



Structural and Magnetic Properties of the Half-Ferromagnetic $\text{Co}_{2+x+y}\text{Mn}_{1-x}\text{Al}_{1-y}$ Alloys

<http://www.firstlight.cn> 2007-12-31

$\text{Co}_{2+x+y}\text{Mn}_{1-x}\text{Al}_{1-y}$ intermetallic compounds have been prepared by arc melting and studied with X-ray diffraction and magnetization measurements to ascertain the effect of deviations of composition from the stoichiometry on the ferromagnetism of this system. Hysteresis loops registered at room temperature show a soft ferromagnetic behavior in excess Co. In off-stoichiometric alloys the saturation magnetization is lower than in Co_2MnAl , whereas the Curie temperature T_C is higher in all the studied alloys. T_C varies substantially with

variations in composition and increases with the Mn content. In the source of this behavior a volume effect is inferred which is expected to lead to strengthened ferromagnetic exchanges.

[存档文本](#)