

Abstract Submitted  
for the 4CF09 Meeting of  
The American Physical Society

**Microwave-Assisted Magnetization Switching: Competition between Pumping and Damping** ZIHUI WANG, KE SUN, WEI TONG, MINGZHONG WU, MING LIU, NIAN X. SUN, COLORADO STATE UNIVERSITY TEAM, UNIVERSITY OF ELECTRONIC SCIENCE AND TECHNOLOGY OF CHINA COLLABORATION, NORTHEASTERN UNIVERSITY (BOSTON) COLLABORATION — In the presence of microwaves, magnetization reversal in magnetic materials can be realized with relatively low magnetic fields. This effect is called microwave-assisted magnetization reversal (MAMR). This presentation reports for the first time (1) the demonstration of MAMR in large-damping materials and (2) the observation of a saturation effect for the enhancement in MAMR. The experiments were carried out on  $\text{Fe}_{70}\text{Co}_{30}$  thin films with ferromagnetic resonance techniques. A reduction in the switching field was observed in the presence of microwaves. The level of such a reduction depends on the frequency and power of the microwaves. With increasing the microwave duration, the switching field decreases first but then approaches a lower-limit. This saturation of the switching field reduction was interpreted in terms of the pumping-damping competition. The interpretation was supported by the measurements of the switching field as a function of the microwave duration for different conditions.

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Date submitted: 24 Sep 2009

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