Title: Structural, electrical and magnetic studies of Co:SnO2 and (Co,Mo):SnO2 films prepared by pulsed laser deposition

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Abstract: Here we report on the structural, optical, electrical and magnetic properties of Co-doped and (Co,Mo)-codoped SnO2 thin films deposited on r-cut sapphire substrates by pulsed laser deposition. Substrate temperature during deposition was kept at 500 degrees C. X-ray diffraction analysis showed that the undoped and doped films are crystalline with predominant orientation along the [1 0 1] direction regardless of the doping concentration and doping element. Optical studies revealed that the presence of Mo reverts the blue shift trend observed for the Co-doped films. For the Co and Mo doping concentrations studied, the incorporation of Mo did not contribute to increase the conductivity of the films or to enhance the ferromagnetic order of the Co-doped films.

Author Keywords: Tin oxide; (Co,Mo)-codoping; Optical band gap; Ferromagnetism

KeyWords Plus: SNO2 Thin-Films; Room-Temperature Ferromagnetism; Powders

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