

## Influence of magnetic field in Nanocrystallization Process of FeCoSiBCuNb alloys

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We report the influence of magnetic field in the first stages of nanocrystallization process of FeCoSiBCuNb<sup>1,2</sup> alloys. Amorphous ribbons have been annealed under longitudinal magnetic field. Depending on annealing temperature and magnetic field intensity, we observe the formation of different microstructures. In particular, when annealing at a temperature corresponding to the first stages of nanocrystallization process in the presence of magnetic field, an alignment of grains associated to grain growth related with a decrease of amorphous percentage has been obtained for certain intensities of applied magnetic field. Sample microstructure has been observed by means of TEM and the influence of microstructure in magnetic behaviour has been analysed by means of magnetization and coercivity field evolution with measuring temperature.

### References:

[1] G. Herzer, IEEE Trans. Magn. **25**, (1989) 3327

[2] C. Gómez-Polo, D. Holzer, M. Multigner, E. Navarro, P. Agudo, A. Hernando, M. Vázquez, H. Sassik, R. Grössinger, Phys. Rev. B **53(6)**, (1996) 3392

### Figures:

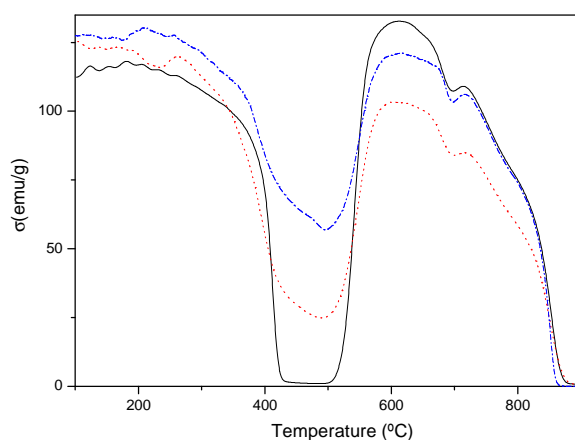


Figure 1.- Thermogravimetry temperature dependence of magnetization for as-cast alloy (-), and annealed at 460°C H=0 Oe (...) and 460°C H=140 Oe (-.-)

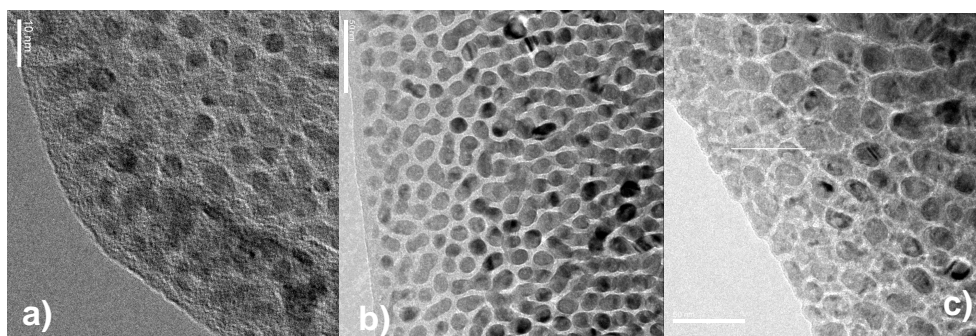


Figure 2.- Transmission electron microscopy (TEM) image for annealed sample under magnetic field: 460°C H=0 Oe (a), 460°C H= 50 Oe (b), 460°C H= 140 Oe (c)