

Abstract Submitted
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Phase Diagram of Thin Film Oxides Growth by Pulsed Laser Deposition¹ HANGWEN GUO, University of Tennessee, Knoxville; Oak Ridge National Laboratory, DALI SUN, Oak Ridge National Laboratory, JIAN SHAO, Fudan University, China, ZAC WARD, ZHENG GAI, IVAN KRAVCHENKO, Oak Ridge National Laboratory, WENBIN WANG, University of Tennessee, Knoxville; Oak Ridge National Laboratory, JIAN SHEN, University of Tennessee, Knoxville; Fudan University, China, XIAOSHAN XU, Oak Ridge National Laboratory — We present a qualitative analysis of the microscopic thermo-dynamical origin of thin film oxides growth using the pulsed laser deposition technique. A phase diagram containing different growth mechanisms has been established. By tuning growth parameters experimentally in [LaSr]MnO₃/SrTiO₃ system, we observe an excellent fit of thin film morphologies to our growth phase diagram. Our results offer guidance on controlling morphology, stoichiometry and crystallinity of oxides thin films.

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