

Abstract Submitted  
for the MAR12 Meeting of  
The American Physical Society

**Fermi surface in BaFe<sub>2</sub>As<sub>2</sub> via SdH measurements on detwinned crystals**<sup>1</sup> TAICHI TERASHIMA, NOBUYUKI KURITA, MEGUMI TOMITA, SHINYA UJI, Natl. Inst. Mat. Sci., KUNIHIRO KIHOU, CHUL-HO LEE, YASUhide TOMIOKA, TOSHIMITSU ITO, AKIRA IYO, HIROSHI EISAKI, AIST, TIAN LIANG, MASAMICHI NAKAJIMA, SHIGEYUKI ISHIDA, SHIN-ICHI UCHIDA, Univ. Tokyo, HISATOMO HARIMA, Kobe Univ. — We have completely determined the Fermi surface in the antiferromagnetic orthorhombic phase of BaFe<sub>2</sub>As<sub>2</sub> by measuring Shubnikov-de Haas oscillations in detwinned single crystals (T. Terashima et al., PRL 107, 176402 (2011)). The determined Fermi surface consists of one hole and two electron pockets, and the carrier compensation is satisfied, the carrier number being 0.024 holes and electrons per primitive unit cell. The Fermi surface can well be accounted for by an LSDA band-structure calculation using the experimental crystal structure. The mass enhancements  $m^*/m_{band}$  are found to be 2–3. The Sommerfeld coefficient estimated from the determined Fermi surface and effective masses agrees well with an experimental value. Previous ARPES reports are not very consistent with our determined Fermi surface.

<sup>1</sup>This work was supported by JST, TRIP.

Taichi Terashima  
Natl. Inst. Mat. Sci.

Date submitted: 11 Nov 2011

Electronic form version 1.4