

Abstract Submitted  
for the MAR11 Meeting of  
The American Physical Society

**SrMnBi<sub>2</sub>, a new transition metal compound with metallic spacer layer**<sup>1</sup> JIAKUI J. WANG, LIANG L. ZHAO, Department of Physics and Astronomy; Rice University; Houston TX 77005, Q. YIN, G. KOTLIAR, Department of Physics, Rutgers University, Piscataway, NJ 08854, EMILIA MOROSAN, Department of Physics and Astronomy; Rice University; Houston TX 77005 — To explore the correlation between superconductivity and crystal structure in transition metal-pnictides systems, we investigate the band structure and physical properties of SrMnBi<sub>2</sub> single crystals. This compound is isostructural with the superconducting Fe-pnictides. In this talk, magnetization, resistivity and specific heat data will be compared with band structure calculations. Both the experimental results and the density functional theory (DFT) calculation are consistent with this material being a bad metal with large residual resistivity, similar to the well-studied Fe-pnictides. The key difference is that the Sr-Bi blocking layer in SrMnBi<sub>2</sub> is metallic, which may be more favorable to the occurrence of superconductivity upon doping, likely with a higher transition temperature, commensurate with the high  $T_N \approx 280$  K.

<sup>1</sup>This work is supported by MURI AFOSR.

Jiakui J. Wang  
Dept of Physics and Astronomy; Rice University; Houston TX 77005

Date submitted: 26 Nov 2010

Electronic form version 1.4