**substance: boron compounds with group VIII elements**
**property: properties of boron-iron compounds**

Multiple-boride base hard alloys with Fe, Mo, Ni, Cr [86T, 87T2, 87T1, 87T3, 98G].

**$Fe_{75}TM_5B_{20}$ (TM = Ti, V, Cr, Mn, Co, Ni)**

**$Fe_{80}TM_5B_{15}$ (TM = Ti, V, Cr, Mn, Co, Ni)**

Crystal structures of the Fe-rich Fe-borides [87K].

Amorphous alloys, preparation in [93B].

Ellipsometrically measured optical conductivity spectra in Fig. 1, model calculations and assumed DOS in Fig. 2 [93B].

**$Fe_{14}Nd_2B$**

Preparation and structure of the compound and of the related hydrides in [97K].

**$Fe_{14}Y_2B$**

Preparation and structure of the compound and of the related hydrides in [97K].

**$Fe_xB_{100-x}$**

Magnetic phase diagram in Fig. 3 [87M] (pecularities for x = 41...49)

Line-width and resonance field of ESR in $Fe_{49}B_{51}$ in Fig. 4 [87M].

Crystal structures of the Fe-rich Fe-borides [87K].

Spin relaxations in random magnets of composition $Fe_xB_{100-x}$ and related ternary, quaternary and quinternary compounds [86M].

Magnetic order in disordered media (a-$Fe_xB_{1-x}$) [85M].

**$Fe_{80}B_{20}$**

Boron K-edge absorption in crystalline and amorphous $Fe_{80}B_{20}$ [86K].

**$Fe_2B$**

Metallic; preparation [75S, 77L], crystalline structure [75S, 77L], electronic structure [77S], electronic transport [75S], X-ray photoelectron spectra [79A], magnetic properties [77B]

**FeB**

Metallic?, semiconducting?; preparation [75S, 77L], crystalline structure [75S, 77L], electronic structure [77S, 81A], electronic transport [75S], X-ray photoelectron spectra [79A], magnetic properties [73B, 77B],

electrical resistance, thermoelectric power [75B]

**$FeB_2$**

ESR linewidth depending on temperature in Fig. 5 [87M].

**$Fe_{78}B_{13}Si_9$, $Fe_{78}B_{13}Si_9$**

Crystallization kinetics in [95B].

Mössbauer spectroscopic study of the effect of annealing on the hyperfine field distributions in $Fe_{78}B_{13}Si_9$ metallic glass [99B].

**amorphous (glassy) Fe – B alloys**

Metallic (Fe-rich); preparation [78F, 79G, 79T], crystalline structure [78F, 79G, 79T], magnetic properties [78J, 78O, 78F, 78K, 79S]

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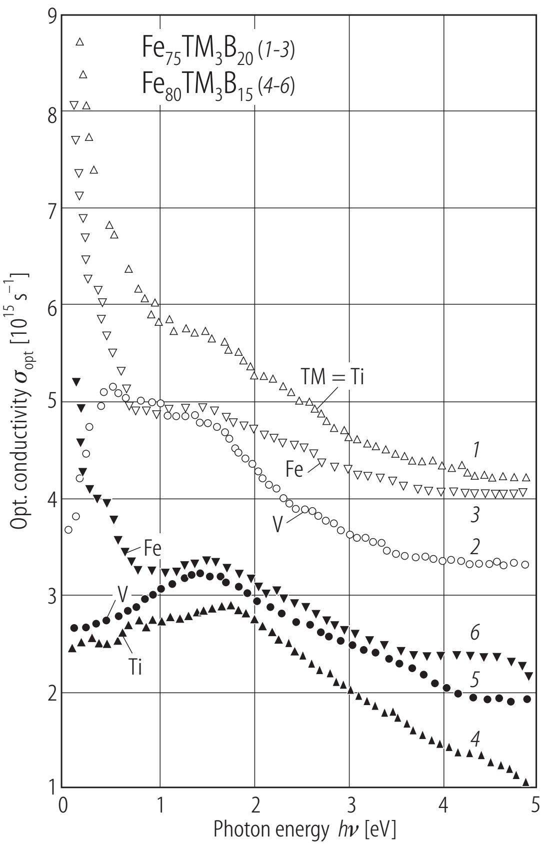
**Fig. 1.**

Fe-TM-B alloys. Optical conductivity $\sigma_{opt}$ vs. photon energy. $Fe_{75}TM_3B_{20}$: *(1)* TM = Ti, *(2)* TM = V, *(3)* TM = Fe and $Fe_{80}TM_3B_{15}$: *(4)* TM = Ti, *(5)* TM = V, (*6*) TM = Fe [93B].



## Fig. 2.

Fe-TM-B alloys. Calculated optical conductivity spectra vs. photon energy. *(1)* to *(5)* correspond to the positions of the Fermi level $E_F$ in the model DOS shown in the insert. Insert: Density of states vs. energy, $E_c^-$ and $E_c^+$ denote the mobility edges, $\Delta_g$ the gap in the DOS as a result of Anderson localization [93B].

