

Multifunctional Sn and Fe co-doped In₂O₃ Colloidal Nanocrystals:

Plasmonics and Magnetism

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Supporting Information

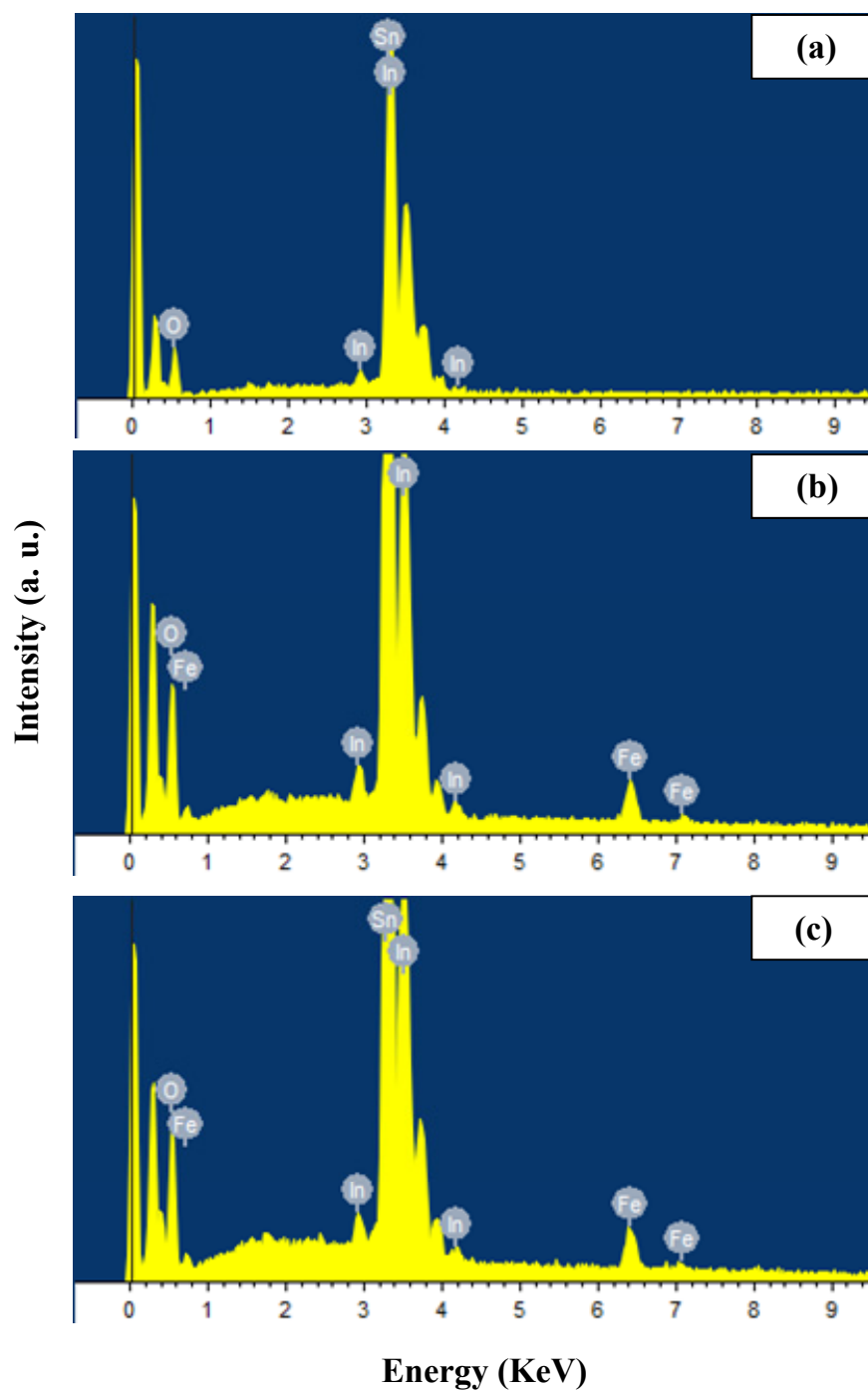


Figure S1: Energy-Dispersive X-ray Analysis (EDAX) data for (a) 10% Sn, (b) 10% Fe, and (c) 10% Sn-10% Fe doped In_2O_3 nanocrystals (NCs).

