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Phase diagram of Fe-based superconductor Sr2FeAs(Mg,Ti)O3 HIRAKU OGINO, SHIV JEE SINGH, AKIYASU YAMAMOTO, KOHJI KISHIO, JUN-ICHI SHIMOYAMA, Department of Applied Chemistry, The University of Tokyo — In iron-based superconductors, many compounds having perovskite-type blocking layers such as Sr2FeAs(Mg,Ti)O3 and Ca4Fe2As2(Mg,Ti)3O8 were discovered[1]. There compounds have chemical and structural varieties, and have much thicker blocking layers compared to other phases. Generally superconducting transitions appear without intentional carrier doping, and Tc reaches as high as 47 K. On the other hand, electronic state and electronic phase diagram of these compounds are much less studied compared to other phases, and there are no clear observation of antiferromagnetic ordering in these compounds. In this study, we have systematically investigated phase diagram of Sr2FeAs(Mg,Ti)O3 phase by controlling carriers through oxygen composition and post-annealing. Relationship between crystal structure, chemical compositions and physical properties will be discussed. [1] S. Sato et al., Supercond. Sci. Technol. 23 (2010) 045001

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