Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

**Development and physical properties of new layered Mn pnictides** SOSHI WATANABE, HIRAKU OGINO, YU KATAGI, SHIV JEE SINGH, AKIYASU YAMAMOTO, JUN-ICHI SHIMOYAMA, Univ of Tokyo, NAO TAKESHITA, Advanced Industrial Science and Technology (AIST), KOHJI KISHIO, Univ of Tokyo — Compounds which have anti-fluorite Mn$Pn$ layer are antiferromagnetic insulators with high Neel temperature. Recent studies clarified that antiferromagnetic ordering was suppressed and insulator-to-metal transition was induced by carrier doping or applying pressure in Mn Arsenides, therefore Mn pnictides could exhibit various physical properties, such as superconductivity. In particular, compounds with alternate stacking of Mn$Pn$ layers and perovskite-type oxide layers are interesting, because this system has large flexibilities in both chemical compositions and crystal structures. In this study, we found various new Mn pnictides such as $(Mn_2Pn_2)(Ba_3RE_2O_5)$ [$Pn$ = As, Sb, $RE$ = Sc, Pr, Sm $\sim$ Lu]. $(Mn_2Pn_2)(Ba_3RE_2O_5)$ showed paramagnetic magnetization due to magnetization of $RE$ elements. Compound with shorter $a$-axis length shows lower resistivity at room temperature in this system. In addition, We successfully synthesized single phase $(Mn_2Bi_2)(Sr_2MnO_2)$, which has anti-fluorite MnBi layers. This compound was insulating, however, resistivity greatly decreased by applying external pressure and changed to metallic behavior. This quite large dependence of resistivity on external pressure shows the possibility of the expression of the functionality such as superconductivity in corresponding compounds.

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Date submitted: 12 Nov 2013