Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Epitaxial $BaTiO_3$ on Ge (001) PATRICK PONATH, Student, AGHAM POSADAS, Research Scientist, KEJI LAI, DAVE SMITH, ALEX DEMKOV, Professor — Germanium, with its higher hole and electron mobility, might become an attractive candidate to replace silicon as a channel material in a field effect transistor. The ferroelectric high-k dielectric barium titanate (BTO) can be integrated on germanium (001) due to the small lattice mismatch between BTO and Ge and could therefore be a potential candidate for a ferroelectric memory if the problem of relatively high leakage could be solved. We report the epitaxial growth of BTO on a germanium (001) substrate with a thin buffer layer, which causes the BTO to be out of plane polarized. The BTO film crystallizes as-deposited which is monitored by reflection high energy electron diffraction. X-ray diffraction measurements of the BTO film indicate an out of plane ferroelectric polarization.

Patrick Ponath
Student

Date submitted: 15 Nov 2013 Electronic form version 1.4