Abstract Submitted
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Competition between the screening effect and exchange interactions in the system $CeCu_{1-x}Al_xGe$[1] W.H. LEE, J.R. LEE, H.H. SUNG, K.J. SYU, S.C. CHEN, Department of Physics, National Chung Cheng University, W. H. LEE TEAM — As revealed in the powder x-ray diffraction and crystallographic data, the single phase sample in the series $CeCu_{1-x}Al_xGe$ ($0.1<x<0.5$) crystallizes in the $PuGa_2$-type structure with space group P6/mmm. The substitution of Cu by Al in $CeCu_{1-x}Al_xGe$, which increases the average conduction electron density, was found to be able to attenuate the localized Ce-4f moments. As determined from the electrical-resistivity and magnetic susceptibility measurements, both the ferromagnetic transition temperature T_c value and the magnitude of the saturation moment in the series $CeCu_{1-x}Al_xGe$ reflect the decreasing strength of exchange interactions with the Al concentration. These results suggest that the screening effect surpasses the RKKY interactions in this system.

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