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The changes in surface states in SmB_6 depending on non-magnetic/magnetic dopants B.Y. KANG, School of Materials Science and Engineering, Gwangju Institute of Science and Technology (GIST), CHUL-HEE MIN, Universität Würzburg, Experimentelle Physik VII & Center for Complex Material Systems RCCM, 97074 Würzburg, Germany, M.S. SONG, B.K. CHO, School of Materials Science and Engineering, Gwangju Institute of Science and Technology (GIST) — After the metallic surface states in SmB_6 have given rise to the constant resistivity at $T < 4$ K [1], it has received intensive attention because SmB_6 can be a topological insulator that possesses strongly correlated electrons in contrast with the 3D band topological insulators, *i.e.* Bi_2Se_3, Bi_2Te_3 and Sb_2Te_3. Here, we show the differences of electrical transport properties in high-quality single crystals of $Sm_{1-x}R_xB_6$ (R = La, Ce) which are synthesized using high-temperature Al solution growth methods. When non-magnetic La ion 3% is doped in SmB_6, the surface states are maintained, but, when magnetic Ce ion 3% is doped, they are destroyed. Our results indicate that these are topological surface states that are sensitive to magnetic ion, which is breaking time reversal symmetry. Moreover, we will discuss about quantum percolation limit obtained from the electric properties of $Sm_{1-x}La_xB_6$ (x = 0, 0.03, 0.1, 0.2, 0.25, 0.3, 0.35, 0.6, 0.8, 0.9), and the resistivity vs. temperature of doped SmB_6 in detail.

[1] Wolgast, S. *et al.* Low temperature surface conduction in the Kondo insulator SmB_6, arXiv:1211.5105 (2012)

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