

## Magnetic nanoparticles of $\text{Fe}_2\text{O}_3$ synthesized by the pulsed wire evaporation method

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Nanoparticles of  $\text{Fe}_2\text{O}_3$  with a mean particle size of 4–50 nm have been prepared by the pulsed wire evaporation method, and its structural and magnetic properties were studied. From the main peak intensity of x-ray diffraction the amount of  $\gamma\text{-Fe}_2\text{O}_3$  and  $\alpha\text{-Fe}_2\text{O}_3$  in sample is composed about 70% and 30%, respectively. The coercivity (53 Oe) and the saturation magnetization (14 emu/g) are about 20% of those of the bulk  $\gamma\text{-Fe}_2\text{O}_3$ . A quadrupole line on the center of Mössbauer spectrum represents the superparamagnetic phase of  $\gamma\text{-Fe}_2\text{O}_3$  with a mean particle size of 7 nm or below.

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