Abstract: In this talk, I will propose that the mix valence phenomena in some of the rare earth compounds will naturally lead to non-trivial topology in band structure. One of the typical example is SmB6, where the intermediate valence of Sm generates band inversion at the X point and the non-trivial Z2 index. Other than SmB6, YbB6 and YbB12 are both mix valence compounds. By applying LDA+Gutzwiller to these materials, we find that YbB6 has non-trivial Z2 index, indicating that YbB6 is another three dimensional topological insulator with strong correlation effects. Our calculation also finds that YbB12 is a trivial insulator in the sense of Z2 but it can be classified as topological crystalline insulator with non-zero mirror Chern number. The electronic structure at finite temperature has also been studied using LDA+DMFT, indicating YbB6 is still in the mix valence region while YbB12 is quite close to the Kondo limit.