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A-site Magnetism in Perovskites $CaCu_3B_4O_{12}$ (B = Ge, Ti, Sn). TAKASHI SAITO, HIROSHI SHIRAKI, YUICHI SHIMAKAWA, Kyoto University, MASAICHIRO MIZUMAKI, Japan Synchrotron Radiation Research Institute — A-site-ordered perovskites $CaCu_3Ge_4O_{12}$ and $CaCu_3Sn_4O_{12}$, both isostructural to antiferromagnetic $CaCu_3Ti_4O_{12}$, were found to be ferromagnets, which are very rare in cuprates. All of these materials may be called "A-site magnets", since they contain magnetic species only at the A-site of the perovskite ABO_3 structure. The ferromagnetism of $CaCu_3B_4O_{12}$ (B = Ge, Sn) is attributed to the ferromagnetic direct exchange interaction, whereas antiferromagnetic superexchange interaction, due to the Cu($3d$)-O($2p$)-Ti-($3d$) orbital hybridization, is dominant in antiferromagnetic $CaCu_3Ti_4O_{12}$. The A-site magnetism is controlled by the electronic structure of the non-magnetic B site. Solid solutions $CaCu_3(Ge,Ti)_4O_{12}$ and $CaCu_3(Ti,Sn)_4O_{12}$ display phase boundary between ferromagnetic and antiferromagnetic phases. [1] H. Shiraki, T. Saito, Y. Shimakawa et al., *Phys. Rev. B*, **76**, (2007) 140403. [2] Y. Shimakawa, H. Shiraki and T. Saito, *J. Phys. Soc. Jpn.*, **77**, (2008) 113702.

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