The magnetic properties of Ce_3Pt_4 nanoparticles

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The Ce_3Pt_4 bulk with a Neel temperature near 2.8 K was fabricated by arc-method. The Ce_3Pt_4 nanoparticles were fabricated by plus-laser deposition method to research the size effect on the magnetic behavior of Ce_3Pt_4. The sizes of nanoparticles were estimated about 2.5 nm by HR-TEM. No antiferromagnetic order could be observed for nanoparticles between 2K and 300K by SQUID measurement. The Curie-constant of nanoparticles was about 0.04 (emu K) very smaller than the valuve of bulk (0.807 emu K). This result indicates the most Ce^{3+} weretransformed to the Ce^{4+}. The similar behavior was also observed in the $CeAl_2$ and the $CePt_2$ nanoparticles. The specific-heat was measured to research the competition between RKKY interaction and Kondo effect in nanoparticles.