

Abstract Submitted
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Growth Transient Scaling During Pulsed Laser Deposition of SrTiO₃¹ J.Z. TISCHLER, B.C. LARSON, GYULA ERES, C.M. ROULEAU, Oak Ridge National Laboratory, P. ZSCHACK, UNICAT, Univ. of Ill — Time resolved surface x-ray diffraction studies of pulsed laser deposition show that laser-pulse growth-transients nearly scale with the time between pulses, for dwell times varying by a factor of 250 (0.2s to 50s). AFM measurements show that shorter dwell times produce smoother surfaces than longer dwell times, and that the improved growth for short dwell times correlates with small but systematic changes in the observed growth-transients as the dwell time was varied from 0.2s to 50s. These results imply that the transverse length scale of surface structures in layer-by-layer growth is determined by the annealing time between laser pulses as well as the amount of material deposited per pulse. The impact of dwell time on layer-by-growth of will be discussed.

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