

Abstract Submitted
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Ferroelectric properties of epitaxial BiFeO₃ thin films grown by MOCVD S. Y. YANG, Dept. of Materials Science and Engineering, Univ. of Maryland, College Park MD 20742, F. ZAVALICHE, Materials Research Science and Engineering Center, Univ. of Maryland, College Park MD 20742, Y.H. CHU, Materials Science Center, National Tsing-Hua Univ., Hsinchu, Taiwan 30043, Y.J. LEE, L. MOHADDES-ARDABILI, T. ZHAO, Q. ZHAN, R. RAMESH, Dept. of Materials Science and Engineering and Dept. of Physics, Univ. of California, Berkeley CA 94720 — Recently, perovskite BiFeO₃ (BFO) has attracted great attention due to the coexistence of ferroelectric and magnetic properties. Particularly, ferroelectric properties in thin films make the BFO an outstanding candidate as a substitute for Pb-based ferro/piezoelectric material. Epitaxial BFO thin films were grown by Metallorganic chemical vapor deposition (MOCVD) equipped with liquid delivery system on SrRuO₃/SrTiO₃ (001) using Bi(thd)₃ and Fe(thd)₃ as precursors. A systematic study on deposition process control such as stoichiometric composition and growth temperature was carried out. To investigate the effect of thickness on structure and ferroelectric properties, BFO films with thicknesses in the range from 20 to 200 nm were grown. In addition, results will be discussed by comparison with size effect obtained from Pb(Zr_{0.2}Ti_{0.8})O₃ thin films. This work has been supported by the ONR under a MURI program and partly under the UMD-MRSEC program.

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