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Magnetic State in Nanostructured $ZnFe_2O_4$ at Low Temperature
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— Nanostructured $ZnFe_2O_4$ prepared by high-energy ball milling process for 4 h, showed spontaneous magnetization below 460K,while bulk $ZnFe_2O_4$ has antiferromagnetic state below 10K. Magnetic state in this ball-milled $ZnFe_2O_4$ at low temperature was investigated by observing the behavior of spectrum of zero-field nuclear magnetic resonance with applying external magnetic field and varying temperature. In addition to verifying ferrimagnetic state that is naturally expected, we found the co-existence of antiferromagnetic long range ordered state in octahedral site. Canted state appeared only in magnetization of octahedral site that consists of the ferrimagnetic state.

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