

Abstract Submitted  
for the MAR14 Meeting of  
The American Physical Society

**Effect of Dipolar Orientational Polarization on Electronic Conductivity in Ferroelectric Polymer Electrets** LIANYUN YANG, LEI ZHU, Case Western Reserve Univ — The leakage current, ion migration, and dipolar orientational polarization are major losses in ferroelectric polymers. The loss from the leakage current originates from electronic conduction and its behavior could be significantly affected by the internal electric field, which is induced by the dipolar orientational polarization. In this work, the leakage current in the corona charged PVDF electrets is studied under different external electric fields. Under low applied electric field, when no or very few dipoles could flip, the conductivity from the leakage direct current increases upon increasing the electric field. Under higher electric field, the aligned dipole-induced internal field would prevent the electrons from going through so that the conductivity decreases. After all the dipoles are aligned with the external electric field, the conductivity can increase again. This study will help us better understand the interplay between electronic conduction and dipolar orientation in ferroelectric materials.

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Date submitted: 15 Nov 2013

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