Abstract Submitted
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Spectroscopic ellipsometry of NiO and Co_3O_4 thin films with different orientations grown on $SrTiO_3$ substrates by polymer-assisted deposition[1] QI ZHOU, Las Cruces High School, ALEXANDRA P. HARTMAN, HONGMEI LUO, STEFAN ZOLLNER, New Mexico State University, STEFAN ZOLLNER TEAM — NiO and Co_3O_4 films exhibit various interesting properties, such as excellent chemical stability, antiferromagnetic ordering and low light absorption. These properties have rendered them for potential application in protective coatings, electrochromic windows and nonvolatile resistance random access memory devices. NiO and Co_3O_4 films have been prepared by a number of techniques, including pulsed laser deposition, sputtering, atomic layer deposition and sol-gel method. We have prepared epitaxial NiO and Co_3O_4 thin films with different orientations (001), (110), (111) grown on three orientations of single crystal $SrTiO_3$(001), (110), (111) substrates by a solution method, called polymer-assisted deposition. Analyses from x-ray diffraction revealed the epitaxial relationship between the films and the substrates. Atomic force microscope showed that those films have very smooth surface with rms surface roughness less than 1 nm. Their optical properties were investigated by spectroscopic ellipsometry.

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