

Abstract Submitted
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Thermoelectric properties of $\text{Bi}_2\text{Sr}_2\text{Co}_2\text{O}_y$ thin films grown by pulsed laser deposition SHUFANG WANG¹, VENIMADHAV ADYAM², SHENGMING GUO³, QI LI, XIAOXING XI⁴, Department of Physics, The Pennsylvania State University, University Park, Pennsylvania, USA — Epitaxial and c-axis preferred oriented oxide thermoelectric $\text{Bi}_2\text{Sr}_2\text{Co}_2\text{O}_y$ thin films have been deposited on LaAlO_3 (100), Al_2O_3 (0001) and fused silica substrates using pulsed laser deposition. At room temperature, the Seebeck coefficient and resistivity are of the order of 125 $\mu\text{V}/\text{K}$, 120 $\mu\text{V}/\text{K}$, 110 $\mu\text{V}/\text{K}$ and 3 $\text{m}\Omega\text{ cm}$, 2 $\text{m}\Omega\text{ cm}$, 14 $\text{m}\Omega\text{ cm}$ for the films on LaAlO_3 (100), Al_2O_3 (0001) and silica substrates respectively. A large negative in-plane magnetoresistance (MR) is observed in the films at low temperatures, with a MR reaching 41% at 9 T and $T=1.8\text{ K}$ in films on LaAlO_3 (100). We also observed a large bias current-dependent resistivity in the films at low temperature, which has been attributed to the suppression of spin-density-wave by electric field.

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