



Center for Memory and Recording Research

University of California – San Diego

La Jolla, California 92093-0401

Research Review & Advisory Council Meeting



October 13 – 14, 2016

Website: <http://cmrr.ucsd.edu>

Research Review Schedule

Thursday, October 13, 2016

8:30 AM - Continental Breakfast at CMRR

8:55 AM - Welcome and Introduction

9:00 AM – Signal Processing & Coding

Professor Paul H. Siegel

1	Codes in the Damerau Distance for DNA Storage	<i>Eitan Yaakobi</i>
2	On the Capacity of the Beta-Binomial Channel Model for Multi-Level Cell Flash Memories	<i>Veeresh Taranalli</i>
3	Optimal Row-by-Row Code Design for 19nm MLC NAND Flash Memory	<i>Osamu Torii</i>
4	Performance of Data Shaping Codes for Flash Memory	<i>Yi Liu</i>
5	Enhancing the Lifetime of ReRAM by Wear Leveling	<i>Bing Fan</i>
6	Multi-Erase Locally Repairable Codes Over Small Fields	<i>Pengfei Huang</i>

11:00 AM - 10 Minute Break

11:10 AM – Non-Volatile Solid State Memory

Professor Steven Swanson

7	SuperNOVA: A File System for NVM Applications	<i>Andiry Xu</i>
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11:30 AM – Magnetic Films and Nanostructures

Professor Eric E. Fullerton

8	Magnetic Properties in CoFeB/CoFeBV Hybrid Perpendicularly Magnetized Systems	<i>Dokyun Kim</i>
10	All-Optical Switching in Granular FePt Films	<i>Eric Fullerton</i>
11	Characterization of DMI and Skyrmions in Pt/Co/Os/Pt Thin Films	<i>Robert Tolley</i>
12	Transport Properties of Magnetic Nanowires	<i>Sohini Manna</i>

12:30 PM – Lunch – CMRR Lobby		
1:30 PM – Special Session <i>Jimmy Kan, Qualcomm</i>		
14	Engineering Perpendicular MTJs for Reliable Operation of Embedded STT-MRAM	<i>Jimmy Kan</i>
2:10 PM – Electronic and Transport Properties of Nanoscale Systems <i>Professor Max DiVentra</i>		
15	Memcomputing: A Brain-Inspired Topological Computing Paradigm	<i>Max DiVentra</i>
2:30 PM – Thermal Energy Transport <i>Professor Renkun Chen</i>		
16	Mean Free Path Distribution of Propagons in Amorphous Silicon	<i>Jianlin Zheng</i>
16	Manganese Concentration and the Magnetocaloric Effect	<i>Elizabeth Caldwell</i>
3:10 PM - 10 Minute Break		
3:20 PM – Micromagnetic Modeling & Recording Physics <i>Professor Vitaliy Lomakin</i>		
17	Thermal Stability of MRAM Stacks	<i>Majd Kuteifan</i>
18	Coupling MRAM Circuit Solvers and Landau-Lifshitz-Gilbert Equation	<i>Iana Volvach</i>
19	Simulations of Optical Switching in FePt Using the Landau-Lifshitz-Lambda Model	<i>Marco Menarini</i>
19	Semi-Implicit Solver to Solve the Magnetization Dynamics Using the Voronoi Code	<i>Marco Menarini</i>
20	Eddy Current Effects in Micromagnetic Modeling of Magnetic Devices	<i>Simon Couture</i>
5:20 PM - Poster Session		
6:10 PM - Advisory Council Meeting		

Friday, October 14, 2016

8:30 AM - Continental Breakfast at CMRR

8:55 AM - Welcome and Introduction

9:00 AM – Tribology & Mechanics

Professor Frank E. Talke

21	Effect of Voltage Biasing on the Head/Disk Interface	<i>Karcher Morris</i>
22	Investigation of the Head Disk Interface in Air and Helium During Load/Unload Process	<i>Tan Trinh</i>
23	Tip Enhanced Raman Spectroscopy for Studying the HAMR Head/Disk Interface	<i>Benjamin Suen</i>
24	Effect of Organic Contaminants at the Head-Disk Interface	<i>Young Seo</i>
25	Simulation and Experimental Investigations of Ramp Wear	<i>Youyi Fu</i>

10:20 AM - 10 Minute Break

26	Design and Manufacturing of a 3-D Printable, Disposable Endoscope and Overtube	<i>Anay Pandit</i>
27	Development of an Optical Pressure Sensor for Glaucoma Management	<i>Alex Phan</i>
28	Image Processing of Interferometric Intraocular Pressure Data	<i>Phuong Truong</i>

11:10 AM – Non-Volatile Solid State Memory

Professor Shirley Meng

29	Inspiration from Resistive Switching in Energy Storage Materials	<i>Michael Verde</i>
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11:40 AM – Electrochemical Energy Conversion and Storage Application

Professor Ping Liu

30	Energy Storage Research at the Sustainable Power and Energy Center	<i>Shirley Meng</i>
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12:10 PM – Lunch/Lab Visit