

## The crystalline and magnetic properties of Zn doped strontium Z-type hexaferrite synthesized by polymerizable complex method

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Polycrystalline samples of  $\text{Sr}_3\text{Co}_{2-x}\text{Zn}_x\text{Fe}_{24}\text{O}_{41}$  ( $x = 0.0, 0.5, 1.0, 1.5, 2.0$ ) were synthesized by a polymerizable complex method. The crystallographic, and magnetic properties of samples were investigated using x-ray diffractometer (XRD), vibrating sample magnetometer (VSM), and Mössbauer spectroscopy. The crystal structures of all samples were determined to be hexagonal with the space group  $P6_3/mmc$ . The hysteresis curves under 10 kOe at 295 K showed that all samples were not saturated due to the high planar anisotropy of Sr ions. In addition, the coercivity ( $H_c$ ) of samples decreased with increasing Zn ion contents. Mössbauer spectra of all samples were obtained at 295 K, and least-squares fitted below  $T_C$  as six distinguishable sextets ( $4f_{IV}$ ,  $4f_{IV}^*$ ,  $12k_{VI}^*$ ,  $4f_{VI}^* + 4e_{IV}$ ,  $12k_{VI}$ , and  $2d_{VI} + 2a_{VI} + 4f_{VI} + 4e_{VI}$ ). © 2017 Author(s). All article content, except where otherwise noted, is licensed under a Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>). [<http://dx.doi.org/10.1063/1.4977883>]