

Antiferromagnetic thin films grown via MBE

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I will present our recent results on the growth of the Kagome metals Mn_3Sn and FeSn . We have successfully developed the thin film growth via molecular beam epitaxy for both materials.

Both FeSn and Mn_3Sn are antiferromagnets with a non-collinear spin structure arranging in the Kagome lattice. Kagome materials are of particular interest due to their frustrated spin texture and unconventional topological band structures. They are therefore candidate materials for Weyl nodes and host Dirac states. While the magnetic properties support skyrmions up to elevated temperatures.

I will present our film growth and show that we have achieved single crystalline layers of both materials.

In addition to the Kagome materials we have also recently successfully synthesized single crystalline layers of the antiferromagnetic semiconductor CuFeS_2 . From theoretical calculations it has been shown, that CuFeS_2 should support altermagnetism. I will show our current status for the the molecular beam epitaxy growth of this material.

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