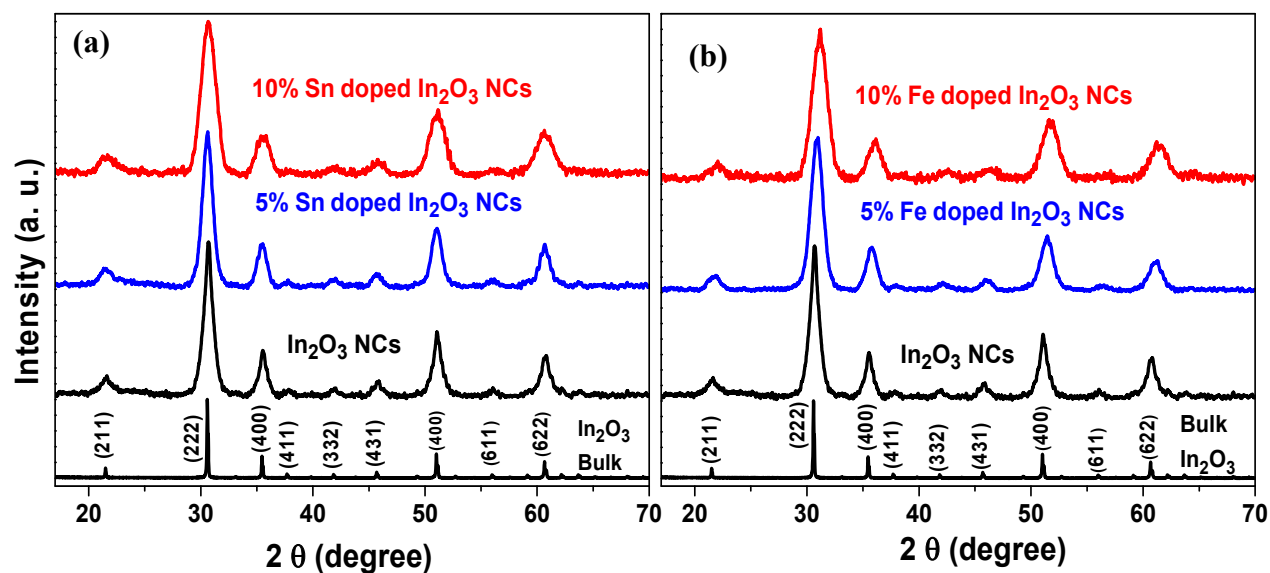


Figure S2: XRD patterns of (a) Sn doped In_2O_3 NCs and (b) Fe doped In_2O_3 NCs with different dopant concentrations. XRD patterns are shifted vertically for clear representation. JCPDS (88-2160) data for bulk In_2O_3 with cubic bixbyite phase is shown as reference.

