The structure of Tsai-type magnetic quasicrystals and its related compounds (called approximants) are characterized by the space-filling of an icosahedral cluster which has a rare-earth icosahedron [1]. From an experimental point of view, such compounds have been known to show the spin glass like behavior without exception [2]. However, the discovery of the antiferromagnetic phase transition in the Cd-Tb approximant [3] gives a counterexample to this trend. Moreover, ferromagnetic transitions were observed in the Au-based approximant recently. In this paper, magnetic phase transitions in Au-Si-R (R= Gd, Tb, Dy and Ho) approximants are discussed. In all the systems, the temperature dependence of magnetization show ferromagnetic transition at Tc. On the other hand, the magnetization curves below Tc are different between Gd-compound and non-Gd compounds. The difference in the magnetization may be attributed to the existence of the CEF effect in the non-Gd compounds which have non-zero orbital angular momentum.


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