Contribution ID: **119** Type: **Invited**

Fast Dynamics of Exchange Biased Bilayers

Tuesday, 24 July 2012 16:45 (25 minutes)

Ivan K. Schuller, UCSD, USA;
Shimshon Barad, Tel Aviv University, Israel;
W. A. A. Macedo, Centro de Desenvolviemeinto da Tecnologia Nuclear, Brazil;
Chris Leighton, University of Minnesota, USA;

Ultrafast optical excitation of a ferromagnet/antiferromagnet (Ni/FeF2) exchange biased bilayer produces novel magnetization dynamics unlike ever observed before. An unexpected precession of the magnetization, in reverse magnetic fields that exceed the exchange bias, originates from a reorientation of frustrated spins at the interface. As the laser-excited interface approaches the blocking temperature, an exchange bias reversal can also be induced with a single excitation pulse, showing that not only the ferromagnet but also the antiferromagnet is strongly affected by the optical perturbation. This non-trivial response cannot be extrapolated from the known slow dynamics of magnetic bilayers, and provides important information on the physics of the interlayer coupling. We will contrast these measurements with our earlier studies using field pulses.

Work supported by the US Department of Energy

Primary author: SCHULLER, Ivan K. (UCSD)

Presenter: SCHULLER, Ivan K. (UCSD)

Session Classification: Photoinduced Studies I

Track Classification: Photoinduced Studies