Triangular lattice antiferromagnet RCd_3As_3

Geometrically frustrated magnets provide great opportunities to find exotic states. To date, magnetic frustration has primarily been studied in insulators. There have been little theoretical and experimental studies in magnetically frustrated conducting materials, where the localized moments reside on geometrically frustrated lattices. For the Ce- and Yb-based metallic systems, the competition between Kondo and RKKY interactions results in a great variety of ground states, leading to a rich phase diagram, which can be tuned through a quantum critical point. When the frustration effect is included, the phase diagram may include exotic phases such as spin liquid or unconventional spin density wave. In this talk, I will briefly review several effects due to strong frustration in some metallic systems, and discuss anomalous physical properties of $CeCd_3As_3$ and related compounds.