



Center for Magnetic Recording Research

University of California – San Diego

La Jolla, California 92093-0401

# Research Review and Advisory Council Meeting



May 2 & 3, 2013

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

**Research Review Schedule – Thursday, May 2, 2013**

**8:30 AM -- Continental Breakfast at CMRR**

**8:55 AM -- Welcome and Introduction**

**9:00 AM -- Tribology and Mechanics**

*Professor Frank E. Talke*

<b>1</b>	Investigation of Touch-down Sensors in Thermal Flying Height Control Disk Drives	<i>Liane Matthes</i>
<b>2</b>	Contact Between a Disk Asperity and the Touchdown Sensor in a Thermal Flying-height Control Slider	<i>Chuanwei Zhang</i>
<b>3</b>	Experimental Investigation of the Tribology of the Dimple/Gimbal Interface	<i>Youyi Fu</i>

**10:00 AM -- 10 MINUTE BREAK**

<b>4</b>	Numerical Simulation of Fretting Wear at the Dimple/Gimbal Interface	<i>Zhenqiang Tang</i>
<b>5</b>	The Effect of Local Pressure Changes on Lubricant Transfer: A Molecular Dynamics Simulation	<i>Deng Pan</i>
<b>6</b>	Experimental Study on Scratch Induced Magnetization on Changes of Hard Disks	<i>Lei Yang</i>

**11:00 AM – Undergraduate Industry Internship Initiative**

**Sandra Ponting/Research Affairs**

**11:10 AM -- SPECIAL SESSION**

<b>7</b>	Advanced Sensors for Magnetic Recording Heads	<i>Jeff Childress HGST, a Western Digital Company</i>
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**12:10 PM -- Lunch at CMRR**

**1:10 PM -- Design and Fabrication of Nano Magnetic Materials**

*Professor Sungho Jin*

<b>8</b>	Magnetic Sensors and Actuators Using Square M-H Loop Alloys Wires	<i>Sungho Jin/Leon Chen</i>
<b>8</b>	Nano/Micro Shaping of Si by Magnetic Guiding	<i>Justin Kim</i>

**1:50 PM -- Magnetic Materials & Devices**

*Research Professor Ami E. Berkowitz*

<b>9</b>	MnBi Particles with High Energy Density made by Spark Erosion	<i>Phi Nguyen</i>
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**2:10 – 10 MINUTE BREAK**

**2:20 PM—Signal Processing and Coding**

*Professor Paul H. Siegel*

<b>10</b>	Repeatable Noise Cancellation in Shingled Magnetic Recording	<i>Bing Fan</i>
<b>11</b>	MFM-based Data Reconstruction: Progress Report	<i>Vasu Kanekal</i>
<b>12</b>	Polar Codes for Magnetic Recording Channels	<i>Aman Bhatia</i>
<b>13</b>	Adaptive Linear Programming Decoding of Polar Codes	<i>Veeresh Taranalli</i>
<b>14</b>	Parallel Programming of Rank Modulation	<i>Minghai Qin</i>

**3:35 -- 10 MINUTE BREAK**

**3:45 PM – Non-Volatile, Solid- State Memory**

*Associate Professor Steve Swanson & Professor Paul H. Siegel*

<b>15</b>	Error Characterization and ECC Comparison for MLC Flash Memory	<i>Scott Kayser</i>
<b>16</b>	Bankshot: Caching Slow Storage In Fast Non-Volatile Memory	<i>Meenakshi Sundaram Bhaskaran</i>
<b>17</b>	Minerva: A Compute Capable SSD Architecture for Next Generation Non-volatile Memories	<i>Arup De</i>

**4:40 PM – Schultz Prize Announcement & Poster Session**

**5:30 PM -- Advisory Council Meeting**

**7:00 PM -- Advisory Council Dinner**

**Research Review Schedule --Friday, May 3, 2013**

**9:00 AM -- Continental Breakfast at CMRR**

**9:25 AM -- Welcome and Introduction**

**9:30 AM – Magnetic Films and Nanostructures**  
*Professor Eric Fullerton*

<b>18</b>	Material Engineering for All-Optical Magnetization Switching Applications	<i>Matthias Gottwald</i>
<b>19</b>	Development and Characterization of Spin-Transfer-Torque MRAM Tunnel Junctions	<i>Jimmy Kan</i>
<b>20</b>	Imaging of the Equilibrium Structures and Disclinations of Gold Nanoparticles	<i>Edwin Fohtung</i>

**10:30 AM – 10 Minute Break**

**10:40 AM—Micromagnetic Modeling & Recording Physics**  
*Associate Professor Vitaliy Lomakin*

<b>21</b>	Superposition and Sparse Matrix Multiplication Methods on Multiple Graphics Processing Units	<i>Sidi Fu</i>
<b>21</b>	Electromagnetic Integral Equation Methods for Modeling Optical and Magnetic Devices	<i>Ruinan Chang</i>
<b>22</b>	Numerical Simulations of Thin Films for Hard Magnetic Materials Using a Moving Window Approach	<i>Marco Menarini</i>
<b>22</b>	Study of Chirped Degaussing Waveforms	<i>Marco Escobar</i>
<b>23</b>	Thermal Distributions for Heat Assisted Magnetic Recording (HAMR): Continuous Film vs. BPM	<i>Dor Gabay</i>
<b>24</b>	Micromagnetic Simulations of Arrays of Coupled Ferromagnetic Nanoparticles	<i>Simon Couture</i>
<b>24</b>	Study of Domain Wall Motion in Antiferromagnetically Coupled Nanowires	<i>Majd Kuteifan</i>

**12:30 PM – Informal Lunch – CMRR Second Floor Patio**

**3:00 pm Adjournment - Thank you!**