

## Room-temperature ferromagnetism in ZnO:Mn film grown on Si (100) substrate by sol-gel method

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Mn doped ZnO film was prepared onto well cleaned Si (100) substrate by sol-gel technique. Zn<sub>1-x</sub>Mn<sub>x</sub>O film with Mn concentration  $x = 0.03$  was prepared. X-ray diffractometer analysis revealed the presence of spinel ZnMn<sub>2</sub>O<sub>4</sub> and a metastable ZnMn<sub>2</sub>O<sub>3</sub> along with the presence of ZnO wurtzite phases. The 2D, 3D views of magnetic domains and domain profiles were obtained by using Magnetic Force Microscopy at room temperature. Domains with the average size of 4.16 nm were observed. Magnetic moment versus magnetic field (M-H) data was recorded at 300 K with Superconducting Quantum Interference Device magnetometer and the result showed ferromagnetic hysteresis loop.