

Title: Low Frequency Noise in Magnetic Tunneling Junctions and GMR Devices

Speaker:

Prof. E. Dan Dahlberg
University of Minnesota

Date: Monday, 11 October 2010

Time: 2:30 pm

Venue: Room 603, Chow Yei Ching Building,
Department of Electrical and Electronic Engineering,
The University of Hong Kong

Abstract:

The low frequency noise in magnetic tunnel junctions has been investigated. In the regime when one of the magnetic layers is switching the magnetic aftereffect can alter the measured spectra and must be taken into account. When the magnetic aftereffect is taken into account all spectra are consistent with $1/f$ noise and have magnitudes similar to those we find in other magnetic states. We do not observe any magnetic contribution to the noise in any of the large area junctions (on the order of 100 microns on a side). At higher frequencies where the noise is frequency independent the spectra are consistent with Johnson noise calculated for the junction resistance.

Biography of the speaker:

E. Dan Dahlberg received the B.S. and M.S. in physics from the University of Texas at Arlington in 1970 and 1972, respectively, and the Ph.D. from University of California, Los Angeles, in 1978. He joined the faculty at the University of Minnesota in 1980 and is currently a professor of physics and an Institute of Technology Distinguished Professor. He is the director and principal investigator of the Magnetic Microscopy Center (MMC) at the university. His recent research is on exchange bias, the physics of magnetic tunnel junctions, and noise in magnetic devices. Some of his previous research includes magnetotransport and other magnetic properties of thin films and multilayers, the dynamics of spin glasses, nonequilibrium superconductivity, the thermodynamics of magnetic superconductors, and the quantum Hall effect.

Organizer: Dr. P.W.T. Pong

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