

Abstract Submitted
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Ferroelectric Thin Films Under Inhomogeneous Electric Fields - Lateral Size and Thickness Dependence NATHANIEL NG, Institute of High Performance Computing, Singapore, RAJEEV AHLUWALIA, Institute of Materials Research & Engineering, Singapore, HAIBIN SU, FREDDY BOEY, Nanyang Technological University, Singapore — Advances in nanoscale ferroelectric devices have led to interest in studying size effects in ultrathin films whose properties differ substantially from the bulk. In fact, thickness-dependent behavior has been well studied both theoretically and experimentally, but not much attention has been devoted to the role of lateral size. Our investigations indicate that fringing electric fields leads to switching via 90° domain wedge nucleation for films above a certain critical thickness which stabilize 180° domain walls, which may be of interest in PFM applications. Results also show a minimum lateral width whereby the film becomes virtually impossible to pole.

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