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**Annealing and doping effects of Fe-based superconductors with thick perovskite-type blocking layers** HIRAKU OGINO, AKIYASU YAMAMOTO, KOHJI KISHIO, JUN-ICHI SHIMOYAMA, The University of Tokyo — After the discovery of superconductivity in LaFeAs(O,F), several types of Fe-based superconductors were developed. In particular, iron-based superconductors having extremely thick perovskite-type blocking layers, such as (Fe2As2)(Ca5(Sc,Ti)4Oy) and (Fe2As2)(Ca4(Mg,Ti)3Oy) were discovered[1]. Interlayer Fe-Fe distances of these compounds are from 2 to 3 nm, which are much longer than other iron-based superconductors. Antiferromagnetic ordering or structural transition is not observed in these compounds, and superconducting transitions appear without intentional carrier doping. In this study, we have investigated carrier doping and annealing effect of these compounds. Relationship between crystal structure, chemical compositions and physical properties will be discussed. [1] H. Ogino et al., Appl. Phys. Express 3 (2010) 063103

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