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Transport properties of transparent conducting oxide thin film, Nb:In2O3 O. LOZANO*, Q.Y. CHEN*, P.V. CHINTA*, P.V. WADEKAR*, L.H. CHU, D. WIJESUNDERA, WEI-KAN CHU, Department of Physics and Texas Center for Superconductivity, University of Houston, Houston, TX, H.W. SEO, Department of Physics, University of Arkansas, Little Rock, AR, L.W. TU, Y.S. CHANG, W.Y. PANG, I.K. LO, Department of Physics and Center for Nanoscience and Nanotechnology, National Sun Yat-Sen University, Kaohsiung, Taiwan, Republic of China, S.W. YEH, N.J. HO, Department of Materials and Optoelectronic Sciences and Center for Nanoscience and Nanotechnology, National Sun Yat-Sen University, Kaohsiung, Taiwan — Thin films of Nb-doped In_2O_3 were deposited on YSZ(001) by magnetron co-sputtering. The well-oriented thin films were studied as a function of Nb doping by x-ray diffraction, optical absorption spectroscopy and magneto-transport measurement. The optical transparency in the visible and infrared spectral ranges is 97-99% while the electrical resistivity is about 0.4 mΩ-cm. The variation of these properties with respect to doping will be discussed in the context of scattering and optical transition mechanisms. *Also with Department of Physics and Center for Nanoscience and Nanotechnology, National Sun Yat-Sen University, Kaohsiung, Taiwan, Republic of China.

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