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Cation Ordering within the Perovskite Block of a Six-layer Ruddlesden-Popper Oxide from Layer-by-layer Growth LEI YAN, Beijing National Laboratory for Condensed Matter Physics, and Institute of Physics, Chinese Academy of Sciences, Beijing 100190, China, H.J. NIU, M.J. ROSSEINSKY, Department of Chemistry, University of Liverpool, Liverpool, L697ZD, UK — The $(\text{AO})(\text{ABO}_3)_n$ Ruddlesden-Popper structure is an archetypal complex oxide consisting of two distinct structural units, an (AO) rock salt layer separating an n-octahedra thick perovskite block. Conventional high-temperature oxide synthesis methods cannot access members with $n > 3$, but low temperature layer-by-layer thin film methods allow the preparation of materials with thicker perovskite blocks, exploiting high surface mobility and lattice matching with the substrate. This presentation describes the growth of an $n = 6$ member $\text{CaO}/(\text{ABO}_3)_n$ (ABO_3 : CaMnO_3 , $\text{La}_{0.67}\text{Ca}_{0.33}\text{MnO}_3$ or $\text{Ca}_{0.85}\text{Sm}_{0.15}\text{MnO}_3$) epitaxial single crystal films on the (001) SrTiO_3 substrates by pulsed laser deposition with the assistance of a reflection high energy electron diffraction (RHEED).

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