

Abstract Submitted  
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**Interfacial polarization and High Frequency (>100 MHz) Stable Capacitor Functions of Nanodielectric BaTiO<sub>3</sub> Composites** ATAUR CHOWDHURY, University of Alaska Fairbanks, ABHIJIT BISWAS, University of Oklahoma, I. BAYER, University of Illinois at Urbana-Champaign, A. TRIPATHI, Inter University Accelerator Center, New Delhi, India, E. LOCK, S. WALTON, Naval Research Laboratory, Washington DC, M. NORTON, Washington State University, D. AVASTHI, Inter University Accelerator Center, New Delhi, India, D. DAHANAYAKA, D. BUMM, University of Oklahoma, E. SUHIR, University of California, Santa Cruz, R. GUPTA, University of Physics, Dehradun, India — We report fabrication of nanodielectric composites of barium titanate (BTO) in LiF and PMMA dielectric materials by electron-beam-assisted vapor-phase codeposition at temperature ( $\sim 35$  °C). The fabricated nanodielectric composites showed unique nanometric interfacial polarization properties that resulted in very promising high-frequency (> 100 MHz) capacitor functions. The best capacitor performance was achieved from as-deposited BTO-LiF nanodielectric systems that exhibited a flat capacitance density of about 10 nF/cm<sup>2</sup> with the self resonance frequency occurring at around 150 MHz along with a low loss tangent of about 0.1 at 100 MHz, thus verifying the high-quality of the device structures.

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