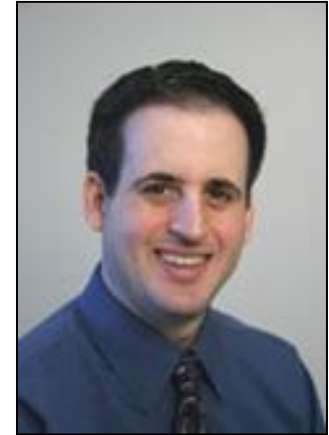TITLE: **Stochastic Decoding of LDPC Codes over GF(q)**

SPEAKER: **Warren J. Gross**
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McGill University
Montreal, Quebec, Canada

DATE: Friday, January 22, 2010
TIME: Reception: 3:30 PM*
Presentation: 4:00 PM

PLACE: Auditorium
Center for Magnetic Recording Research

HOST: Prof. Paul H. Siegel

Abstract: Non-binary LDPC codes have been shown to outperform currently used codes for magnetic recording and several other channels. Currently proposed nonbinary decoder architectures have very high complexity for high-throughput implementations and sacrifice error-correction performance to maintain realizable complexity. In this talk, we present an alternative decoding algorithm based on stochastic computation that has a very simple implementation and minimal performance loss when compared to the sum-product algorithm. We demonstrate the performance of the algorithm when applied to codes over GF(16) and GF(32).

Bio: Warren J. Gross is an Assistant Professor in the Department of Electrical and Computer Engineering at McGill University. His research interests are in the design and application of signal processing microsystems and custom computer architectures. He received the PhD degree from the University of Toronto in 2003. In the summers of 2004 and 2005, he was a Visiting Professor at the Université de Bretagne-Sud. Lorient, France. He served as the General Chair of the 6th Analog Decoding Workshop. He is a member of the Design and Implementation of Signal Processing Systems Technical Committee of the IEEE Signal Processing Society and served on the program committees of the IEEE Workshop on Signal Processing Systems, the IEEE Symposium on Field-Programmable Custom Computing Machines and the International Conference on Field-Programmable Logic and Applications. Dr. Gross is a member of the IEEE and a licensed Professional Engineer in the Province of Ontario.

If you have any questions or, time permitting, would like to meet with the speaker,
contact Betty Manoulian (bmanoulian@ucsd.edu / Phone 858-534-6707).

* Please observe the "No Food or Drink in the Auditorium" policy.