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Magnetic impurity doping effect of Bi2201 superconducting thin films XIAOFANG ZHAI, MAITRI WARUSAWITHANA, JAMES ECKSTEIN, University of Illinois, Urbana — We have studied the effect of doping Mn into Cu-O planes of $Bi_2Sr_2CuO_6$ thin films grown by atomic layer-by-layer Molecular Beam Epitaxy in an ozone environment of 8E-6 Torr. These films were grown on $SrTiO_3$substrates at 680^oC. The in-situ Reflection-High-Energy-Electron-Diffraction showed two-dimensional atomically flat surfaces during the whole growth. As Mn concentration on Cu site is varied, we see significant changes in transport. Bi2201 films with no Mn are superconducting with Tc of about 12.5K. By substituting 3.5% of the Cu sites with Mn, we observed insulating behavior characterized by a variable range hopping mechanism with dimensionality between 2 and 3.

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