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**Studies on magneto-transport properties of dilute magnetic semiconductors** R. GUPTA, A. GHOSH, Missouri State University, Y. KOLEKAR, Pune University, K. GHOSH, P. KAHOL, Missouri State University — Diluted magnetic semiconductors (DMS) are rare group of promising semiconductors in which a fraction of the constituent ions is replaced by magnetic ions. This study is aimed to understand the magneto-transport properties of magnetic ion doped In<sub>2</sub>O<sub>3</sub> thin films. The films were grown under different temperature and partial oxygen pressures by pulsed laser deposition. The films were characterized using various techniques such as X-ray diffraction, UV-VIS spectroscopy and magneto-transport. Anomalous magneto-resistive (MR) behavior has been observed for these films, which largely depends on growth conditions. For example, Co doped In<sub>2</sub>O<sub>3</sub> films show presence of negative as well as positive MR at low temperatures. However, the film grown at 400 °C at a partial oxygen pressure of  $1 \times 10^{-4}$  mbar shows negative MR with a maximum value of around -0.3%. Films grown under higher partial oxygen pressures show large positive MR. Maximum positive MR of 8.9% is seen for the film grown at partial oxygen pressure of  $4.3 \times 10^{-4}$  mbar at 400 °C. The effect of growth conditions on MR properties of these films will be presented in detailed. This work is supported by National Science Foundation (Award Number DMR-0907037).

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