

## Electronic Supporting Information

### **Coexistence of ferromagnetic-antiferromagnetic ground state, exchange bias effect and band-gap narrowing in Cr doped ZnO nanocrystals derived by simple chemical method**

Supin K K<sup>1,2</sup>, Anupama Chanda<sup>3\*</sup> and M. Vasundhara<sup>1,2\*</sup>

<sup>1</sup>Polymers and Functional Materials Department, CSIR-Indian Institute of Chemical Technology, Hyderabad-500007, India

<sup>2</sup>Academy of Scientific and Innovative Research (AcSIR), Ghaziabad-201002, India.

<sup>3</sup>Department of Physics, Dr Hari Singh Gour Central University, Sagar, India-470003

\*Corresponding authors: [mvas@iict.res.in](mailto:mvas@iict.res.in), [vasu.mutta@gmail.com](mailto:vasu.mutta@gmail.com), [anupamamatsc@gmail.com](mailto:anupamamatsc@gmail.com)

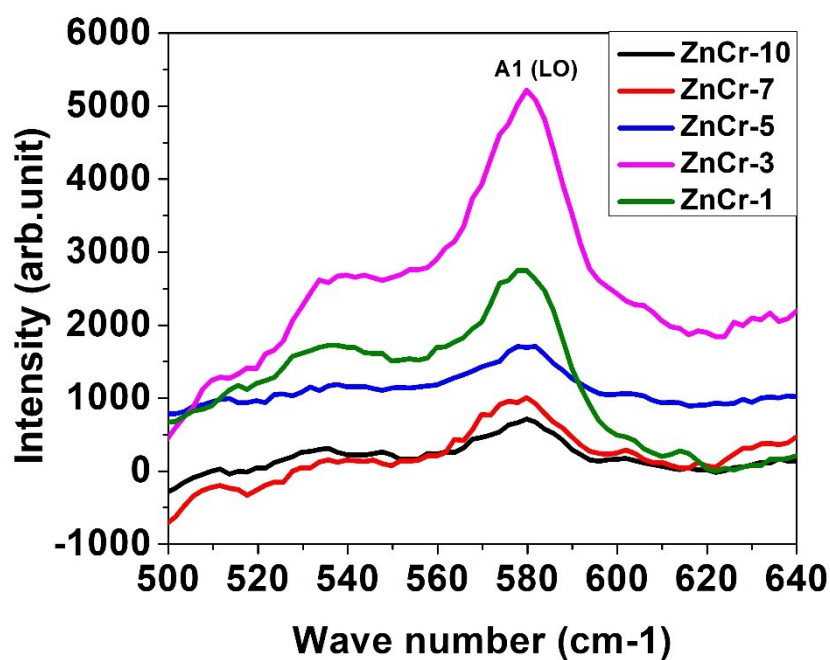


Fig. S1: A1 (LO) mode of ZnCr-X (X=1,3,5,7&10)

