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Permalloy microstructures at high current densities :-

SALEH GETLAWI , IVO KNITTEL , MICHAEL KOBLISCHKA , and UWE
HARTMANN

Fachrichtung Experimentalphysik , Universität des Saarlandes ,
66041 Saarbrücken .

It is now less than ten years that magnetization reversal by spin transfer and current-induced domain wall movement has been discovered. Now it is discussed more and more as a possible mechanism for devices, namely as microwave generator and for permanent information storage. However, the current densities involved are without precedent in technology. We have set up a number of experiments to observe the effects of high current densities on permalloy microstructures. We investigate current-induced domain wall movement by magnetic force microscopy, map the local temperature distribution by Near-Infrared Scanning Near Field Microscopy, and study the effects of electromigration by atomic force microscopy and electron microscopy.

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