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Title:	Study of static and dynamic magnetic properties of Fe nanoparticles composited with activated carbon
Authors:	Pal, S.P. (/jspui/browse?type=author&value=Pal%2C+S.P.) Kaur, Gurpreet (/jspui/browse?type=author&value=Kaur%2C+Gurpreet)
Keywords:	Magnetic properties Static and dynamic Nanocomposite
Issue Date:	2016
Publisher:	American Institute of Physics
Citation:	AIP Conference Proceedings, 1731.
Abstract:	<p>Nanocomposite of Fe nanoparticles with activated carbon has been synthesized to alter the magnetic spin-spin interaction and hence study the dilution effect on the static and dynamic magnetic properties of the Fe nanoparticle system. Transmission electron microscopic (TEM) image shows the spherical Fe nanoparticles dispersed in carbon matrix with 13.8 nm particle size. Temperature dependent magnetization measurement does not show any blocking temperature at all, right up to the room temperature. Magnetic hysteresis curve, taken at 300K, shows small value of the coercivity and this small hysteresis indicates the presence of an energy barrier and inherent magnetization dynamics. Langevin function fitting of the hysteresis curve gives almost similar value of particle size as obtained from TEM analysis. Magnetic relaxation data, taken at a temperature of 100K, were fitted with a combination of two exponentially decaying function. This diluted form of nanoparticle system, which has particles size in the superparamagnetic limit, behaves like a dilute ensemble of superspins with large value of the magnetic anisotropic barrier.</p> <p>REFERENCES</p>
Description:	Only IISERM authors are available in the record.
URI:	https://aip.scitation.org/doi/abs/10.1063/1.4948136 (https://aip.scitation.org/doi/abs/10.1063/1.4948136) http://hdl.handle.net/123456789/2607 (http://hdl.handle.net/123456789/2607)
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