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場 所： 北海道大学 理学部2号館211

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講演者： **Ms. Josefin Engelke** (Technische Universität Braunschweig, Institute for Condensed Matter Physics, 38106 Braunschweig, Germany)

題 目：『 **Magnetic and transport properties of MnSi thin films** 』

要 旨： MnSi offers a variety of different magnetic phases. The competition of ferromagnetic exchange with the Dzyaloshinskii-Moriya interaction causes a helical spin structure as the ground state of the system. In applied magnetic fields a conical structure and ferromagnetic spin alignment can be observed. In addition, a skyrmion lattice phase occurs in a small field and temperature region close to the ordering temperature, which is known as the A-phase. In thin films a larger skyrmionic phase is expected in the magnetic phase diagram due to surface effects and strain.

Using molecular beam epitaxy MnSi thin films have been grown on Si(111) substrates. Magnetization and magnetoresistivity measurements have been carried out and related to the magnetic phase diagram. The magnetic ordering temperature T_{ord} is enhanced and shows a thickness dependence. In comparison to bulk MnSi also the critical magnetic fields of the thin films are enhanced. Furthermore several features can be identified occurring in the magnetization as well as in the magnetoresistivity measurements, which are not present in bulk material. Potentially these are indications of an enlarged skyrmionic phase.

Reference:

"Spin-spin correlation length in MnSi thin film", J. Engelke, T. Reimann, L. Hoffmann, S. Gas, S. Sullow, D. Menzel, J. Phys. Soc. Jpn. 81 (2012) 124709.

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