl. Phys. Lett. 75, 3680 (1999); <sup>c</sup> M. Lederman, IEEE Trans. Magn. 35, 794 (1999); <sup>d</sup> W. C. Cain, J. Appl. Phys. 61, 4170 (1987).

material	$T_N$ (°C)	$T_B$ (°C)	$E_{ex}$ (mJ/m <sup>2</sup> )	$H_e$ (kA/m)	corrosion resistance	anneal	Ref.
Fe <sub>50</sub> Mn <sub>50</sub>	240	150	0.13	20	--	nein	a
NiO	250	190	< 0.1	11	++	nein	a
Mn <sub>78</sub> Rd <sub>22</sub>	580	235	0.2		+	nein	a
Mn <sub>76</sub> Ir <sub>24</sub>	420	300	0.2 - 0.4		+	ja	b
Mn <sub>50</sub> Ni <sub>50</sub>	780	375 - 425	0.37 - 35	15	+	ja	a,c
Mn <sub>50</sub> Pt <sub>50</sub>	700	350	0.3 - 0.4	80	++	ja	c
a - Tb <sub>1-x</sub> Co <sub>x</sub>	330	>250	0.33	55		ja	d

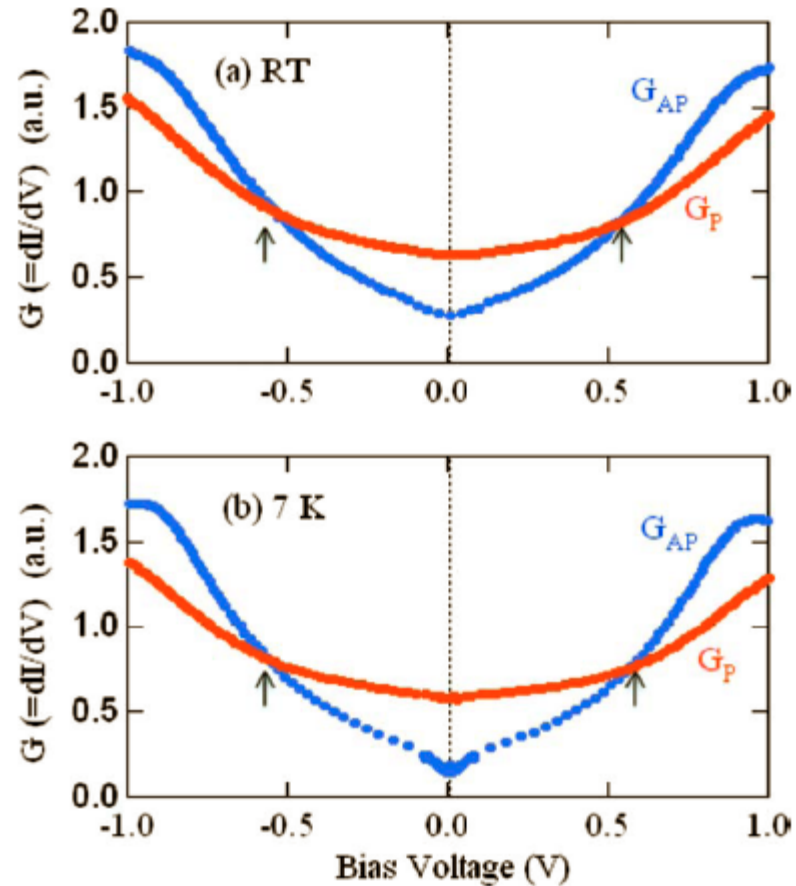
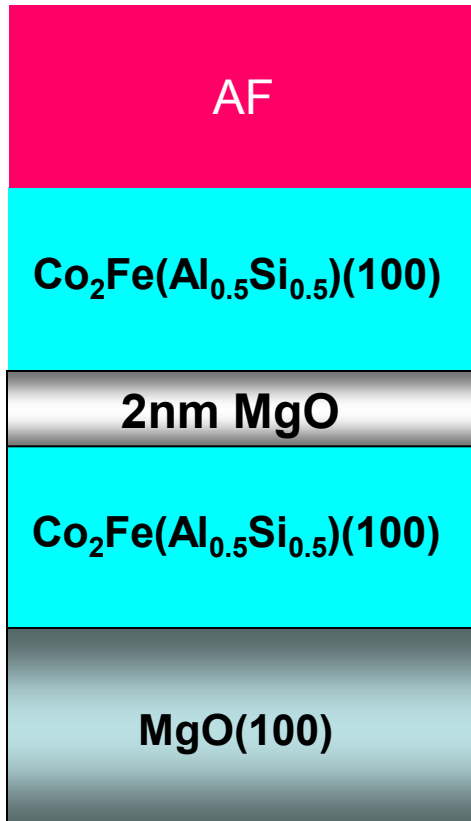
## Spin Valves (II) (cip, current in plane)



Giant magnetoresistance device using Heusler electrodes  
(cpp, current perpendicular to plane)



# Tunneling magnetoresistance device using Heusler electrodes



# Tunneling magnetoresistance device using Heusler electrodes

