

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Hexagonal pnictide SrPtAs; the role of spin-orbit interaction and locally broken inversion symmetry¹ S.H. RHIM, Northwestern U., S.J. YOUN, Gyeong Sang Natl. U., M.H. FISCHER, LASSP and Cornell U., D.F. AGTERBERG, U. Wisconsin-Milwaukee, M. SIGRIST, ETH-Zuerich, M. WEINERT, U. Wisconsin-Milwaukee, A.J. FREEMAN, Northwestern U. — The first hexagonal pnictide superconductor SrPtAs which consists of stacked PtAs layers has been studied using the FLAPW method² and tight-binding methods. The single PtAs layer forms a honeycomb structure that exhibits: (1) locally broken inversion symmetry despite the presence of the global inversion center, and (2) strong spin-orbit interaction, for which physical consequences are nontrivial. Based on these findings, we predict significant enhancement of both the spin susceptibility and the paramagnetic limiting field with respect to the usual *s* wave superconductors. Further, we suggest an increase of T_C by electron doping of a van Hove singularity.

¹DOE (DE-FG02-88ER45382)

²Wimmer, Krakauer, Weinert, and Freeman, Phys.Rev.B. **24**, 864 (1981)

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Date submitted: 15 Dec 2011

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