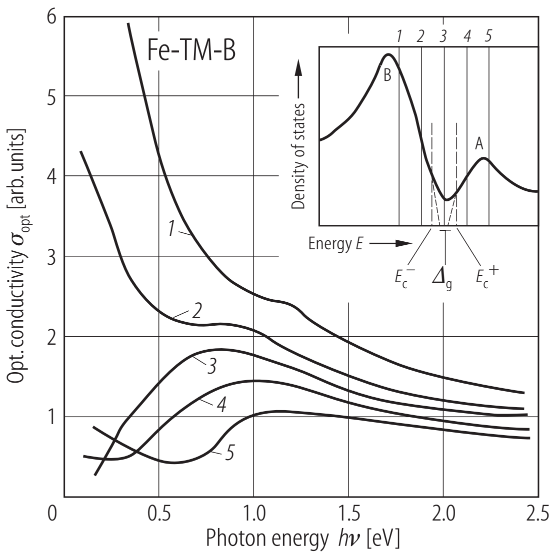
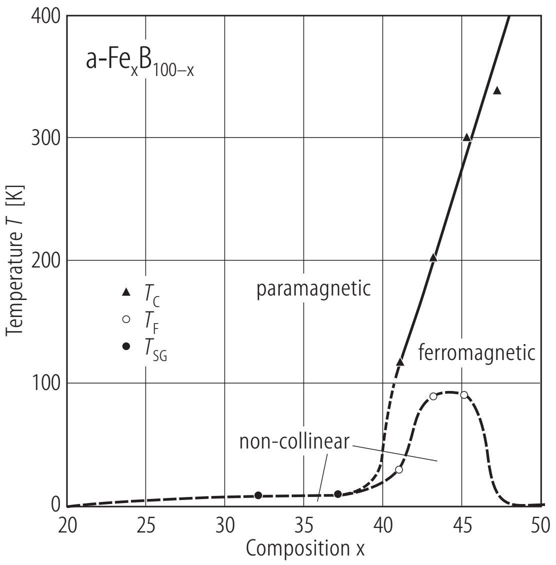


**Fig. 3.**

a-$Fe_xB_{100-x}$. Magnetic phase diagram; $T$ vs. x. As the temperature is reduced, alloys with $41 \le x \le 49$ show a paramagnetic-ferromagnetic phase transition at $T_C$ followed by a transition at a lower temperature $T_F$ to the noncollinear magnetic state forming the ferromagnetic phase (reentrant alloys). Those with $x \le 37$ enter the noncollinear magnetic phase directly from the paramagnetic state at $T_{SG}$ (spin glass alloys) [87M].



## Fig. 4.

a-$Fe_{49}B_{51}$. Temperature dependence of ESR linewidth (left) and resonance field (right) [87M].

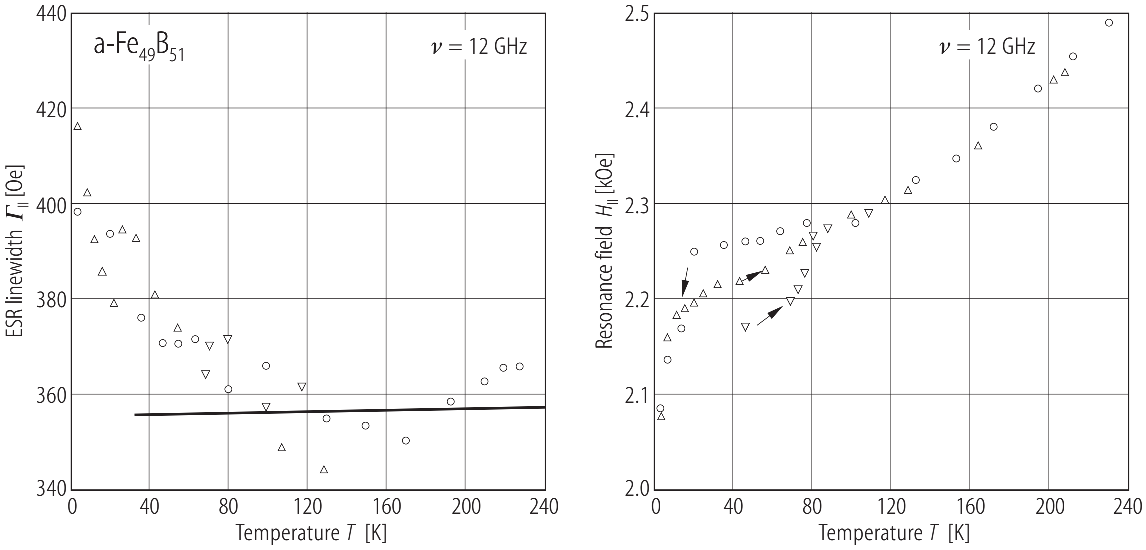


**Fig. 5.**

a-$FeB_2$. ESR linewidth at 35, 10 and 3 GHz vs. temperature [87M].