

Abstract Submitted  
for the MAR10 Meeting of  
The American Physical Society

**Confinement Effects of Polyvinylidene Fluoride-Co- Trifluoroethylene Nanorods** KATHLEEN MCENNIS, University of Massachusetts Amherst, JODIE LUTKENHAUS, Yale University, THOMAS RUSSELL, University of Massachusetts Amherst — Polyvinylidene fluoride-co-trifluoroethylene (PVdF-TrFE) readily crystallizes into the ferroelectric  $\beta$  crystal phase and the crystallization and properties of PVdF-TrFE are affected by confinement. PVdF-TrFE nanorods were made by wetting and filling anodized aluminum oxide (AAO) templates that ranged in pore diameter from 15nm to 200nm. Modulated differential scanning calorimetry (MDSC) and X-ray diffraction (XRD) were used to analyze the effect of confinement on the transitions and structure. The ferroelectric and piezoelectric behavior of confined PVdF-TrFE nanorods was investigated using a high voltage displacement measuring fixture and results were compared to the bulk film. Crystallization within confined PVdF-TrFE nanorods was increasingly suppressed in smaller diameter pores, while the ferroelectric-paraelectric Curie transition remained invariant.

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Date submitted: 13 Nov 2009

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