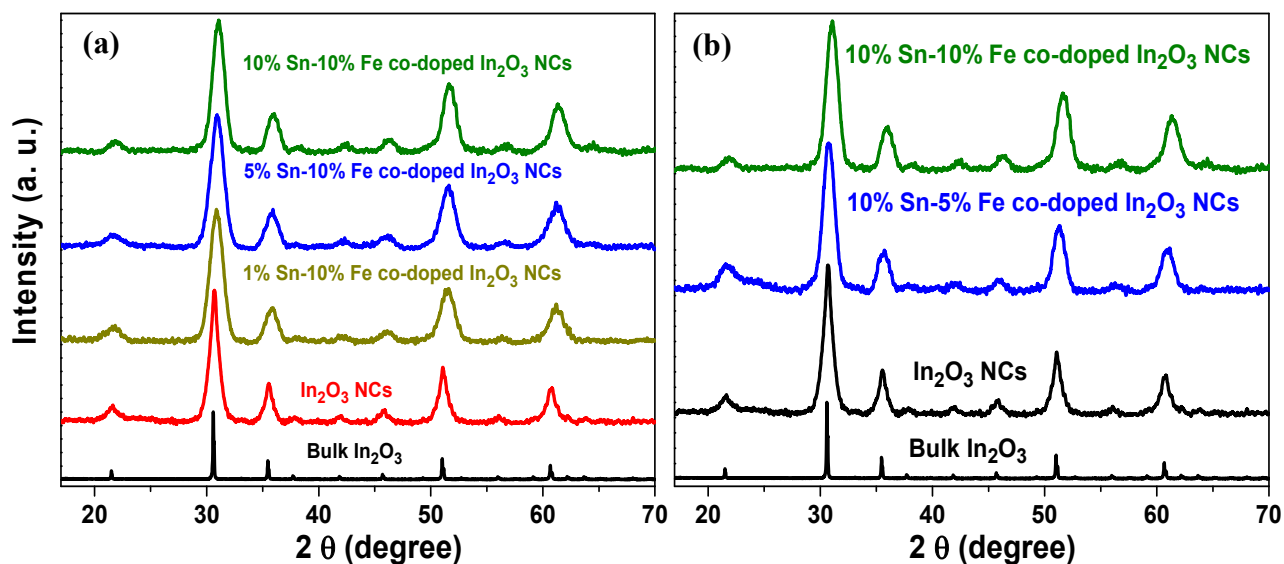


Figure S3: (a) XRD patterns of 10% Fe-Sn co-doped In_2O_3 NCs with varying concentrations of Sn. (b) XRD patterns of Fe-10% Sn co-doped In_2O_3 NCs with varying concentrations of Fe dopant. JCPDS (88-2160) data for bulk In_2O_3 with cubic bixbyite phase is shown as reference.

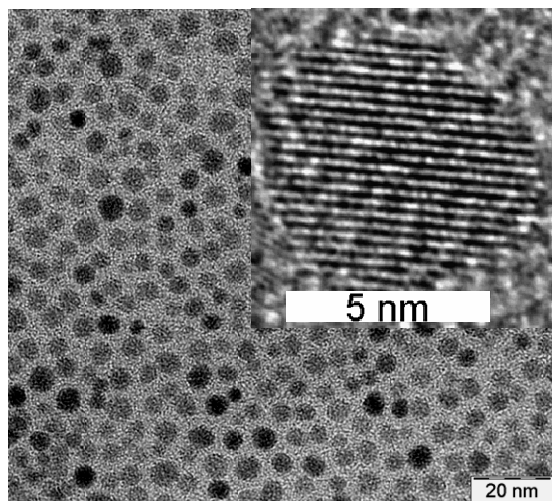


Figure S4: TEM image of 10% Fe doped In_2O_3 NCs. Inset shows HRTEM image of a representative NC for the sample.

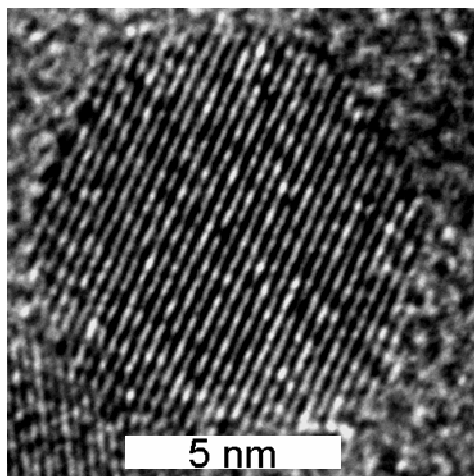


Figure S5: HRTEM image of a representative In_2O_3 NC.

