

Abstract Submitted  
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**Growth and characterization of organic ferroelectric croconic acid thin films**<sup>1</sup> XUANYUAN JIANG, HAIDONG LU, YUEWEI YIN, AXEL ENDERS, ALEXEI GRUVERMAN, XIAOSHAN XU, Univ of Nebraska - Lincoln — Using vapor phase evaporation, we have studied the growth of the croconic acid (CCA) thin films, at various conditions such as temperature, thickness, growth speed, and substrates. The morphology of thin film was measured by atomic force microscopy (AFM); the ferroelectric property was confirmed by piezoresponse force microscopy (PFM). A critical thickness of 40 nm and optimal temperature of -30 cel-sius were found for continuous films, while the substrate and growth speed are found to play a minimal role. According to the reflection high energy electron diffraction (RHEED), the CCA films are polycrystalline. For a 40 nm continuous film, the roughness is about 3 nm, while the coercive voltage for the ferroelectric domain switching is approximately 7V. This is the first molecule ferroelectric thin film. The successful growth of continuous CCA films enhances the applications potential of CCA, which is a molecular crystal of ferroelectricity.

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