

Abstract Submitted
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Thermal expansion and magnetostriction under extreme conditions of an archetypal heavy fermion system.¹ AUDREY GROCKOWIAK, DAVID GRAF, WILLIAM CONIGLIO, National High Magnetic Field Laboratory, TAKAO EBIHARA, Shizuoka University, TIMOTHY MURPHY, STANLEY TOZER, National High Magnetic Field Laboratory, TALLAHASSEE TEAM, PR EBIHARA COLLABORATION — Several dilatometry techniques [1] have been developed and used for low temperature and high magnetic field measurements, but do not permit the use of high pressures. Following the experimental development of R.Daou[2], we successfully coupled Fiber Bragg Gratings (FBG) with pressure cells enabling us to map the magnetic field-pressure-temperature phase space of various systems. FBG measurements permit us to achieve a resolution of $\Delta L/L \approx 3.10^{-7}$ making it a very sensitive technique. Piston-cylinder cells developed at the NHMFL permit us to reach a pressure of 3 GPa, and their compact size allows them to be used in highly constrained sample volume, giving us the ability to do high pressure dilatometry studies in pulsed and dc high magnetic field facility at temperatures as low as 25 mK. Along with the setup we will present our results on the high pressure, high magnetic field dilatometry of CeCu₂Ge₂. [1] Schmiedeshoff, G., Review of Scientific Instruments, 77(12) (2006) [2] Daou, R., Review of Scientific Instruments, 81(3) (2010)

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