

Abstract Submitted
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Hyper Piezoelectric Nano-Electromechanical Systems DUSTIN KREFT, ROBERT BLICK, Department of Electrical and Computer Engineering, University of Wisconsin-Madison, WI 53706, SEUNG-HYUB BAEK, CHANG-BEOM EOM, Department of Material Science and Engineering, University of Wisconsin-Madison, WI 53706, V. VAITHYANATHAN, DARRELL SCHLOM, Department of Material Science and Engineering, Pennsylvania State University, PA 16802, VLADIMIR AKSYUK, Alcatel-Lucent Technologies, NJ 07974 — Piezoelectric materials are extremely important for applications in micro-electromechanical systems (MEMS) and nano-electromechanical systems (NEMS). Here, we will be presenting PMN-PT (Lead Magnesium Niobate-Lead Titanate) on SOI as a hyper piezoelectric material for NEMS devices. The main advantages are the extremely high piezoelectric coefficient, higher electromechanical coupling, and larger attainable bandwidth. This will lead to enhanced agility of NEMS/MEMS devices and lower energy consumption. The work will also have considerable impact for nanoscale mechanics.

Dustin Kreft
Department of Electrical and Computer Engineering,
University of Wisconsin-Madison, WI 53706

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