P-129

Fabrication and characterization of various MFIS capacitors ILSUB CHUNG, CHANG JUNG KIM, and TAE-YOUNG KIM (Electronic Materials Lab., Materials Sector, Samsung Advanced Institute of Technology, P.O. Box 111 Suwon 440-600, Korea)

Several MFIS capacitors are fabricated by combining different insulators with a ferroelectric layer. For the ferroelectric layer, PZT is chosen and prepared using sol-gel method. Sputter deposited TiO2 and ZrO2 are selected as an insulator to form MFIS capacitor. In addition to the study about the dielectric constant issues, the role of the insulator thickness is also examined in terms of the memory window. On the other hand MFIM capacitors are also made to monitor the ferroelectric properties such as hysteretic properties, fatigue behaviors and leakage current characteristics. The physical properties are obtained from XTEM/TEM, SIMS, XRDand FESEM analysis.

P-130

PROPERTIES OF SBT THIN FILMS PREPARED BY CSD WITH METAL ACETATE SYSTEM

JUNE KEY LEE, CHEE WON CHUNG, CHANG JUNG KIM AND ILSUB CHUNG (Electronic Materials Lab., Samsung Advanced Institute of Technology, Suwon PO Box111, Korea)

Layered-structured $SrBi_2Ta_2O_9$(SBT) thin films were fabricated on $Pt/Ti/SiO_2/Si$ substrate by chemical solution deposition(CSD) method. The precursor solution was prepared by using bismuth acetate, strontium acetate and tantalum ethoxide. Films of various compositions were deposited and their phase formation, surface roughness and ferroelectric properties were characterized. It showed best properties at 1.0/2.1/2.0(5% Bi excess) composition. The SBT film with thickness of 3000 Å exhibited surface roughness of about 40 Å, 2Pr of about 12uC/cm^2 and coercive field of 47kV/cm. In addition, the effect of excess bismuth amount and post-electrode deposition annealing will be reported.

P-131

ELECTRICAL PROPERTIES OF EPITAXIAL $SrBi_2Ta_2O_x$ THIN FILMS, S. I. Hyun, B. H. Park, S. D. Bu, and T. W. Noh (Dept. of Physics, Seoul National Univ., Seoul 151-742, Korea)

$SrBi_2Ta_2O_x$ (SBT) thin films were grown epitaxially on the $La_{0.5}Sr_{0.5}CoO_3(001)/LaAlO_3(001)$, $La_{0.5}Sr_{0.5}CoO_3(001)/MgO(001)$, and $LaAlO_3(001)$ substrates at various temperatures by pulsed laser deposition. X-ray diffraction (XRD) studies showed that the growth behaviors heavily depended on substrate temperatures. XRD pole figure studies ascertained that the SBT films grown at 550℃ and 650℃ had epitaxial structures with respective orientations. Layered perovskite $SrBi_2Ta_2O_9$ films could be grown with their c-axes normal to the substrates at the substrate temperature of 650℃. However, from the result of the pole figure studies, the epitaxial thin films grown at 550℃ were thought to be rather closer to the cubic structure. Nevertheless the films grown at 550℃ showed quite large dielectric constant and low leakage current. Other various electrical and optical measurements were performed to study the physical properties of the each epitaxial thin film.

P-132

PREPARATION AND PROPERTIES OF $SrBi_2Ta_2O_9$ FERROELECTRIC THIN FILMS, **CHI HEON LEE**, G. P. CHOI, H. G. KIM (Dept. Mat. Sci. and Eng., KAIST, 373-1 Kusong-dong, Yusong-gu, Taejon, 305-701, Korea)

SBT thin film were prepared on Pt electrode by metalorganic decomposition. Ferroelectric properties, crystal structure and microstructures of SBT thin films were examined for various dopants addition. SBT thin films were annealed respectively at various temperature(over 600℃) to increase film crystallinity in O_2 ambient and annealed after Pt top electrode deposition to analyze the effects of top electrode annealing.

The crystallinity and morphology were examined by XRD and SEM. Microstructure and interface properties were observed using TEM and AES. The ferroelectric properities were measured using an RT66A Ferroelectric Tester.

POSTER SESSION