Contribution ID: **140** Type: **Poster**

Quantum condensed matter under extreme condition

Tuesday, 5 December 2023 14:00 (3 hours)

Kagome magnet RMn6Sn6, [R=Gd-Er] are extensively studied in search of nontrivial magnetic and topological states [1,2]. The strong magnetic coupling in between the metal ion Mn in pristine Kagome bilayers and the rare earth R in triangular lattice framework generates the complex magnetic phases which are favorable for correlated topological states [3,4]. Here in this work, the pressure tunability of the magneto crystalline anisotropy that controls the spin quantization axis of Mn in Kagome layer will be discussed by our pressure dependent in-house magnetization and neutron diffrction study on HoMn6Sn6 topological Kagome metal. In another part, signatures of the correlated structural disorder will be demonstrated by sin-gle crystal X-ray, and neutron diffraction study on distorted topological metal NdMn6Sn6 from the same 166 kagome family.

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Session Classification: Poster Session

Track Classification: Quantum Phenomena