

Abstract Submitted  
for the MAR11 Meeting of  
The American Physical Society

**Transport Spin Polarization of High-Curie Temperature MnBi Films** PUSHKAL THAPA, Dept. of Physics, Wayne State University, Detroit, MI, 48202, PARASHU KHAREL, Nebraska Center for Materials and Nanoscience (NCMN), Univ. of Nebraska, Lincoln, NE, 68588, PAVEL LUKASHEV, NCMN, Univ. of Nebraska, Lincoln, NE, 68588, RENAT SABIRIANOV, Dept. of Physics, Univ. of Nebraska, Omaha, NE, 68182, EVGENY TSYMBAL, DAVID SELLMYER, NCMN, Univ. of Nebraska, Lincoln, NE, 68588, BORIS NADGORNY, Dept. of Physics, Wayne State University, Detroit, MI, 48202 — We report on the study of the structural, magnetic and transport properties of highly textured MnBi films with the Curie temperature of 628 K. In addition to detailed measurements of resistivity and magnetization, we measure transport spin polarization of MnBi by Andreev reflection spectroscopy and perform first-principles electronic structure calculations. A transport spin polarization of up to 63% is observed, consistent with the calculations and with a recent observation of a large magnetoresistance in MnBi contacts. The band structure calculations indicate that, in spite of almost identical densities of states at the Fermi energy, the large disparity in the Fermi velocities leads to high transport spin polarization of MnBi. The correlation between the values of magnetization and spin polarization observed in MnBi will be discussed.

Pushkal Thapa  
Dept. of Physics, Wayne State University, Detroit, MI, 48202

Date submitted: 20 Dec 2010

Electronic form version 1.4