

Abstract Submitted  
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**Structural and magnetic characterization of (TM=Co, Fe) doped SnO<sub>2</sub> nanostructures** A. PARRA PALOMINO, M.S. RZCHOWSKI, University of Wisconsin Madison, O. PERALES PEREZ, University of Puerto Rico at Mayaguez — Recent indications of intrinsic room-temperature (RT) ferromagnetism in transition metal doped-SnO<sub>2</sub> have increased its attractiveness as promising material for nano-optoelectronic and spintronics-based devices. A control over dopant speciation and the determination of the size-dependence of the properties at the nanoscale, become then indispensable. We present here the conditions for the room-temperature synthesis of doped SnO<sub>2</sub> in ethanol using SnCl<sub>2</sub> and LiHO precursors, and the characterization of the resulting bare, Co and Fe- doped SnO<sub>2</sub> powders. X-ray diffraction patterns of bare and doped SnO<sub>2</sub> showed the formation of an amorphous structure from the produced powder at RT. However, a pure phase of rutile structure was observed when the samples were annealed in air or Ar at 400°C. 100nm diameter wires were observed after annealing using scanning electron microscopy (SEM). The results of magnetic characterization of the materials using a vibrating sample magnetometer (VSM) will also be presented and discussed.

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