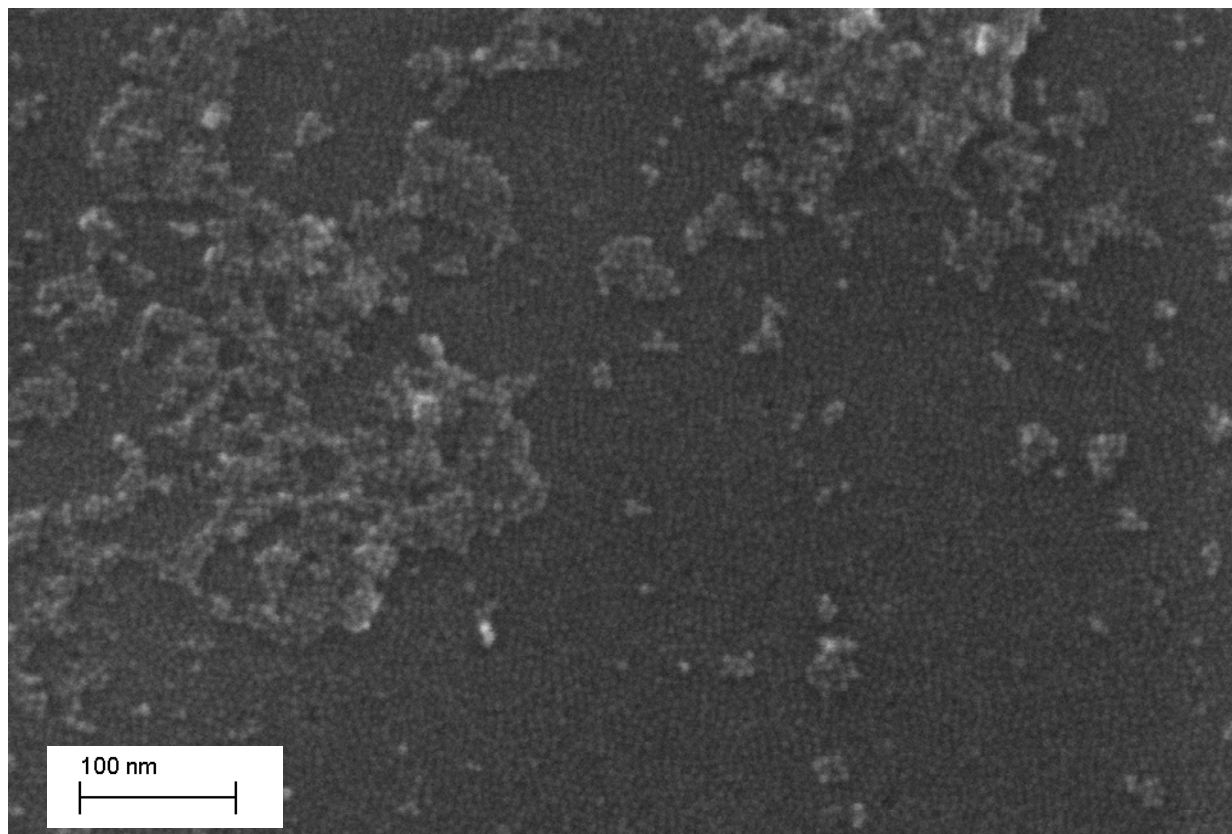


Figure S6: SEM image of 10% Fe – 10% Sn codoped In_2O_3 NCs. Inset shows HRTEM image of a representative NC for the sample.

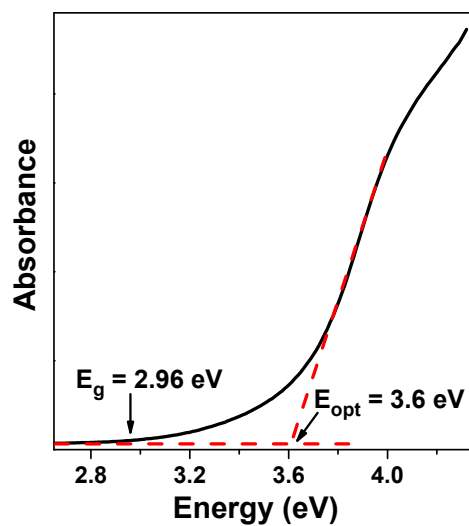


Figure S7: UV-visible absorption data of colloidal In_2O_3 NCs dispersed in toluene.

