



Center for Memory and Recording Research

University of California – San Diego

La Jolla, California 92093-0401

Research Review & Advisory Council Meeting



October 8 – 9, 2015

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



Research Review Schedule

Thursday, October 8, 2015

8:30 AM - Continental Breakfast at CMRR

8:55 AM - Welcome and Introduction

9:00 AM – Tribology and Mechanics
Professor Frank Talke

1	Voltage Biasing of the Head Disk Interface	<i>Karcher Morris</i>
2	Experimental Research Plan on Tribocharging of the Head Disk Interface	<i>Tan Trinh</i>
3	Study of Hydrocarbon Contaminant's Role at the Head-Disk Interface	<i>Young Seo</i>
4	Investigation of the Effect of Diamond-Like Carbon Overcoat on the Tribological Performance of the Dimple/Gimbal Interface in Hard Disk Drives	<i>Youyi Fu</i>
5	Investigation of Temperature Change and Damage at the Head/Disk Interface in Heat Assisted Magnetic Recording Using Tip Enhanced Raman Spectroscopy	<i>Longqiu Li</i>

10:20 AM - 10 Minute Break

6	Optical Antenna Design for Apertureless Tip-Enhanced Raman Spectroscopy	<i>Ben Suen</i>
7	Development of an Optical Based Pressure Sensor for Continuous Glaucoma Monitoring	<i>Alex Phan</i>

11:00 AM – Experimental Condensed Matter Physics
Professor Kai Liu/ UC Davis

8	Realization of Ground State Artificial Skyrmion Lattices at Room Temperature	<i>Dustin Gilbert</i>
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11:30 AM – Thermal Energy Transport Conversion
Associate Professor Renkun Chen

9	Magneto Caloric Properties of Spark Eroded NiMnSn Heusler Alloy	<i>Dongwon Chun</i>
9	Transition Metal Oxide Coatings for Concentrated Solar Power	<i>Lizzie Caldwell</i>
10	Thermal Transport in Multilayer Systems with Highly Dissimilar Debye Temperatures	<i>Edward Dechaumphai</i>

12:30 Lunch

1:30 PM – BioSensors and BioElectronics Group

Associate Professor Drew Hall

11

Nanoscale Magnets: Ultrasensitive Biosensing for Medical Applications

Drew Hall

2:30 PM - 10 Minute Break

2:40 PM - Micromagnetic Modeling and Recording Physics

Professor Vitaliy Lomakin

12

Eddy Current Effects in Micromagnetic Modeling of Magnetic Devices

Simon Couture

12

High Frequency Measurement of Complex Permeability

Simon Couture

13

Dynamics of Domain Wall Oscillators Using a Spring Magnet

Majd Kuteifan

14-15

Modeling All-Optical Switching in Granular Media

Marco Menarini

16

Integrated Head-Media Micromagnetic Modeling of MAMR

Iana Volvach

17

Coupling Landau-Lifshitz-Gilbert Equation and Circuit Solvers

Iana Volvach

4:30 PM - Poster Session

5:00 PM - Advisory Council Meeting

Friday, October 9, 2015

8:00 AM - Continental Breakfast at CMRR

8:40 AM - Welcome and Introduction

8:45 AM - Signal Processing & Coding
Professor Paul H. Siegel

18	Construction of Binary Locally Repairable Codes	<i>Pengfei Huang</i>
19	Enhancing the Average Lifetime of Flash Memory by Lattice-Based WOM Codes	<i>Bing Fan</i>
20	Row-by-Row Coding with ICI-Mitigation and Error Correction	<i>Sarit Buzaglo</i>
21	Error Analysis and Empirical Channel Models for Multi-Level Cell Flash Memories	<i>Veeresh Taranalli</i>
22	Shaping Codes for Structured Data	<i>Yi Liu</i>

10:15 AM - 10 Minute Break

10:25 AM – Magnetic Films and Nanostructures
Professor Eric Fullerton

23	Resonant Properties of a Skyrmionic RE-TM Ferrimagnet with Weak Perpendicular Magnetic Anisotropy	<i>Sergio Montoya</i>
24	All-Optical Control of Magnetization in Various Metallic Magnetic Systems	<i>Raj Medapalli</i>
25	All Optical Helicity Dependent Switching in FePt-C Granular Media	<i>Yukiko Takahashi</i>

11:10 AM – Thermal Energy Transport
Associate Professor Shirley Meng

26	Electronic Spin Transition in Nanoscale Lithium Containing Transition Metal Oxides	<i>Shirley Meng</i>
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11:30 AM - Lunch

12:30 PM – Special Session: Intel Activities in the Storage Domain
Dr. Jawad Khan/ Intel

26	Introduction to Storage Technologies Group (STG) at Intel and Collaboration Opportunities	<i>Jawad Khan</i>
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1:15 PM – Electronic and Transport Properties of Nanoscale
Professor Massimiliano di Ventra

27	Memcomputing: Computing with Collective States of Interacting Memory Processors	<i>Fabio Traversa</i>
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