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Inelastic Neutron Scattering Study of Ce_3Sn and Ce_3In C.H. WANG, J.M. LAWRENCE, University of California, Irvine, CA, 92697 USA, A.D. CHRISTIANSON, Oak Ridge National Laboratory, Oak Ridge 37831, TN USA, E.A. GOREMYCHKIN, ISIS Facility, Rutherford Appleton Laboratory, Chilton, Didcot, OX11 0QX, United Kingdom, E.D. BAUER, Los Alamos National Laboratory, Los Alamos, NM, 87545 USA, N.R. DE SOUZA , A.I. KOLESNIKOV, Argonne National Laboratory, Argonne, IL 60439 USA — In Ce_3Sn and Ce_3In, the linear coefficients of specific heat γ are 260 $mJ/molCe-K^2$ and 700 $mJ/molCe-K^2$, respectively. The Wilson ratio is 7.0 for Ce_3Sn and 11.5 for Ce_3In. Such large values suggest the presence of ferromagnetic correlations in the ground state. Hence, this system is a potential candidate for studying the magnetic instability at a quantum critical point (QCP). As an initial measurement, we have measured the magnetic inelastic neutron scattering line shape of polycrystalline samples to determine the crystal field (CF) excitations. The low temperature spectrum of both Ce_3Sn and Ce_3In consist of a quasi- elastic line and two obvious inelastic lines resulting from the two excited crystal field doublets of Ce^{3+} in the tetragonal symmetry. The quasi-elastic linewidth,which is related to the Kondo scale, is 3.2meV for Ce_3Sn and 1.5meV for Ce_3In, consistent with the linear coefficients of specific heat. For Ce_3Sn the two CF excitations are at 20meV and 35meV while for Ce_3In, the splitting is much larger giving the two excitations at 15meV and 47meV.

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