Abstract Submitted for the MAR09 Meeting of The American Physical Society

De Haas-Van Alphen Experiments $BaNi_2P_2$ on TAICHI TERASHIMA, MOTOI KIMATA, HIDETAKA SATSUKAWA, ATSUSHI HARADA, KAORI HAZAMA, MOTOHARU IMAI, SHINYA UJI, National Institute for Materials Science, Japan, HIJIRI KITO, AKIRA IYO, HIROSHI EISAKI, National Institute of Advanced Industrial Science and Technology (AIST), Japan, HISATOMO HARIMA, Kobe University, Japan — We have observed de Haas-van Alphen (dHvA) oscillations in BaNi₂P₂, which is isostructural with BaFe₂As₂ and becomes superconducting below $T_c = 3$ K without doping [T. Mine et al., Solid State Commun. 147, 111 (2008)]. It is a suitable compound to study how differnet electronic structures are between iron and nickel-based superconductors. The single crystals used in the study were obtained by high- pressure synthesis. dHvA frequencies up to 8 kT were observed, and their sizes and angular dependences can be explained very well by a band-structure calculation. Effective masses are two to three times largere than the corresponding band masses, suggesting moderate mass enhancement due to electron-phonon and electron-electron interactions.

> Taichi Terashima National Institute for Materials Science

Date submitted: 29 Nov 2008

Electronic form version 1.4