The study of the spin transition process in Na[Fe(Th-Sa)$_2$] by electron paramagnetic resonance.

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Streszczenie

The crossover phenomenon in Na[Fe(Th-Sa)2], a representative of a large class of the Fe(III) thiosemicarbazonates, was examined by X-band EPR in temperature range of 80-300 K and magnetisation of a polycrystalline sample was collected in the temperature range of 1.8-300 K. The main results are as follows: The appearance of low-spin (LS) complexes requires the thermal population of the 2A term but the transition process is ruled by other factors. The LS complexes formed are not statistically distributed among the high-spin (HS) ones but tend to assemble in restricted spaces of the crystal lattice (domains) in which both short-range and long-range interactions of the complexes occur. The increase of co-operative interactions between the LS complexes and the enlargement of domains occur gradually with two abrupt changes. Each of the jumps has a different character; the first one is related to a redistribution of the complexes in the domains and the other to a rapid increase of the LS phase volume.

Adres publiczny

http://www.materialsscience.pwr.wroc.pl/bi/vol21no2/articles/ms_2003_01

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