BAND STRUCTURE AND CALCULATED XPS SPECTRA OF METASTABLE Co–Ag ALLOYS

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9.7 cm

Although the solid solubility of Ag in Co is less than 1%, there is recent experimental evidence [1–3] for the existence of Co–Ag metastable alloys in the form of thin films for concentration extending up to 6–8%. The electronic structure of $Co_{1-x}Ag_x$ was calculated by the TB–LMTO method for $x = 0.125, 0.0625, 0.03125$ modelling the alloys by properly chosen unit cells. The photoemission spectra calculated from the electronic structure of the hypothetical homogeneous alloy are in fair agreement with experimental data [3] supporting the conclusion of existence of homogeneous, though metastable alloy. On the contrary, superposition of pure Co and Ag spectra implied for precipitate of Ag in Co cannot explain the experimental data [3].

[1] P.E. Wigen et al., J. Magn. Magn. Mat. **165** (1997) 465

[2] U. Ebels et al., Phys. Rev. **B58** (1998) 6367

[3] M. Gester, J.A.D. Matthew, S.M. Thomson, G. Beamson: submitted for publication

13.4 cm

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