

Abstract Submitted  
for the MAR06 Meeting of  
The American Physical Society

**Epitaxial Thin Films of the Oxynitride BaTaO<sub>2</sub>N Grown by Pulsed-laser Deposition** WEIDONG SI, SANGMOON PARK, ELI SUTTER, THOMAS VOGT, Brookhaven National Laboratory, YOUNG-IL KIM, PATRICK WOODWARD, Department of Chemistry, The Ohio State University — Pulsed-laser deposition has been used to grow epitaxial thin films of the oxynitride BaTaO<sub>2</sub>N on MgO substrates and SrTiO<sub>3</sub> substrates with and without SrRuO<sub>3</sub> buffer layers. The thin films have a relatively high dielectric constant in the order of 200-250 from room temperature down to 4.2K with no significant frequency dependence. This special property, which has not been found before in other materials, potentially makes it a good candidate for many dielectric applications. We argue that a new mechanism is required to understand the dielectric properties of BaTaO<sub>2</sub>N.

Weidong Si  
Brookhaven National Laboratory

Date submitted: 16 Jan 2006

Electronic form version 1.4