HIGH PRESSURE STUDIES ON Yb BASED STRONGLY CORRELATED ELECTRON SYSTEMS

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Ytterbium based compounds display a rich variety of physical properties. We have studied the pressure effect on YbXCu$_4$ (X = In and Cu). YbInCu$_4$ undergoes first-order valence transitions as functions of temperature and pressure: the valence transition at 42K from the well localized (Yb^{3+}) high-temperature state to the mixed-valence phase, and the magnetic transition around 2.4 GPa from the mixed-valence to the ferromagnetic ordered ground states. On the other hand, YbCu$_5$ shows substantially large electronic specific heat coefficient $\gamma \sim 550$ mJ/mol K^2 at ambient pressure, and it approaches the localized-delocalized phase boundary with increasing pressure. We present the detailed studies of the pressure dependence on these materials by NMR/NQR (nuclear magnetic/quadrupole resonance), resistivity and magnetic susceptibility measurements.