Abstract Submitted
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$Bi_{0.4}Ca_{0.6}MnO_3$Epitaxial Thin Films on Silicon for Electronic and Photonic Applications[1] VERA SMOLYANINOVA, GRACE YONG, BENJAMIN HOFMANN, RAJESWARI KOLAGANI, Towson University, YONG LIANG, Motorola Labs — Thin films of rare-earth manganese oxides (manganites) are usually grown on oxide substrates. It is more challenging to grow thin films of these materials on technologically versatile silicon. Upon illumination with visible light, the resistivity of $Bi_{0.4}Ca_{0.6}MnO_3$epitaxial thin films fabricated via PLD on oxide substrates decreases significantly in a wide temperature range due to the destruction of charge ordering. This makes $Bi_{0.4}Ca_{0.6}MnO_3$thin films attractive for potential photonic and opto-electronic device applications. Having in mind device applications, we have extended our studies to $Bi_{0.4}Ca_{0.6}MnO_3$epitaxial thin films grown on Si (001) with different buffer layers. The advantages of different buffer layer schemes on Si (001) will be discussed. Influence of deposition and annealing conditions on film photoresponse will be reported. Photoinduced and current induced effects in films grown on oxide substrates and on buffered Si substrates will be compared.

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