Anomalous transport properties in antiferromagnetic Mn3Ge

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In recent years, non-collinear antiferromagnets Mn3Sn and Mn3Ge attracted an enormous attention due to the identification of Weyl points in their band structure. Indeed, this peculiar combination of antiferromagnetic ground state with Weyl physics is responsible for a plethora of exotic properties including the anomalous Hall effect, the anomalous Nernst effect, the topological Hall effect, the magneto-optical Kerr effect and the spin Hall effect. This extended phenomenology makes them not only extremely intriguing from a fundamental point of view, but also potential candidates for technological applications in different fields, including antiferromagnetic spintronics and thermoelectricity.

In this seminar, I will present our results in the investigation of the anomalous transport properties of Mn3Ge in form of single crystals, especially focusing on the anomalous Nernst effect. Then, I will report on our progress in the deposition of thin films of Mn3Ge via laser ablation, a fundamental step towards the realization of electronic and spintronic devices.