Contribution ID: **145** Type: **Invited talk**

Single-crystal growth and neutron scattering studies of Mn3Sn

Tuesday, 10 December 2019 14:00 (15 minutes)

The study of topological quantum materials is among the most active and fruitful fields in condensed matter physics, largely owing to the topologically protected exotic states and emergent phenomena discovered for instance in topological insulators, Dirac and Weyl fermion semimetals. Recent experimental realizations of large anomalous Hall effect (AHE) at room temperature [1] and possible magnetic Weyl fermions in the non-collinear antiferromagnet (AFM) Mn3Sn, have attracted strong interests on this compound due to its potential applications in antiferromagnetic spintronics and thermoelectric devices. We have prepared high quality Mn3Sn single crystals via molten flux method and studied its magnetic phase transitions by magnetometer measurement and neutron scattering. Our polarized neutron scattering results show the inverse antiferromagnetic structure at room temperature transferred to modulation phases ambiguously. Besides, the phase dependence of anomalous Hall effect was also confirmed explicitly in our flux grown high quality crystals. This may pave way for the future application in temperature controlling of anomalous Hall effect in spintronics.

Primary authors: Mr WANG, Xiao (Jülich Centre for Neutron Science JCNS-MLZ, Forschungszentrum Jülich, Germany); Dr SU, Yixi (JCNS-MLZ); ZHU, Fengfeng (Juelich Center for Neutron Science); SONG, JUNDA; BRÜCKEL, Thomas (Forschungszentrum Jülich GmbH)

Presenter: Mr WANG, Xiao (Jülich Centre for Neutron Science JCNS-MLZ, Forschungszentrum Jülich, Germany)

Session Classification: Quantum Phenomena

Track Classification: Quantum Phenomena