

Abstract Submitted
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Scaling laws In PZT/Si(001) Thin Films JUAN RAMÍREZ, ALEXANDER CORTES, WILSON LOPERA, MARIA ELENA GÓMEZ, PEDRO PRIETO, Universidad del Valle, Physics Department, THIN FLIM GROUP TEAM — Self-affine scaling behavior of ferroelectric $\text{Pb}(\text{Zr}_{1-x}\text{Ti}_x)\text{O}_3$ (PZT) thin films grown on Si(001) substrates has been investigated by AFM Atomic Force Microscope. PZT thin films were grown via Rf-sputtering technique at high oxygen pressures and at substrate temperatures 600 °C varying the deposition time and keeping all parameters. growth constant. The α -global rough-exponent was founded close to 0.7 indicating a correlated growth. Anomalous scaling behavior was founded in all PZT/Si surfaces. A value of 0.5 for the α -local value was founded. The local value of the roughness exponent is associated to the diffusional process on the first stage growth. Saturation roughness showed oscillation dependence with the PZT-thickness. This dependence can be explained by the mismatch between Si substrate and PZT thin film. These results are corroborated calculating the grain size for all samples. This work was supported by COLCIENCIAS under the Excellence Center for Novel Materials Contract no 0043-2005.

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