055:191
Electrical & Computer Engineering Graduate Seminar

Thursday December 3, 2009 3:30-4:20 PM Room 3321 SC

Title: Magnetoresistance and spin-transport in organic semiconductor devices

Speaker: Markus Wohlgenannt
Department of Physics and Astronomy, University of Iowa

Abstract: Organic spintronics is a currently developing field that studies the transport and dynamics of spins in organic semiconductor devices. Organic spin-valve devices, where an organic semiconductor is sandwiched between two ferromagnetic electrodes, are of particular interest, and low-temperature magnetoresistance of up to 40% has already been demonstrated in these devices. Very unexpectedly, however, it was discovered that room-temperature magnetoresistance of a similar magnitude can also be achieved in organic semiconductor devices without ferromagnetic electrodes. We report on the extensive experimental characterization of this magnetoresistive effect. Based on our findings, we will present a theory of the spin-diffusion length in these materials based on hyperfine interaction.

Bio: He received his Master's degree in Physics from the Technical University of Graz, Austria and his PhD in Physics from the University of Utah in 2000. His PhD thesis was on optically detected magnetic resonance of conjugated polymers.

He is the author of over 50 papers, several book chapters and patents.

All ECE graduate students are required to attend.

For more information contact:

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