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Temperature dependence ESR study of $\text{Cr}_2\text{O}_3 \cdot n\text{H}_2\text{O}$ nano-particles

In view of devising Chromium III Oxide based photothermal absorbers, the quasi-spherical nano-particles of $\text{Cr}_2\text{O}_3 \cdot n\text{H}_2\text{O}$ have been synthesized by hydrothermal process. An anomalous thermal hysteresis was detected on $\text{Cr}_2\text{O}_3 \cdot n\text{H}_2\text{O}$ by using the Electron Spin Resonance Spectroscopy at X-band (9.61 GHz) in the temperature range of 292K–420K. Differential scanning calorimetry (DSC), was used in addition to shed light of the presence of the anomalous thermal hysteresis on $\text{Cr}_2\text{O}_3 \cdot n\text{H}_2\text{O}$ nano-particles.

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