

Measurement of elastic properties (thermal expansion and magnetostriction) under (multi)extreme conditions is a difficult task. In the vicinity of the room temperature or above it an abundance of methods is available, with decreasing temperature and adding magnetic field and/or hydrostatic pressure their number is limited. Dilatometric cells (either planparallel or tilted plate design) provide superior sensitivity in low temperatures and applied magnetic fields, however, cannot be used in hydrostatic cell. Common choice for the measurement of thermal expansion under hydrostatic pressure are methods based on strain-gauges, with mediocre sensitivity and more importantly a difficult or even impossible usage at very low temperatures ( $T \lesssim 3$  K).

Measurement of magnetic properties (especially magnetization) under (multi)extreme conditions is also a difficult task. In the vicinity of temperature 2 K and above it an abundance of methods is available, with decreasing temperature and adding magnetic field and/or hydrostatic pressure their number is limited. VSM system provides great sensitivity, but can not be used under 2 K and hydrostatic pressure. MPMS apparatus provides pressure up to 9 GPa (diamond pressure cell), but still we can not apply lower temperatures than 2 K.

Our aim is to develop a simple yet sensitive measurement methods, which could be used for the measurement magnetization and thermal expansion (magnetostriction) at very low temperatures ( $T \lesssim 2$  K) and applied hydrostatic pressures.