Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Superconductivity in new iron pnictide oxide $Fe_2As_2Sr_4(Mg,Ti)_2O_6$ SHINYA SATO, University of Tokyo, HIRAKU OGINO, KOHJI KISHIO, JUN-ICHI SHIMOYAMA, DEPARTMENT OF APPLIED CHEMISTRY, THE UNIVERSITY OF TOKYO TEAM — A new iron arsenide oxide $Fe_2As_2Sr_4MgTiO_6$, which is isostructural with the iron-based superconductor $Fe_2Pn_2Sr_4M_2O_6$[1,2], has been successfully synthesized by the solid-state reaction in quartz ampoules. $Fe_2As_2Sr_4MgTiO_6$ has antifluorite-type iron arsenide layer and K_2NiF_4-type oxide layer, while the M-site is composed of a combination of divalent (Mg^{2+}) and tetravalent (Ti^{4+}) cations as in the case of a double perovskite $La(Mg,Ti)O_3$. This fact indicates chemical flexibility of the perovskite-related layer in this system. This compound showed bulk superconductivity with T_c of $\sim$20 K by partial substitution of Co for Fe. Moreover, high T_c above 35 K was recorded by samples starting from Co-free and Ti-rich compositions, $Fe_2As_2Sr_4(Mg_{1-x}Ti_x)_2O_6$ (x =0.7$\sim$0.8). [1] H. Ogino *et al.*, *Supercond. Sci. Technol.* **22** (2009) 075008. [2] X. Zhu *et al.*, *Phys. Rev. B* **79** (2009) 220512(R).

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Date submitted: 01 Dec 2009 Electronic form version 1.4