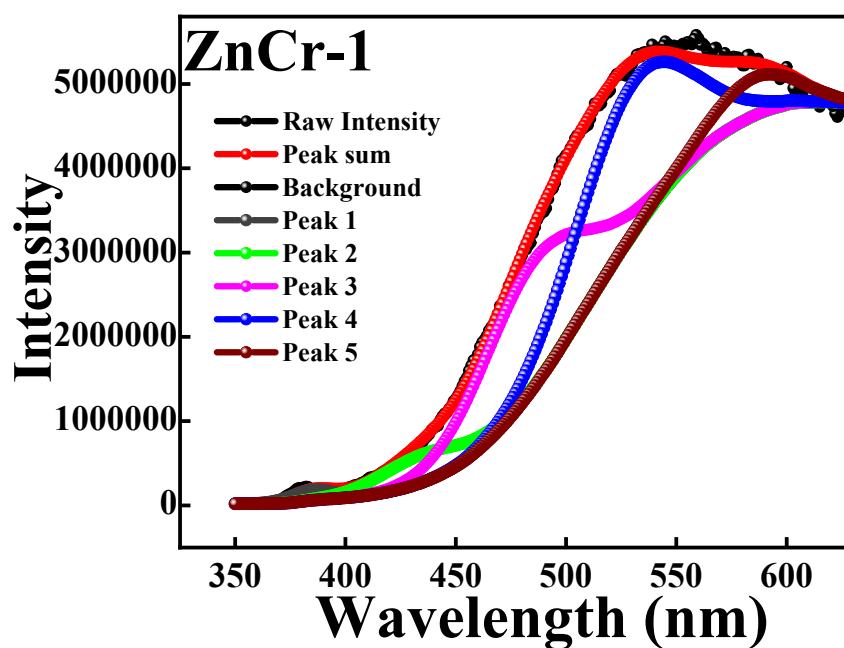


Fig. S2: Deconvoluted PL spectrum of ZnCr-1

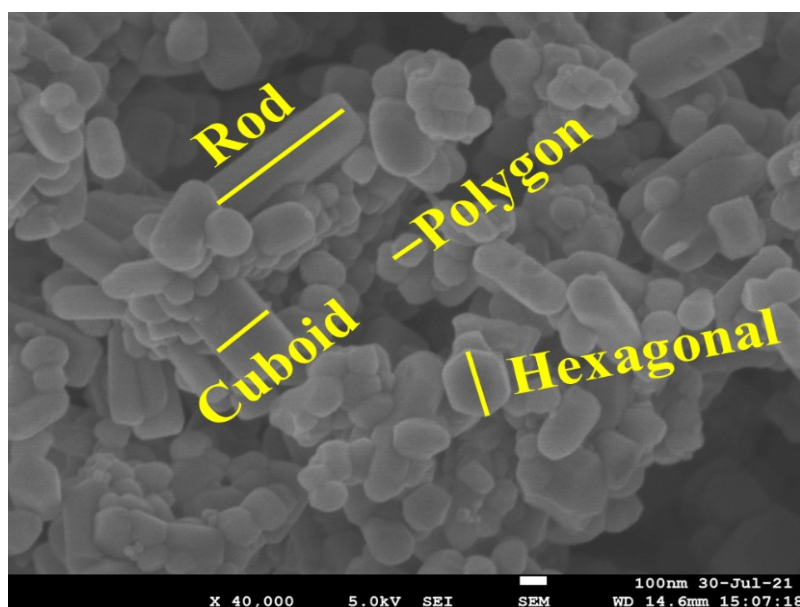


Fig. S3: FE-SEM image representing each shape pertaining to ZnCr-X

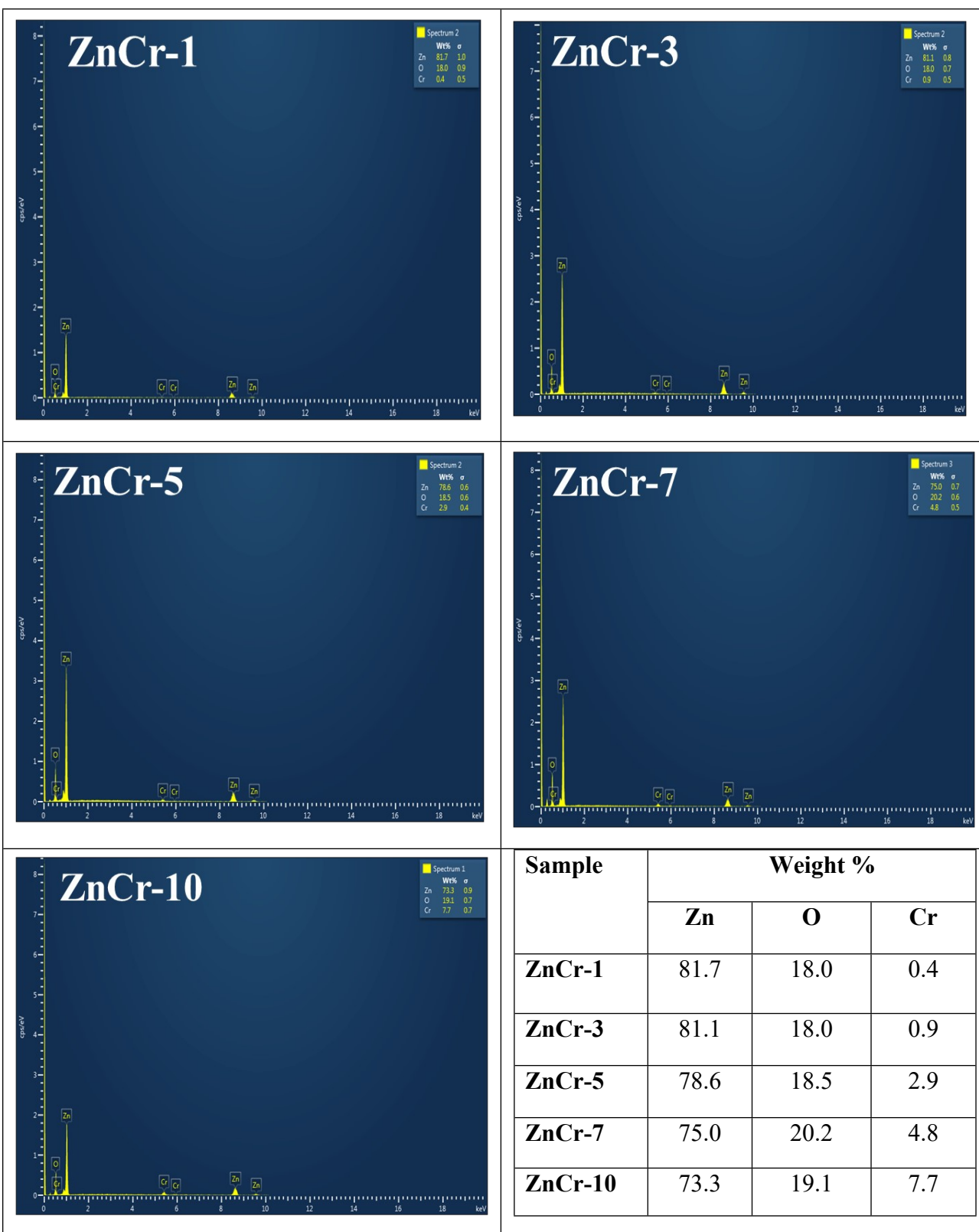


Fig. S4: EDS analysis and table representing weight % composition of ZnCr-X (X=1,3,5,7&10)