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Thermal and magnetic characterization of ferritin

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Ferritin is an important molecule found in the blood of mammals. It is responsible for the storage of iron in the body. It releases the iron as per the need of the body. It has a core-shell structure. The core is about 8nm in diameter surrounded by 2nm thick protein shell. The shell reduces the strength of dipolar interaction among particles. Due to this, ferritin is considered to be a model superparamagnet. The core of ferritin contains hydrous ferric oxide. It must decompose into a phase of iron oxide. Any systematic study for decomposition of ferritin is not reported in the literature. In this work structural, thermal and magnetic characterization of ferritin using x-ray diffraction, transmission electron microscope, thermogravimetric analyzer and vibrating sample magnetometer is presented in detail.

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