

# Magnetic microwave and absorbing properties of Fe-Co alloy synthesised by mechanical alloying process

**Said Bergheul, Ahmed HADDAD, Abdelhamid Tafat, Mohamed Azzaz**

**Abstract:** In this paper, the structure and magnetic properties of nanocrystalline  $\text{Fe}(1-x)\text{Co}_x$  mixtures are investigated. These structures are prepared using mechanical alloying based on planetary ball mill under several milling conditions. The structural effects of mechanical alloying of powders were investigated by scanning electron microscopy, X-ray diffraction analysis and bench of microwaves. Consequently, alloy powder with an average grain size of 10–13 nm was obtained. Maximum saturation magnetisation  $M_s$  was obtained at a composition value of 65%Co. Microwave measurements were performed on the mechanically milled  $\text{Fe}(1-x)\text{Co}_x$  powder

**Keywords :** powder technology; mechanical alloying; microstructure; microwave.