ESR STUDY OF GdTSn (T = Ni, Cu, Pd, Ag) TERNARY STANNIDES.

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9.7 cm

Ternary gadolinium stannides with 3d and 4d transition metals were obtained by arc melting and investigated by X-ray powder diffraction. The compounds with T = Cu and Ag crystallise with the hexagonal structure of LiGaGe-type, whereas the Ni and Pd containing compounds have the orthorhombic unit cell (TiNiSi structure type). Electron Spin Resonance (ESR) of Gd^{3+} have been measured on powdered samples within the X-band in the temperature range 1.9-300K. In paramagnetic range, the g-factors are independent of temperature and the resonance linewidth DH increases linearly with temperature. For all samples Δg shift is negative (about -0.03). The Korringa slopes b = d(DH)/dT are small and depend on T metals: the b values are only about 0.5 Oe/K for compounds with Cu and Ag and increase to 1.4 Oe/K for T = Ni and 2.5 Oe/K for Pd. Such behaviour can be attributed to strong bottleneck effect for ESR of localised moments (Gd3+) in metals.

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