

Abstract Submitted  
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**Neutron study of crystal field excitations in single crystal CeCu<sub>2</sub>Ge<sub>2</sub>** MICHAEL LOEWENHAUPT, TU Dresden, ENRICO FAULHABER, ASTRID SCHNEIDEWIND, Helmholtz-Zentrum Berlin, MICHA DEPPE, MPI-CPfS, KLAUDIA HRADIL, U Goettingen — CeCu<sub>2</sub>Ge<sub>2</sub> is the counterpart of the heavy-fermion superconductor CeCu<sub>2</sub>Si<sub>2</sub>. CeCu<sub>2</sub>Ge<sub>2</sub> is a magnetically ordering ( $T_N=4.1$  K) Kondo lattice with a moderate Sommerfeld coefficient of 140 mJ/molK<sup>2</sup> [1]. Inelastic neutron measurements on a polycrystalline sample revealed a doublet ground state and a quasi-quartet at 16.5 meV [1] though a splitting of the 4f<sup>1</sup> ( $J=5/2$ ) ground state multiplet into 3 doublets is expected from the point symmetry of the Ce<sup>3+</sup> ions. We performed detailed inelastic neutron scattering experiments on the thermal triple-axis spectrometer PUMA at FRM II at temperatures between 10 K and 300 K and for different crystallographic directions from low to high momentum transfers. In this way we obtained a reliable separation of magnetic and phonon contributions. From our results we infer that the quasi-quartet consists in fact of two doublets at 17 and 18 meV which exhibit a strong directional dependence of their transition matrix elements to the ground state doublet. Finally we will present a new set of crystal field parameters and their implications on other magnetic properties. [1] G. Knopp et al., Z. Physik B 77 (1989) 95

Michael Loewenhaupt  
TU Dresden

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