

Watching Co nanoparticles grow in annealed Co₁₀Cu₉₀ melt spun ribbons

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We will present our study of the growth of magnetic clusters in amorphous when annealed at various temperatures. The grain growth was investigated with both, (MFM) and conventional magnetometry. In the as prepared Co₁₀Cu₉₀ ribbons there were no magnetic clusters observed by MFM, however, after annealing the samples at 500°C, magnetic Co particles with a mean size of 100 nm were observed. Further annealing to 750°C increased the Co particles' size and multidomain magnetic structures were observed.

The MFM observations of an increase in both the density and size of stable Co nanoparticles with increased annealing temperatures is in qualitative agreement with the magnetometry data which indicates a doubling of the magnetization of the Co₁₀Cu₉₀ ribbons after annealing at 750°C.