

## Magnetism of Semi-Heusler Compounds CoMnSb<sub>1-x</sub>M<sub>x</sub> (M = Si, Al, Bi)

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Magnetic properties of intermetallics compound CoMnSb<sub>0.9</sub>M<sub>0.1</sub> (M = Si, Al, Bi) are reported. All of them belong to the group of Single-phase semi-Heusler samples CoMnSb<sub>0.9</sub>M<sub>0.1</sub> (M=Al, Si, Bi) which have been prepared by arc-melting in Ar atmosphere. The change in lattice parameter is due to 10% at. Substitution of M was observed by X-ray diffraction. Thermomagnetic curves of the samples measured in 1 kOe show that the Curie temperature is increased from T<sub>c</sub> = 473K to 507K in comparison to that of CoMnSb. Hysteresis loops at room temperature were also studied in applied magnetic fields between -13 kOe and +13 kOe. The results show that the coercivity of the samples is negligibly small and magnetic saturation state is attained in about 3 kOe.

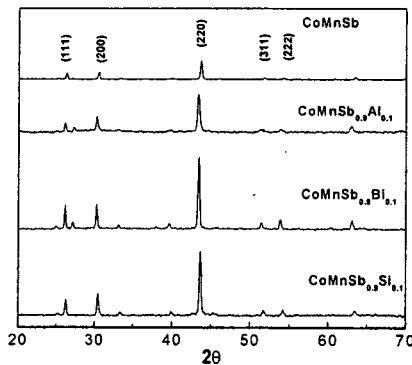


Fig 1: X-ray diffraction of CoMnSb<sub>0.9</sub>M<sub>0.1</sub> (M = Sb, Al, Si, Bi).

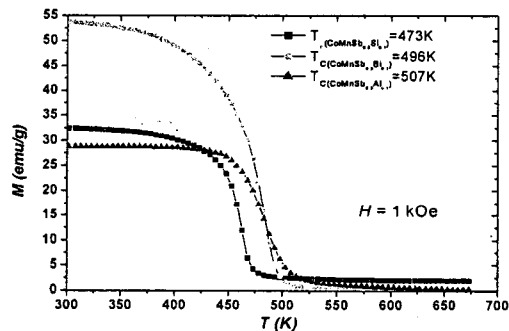


Fig 2: Thermomagnetic Curves of CoMnSb<sub>0.9</sub>M<sub>0.1</sub> (M = Al, Si, Bi) at 1 kOe.

### REFERENCES

- [1] C. Hordequin, J. Pierre, R. Currat, J. Magn. Magn. Mater., 162 (1996) 75-84.
- [2] H. Forster, G.B. Johnston, D.A. Wheeler, J. Phys. Chem. Solids, 29 (1968)
- [3] R. de Groot, F. Mueller, P. van Engen, and K. Buschow, Phys. Rev. Lett. 50 (1983), 2024
- [4] I. Galanakis and P.H. Dederichs, N. Papanikolaou, Phys. Rev. B, 66 (2002) 134428.
- [6] P.G. Van Engen, K.H.J. Buschow, R. Jongebreur, Appl. Phys. Lett., Vol 42, 1983.