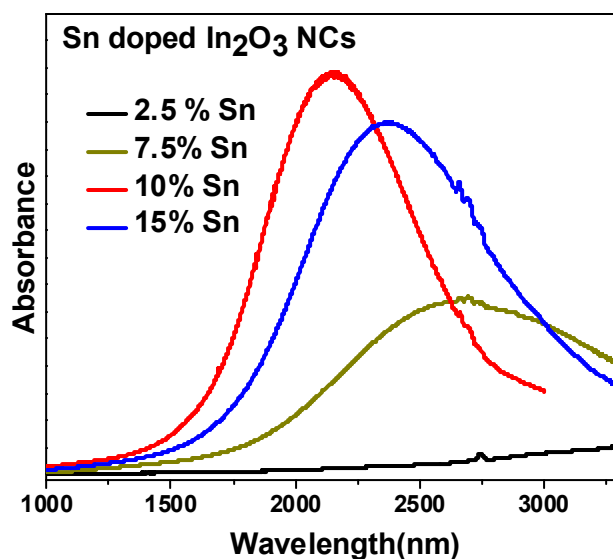


Figure S8: UV-visible-NIR absorption spectra of Sn doped In_2O_3 NCs with varying Sn content. The LSPR band shifts to lower wavelengths along with an increase in absorbance as the Sn concentration increases from 2.5 to 10%, because of increase in free electron concentration with doping concentration. However, further increase in dopant concentration up to 15% shifts the LSPR band towards longer wavelengths because of the electron trapping by the dopant ions becomes prominent.

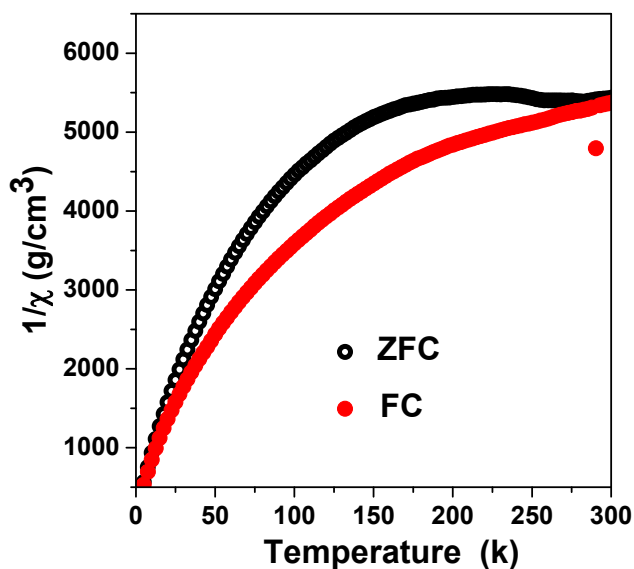


Figure S9: Curie-Weiss plot showing variation of magnetic susceptibility (χ) with temperature for 10% Fe – 10% Sn co-doped In_2O_3 NCs.

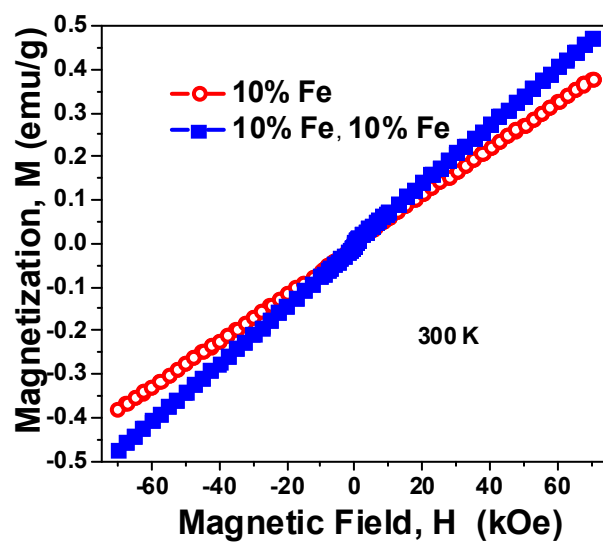


Figure S10: M vs H data for 10% Fe doped In_2O_3 NCs and 10% Fe – 10% Sn co-doped In_2O_3 NCs at 300 K.