Growth and transport properties of FeGe film on GaAs (100) substrate

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FeGe thin film is one of magnetic materials that skyrmion state was observed. [1, 2] Skyrmions are small magnetic vortices those are first discovered in manganese silicide thin film. Skyrmions could form the basis of future hard-disk technologies because they might be made much smaller and thus be used to create storage devices with much higher density than the disks use magnetic domains.[3] In this report, we study about transport properties of FeGe film grown on GaAs (100) substrate by using molecular beam epitaxy (MBE). A hexagonal structure of FeGe thin film was determined by XRD pattern. Surface morphology of FeGe was observed by FE-SEM measurement. Temperature dependent resistivity measurement showed a metallic behavior of FeGe film. The anomalous Hall effect (AHE) originating from asymmetric scattering in the presence of magnetization was observed.

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