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Thermal-expansion and elastic properties of $CeRhIn_5$ and $YbInCu_4$ in high magnetic fields VICTOR CORREA, JONATHAN BETTS, Occidental College, ALBERT MIGLIORI, JOHN SARRAO, ALEX LACERDA, Los Alamos National Laboratory, WINSTON OKRAKU, Occidental College — We present high magnetic field thermal-expansion and magnetostriction results on $CeRhIn_5$ single crystals. Several transitions, both first and second order, are observed when the field is applied perpendicular to the crystallographic c-axis. The magnetic field dependence of the thermal-expansion coefficient above 15 K, where the magnetic correlations are negligible, can be explained supposing an almost pure $|\pm 5/2\rangle$ ground state doublet, in apparent contradiction with neutron scattering experiments. Although the spin-lattice interaction is relevant in this compound, the effect of the magnetic correlations on the elastic properties is relatively weak, as revealed by resonant ultrasound spectroscopy experiments. We present also magnetovolume studies in $YbInCu_4$ using a capacitive dilatometer in a pulsed magnetic field.

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