RESEARCH REVIEW & ADVISORY COUNCIL MEETING

20
19

CMRR

OCTOBER 17 & 18, 2019
CENTER FOR MEMORY AND RECORDING RESEARCH
UC SAN DIEGO

RESEARCH REVIEW PROGRAM
Thursday, October 17, 2019

8:30AM	Continental Breakfast in the CMRR Lobby
9:00AM	Welcome and Introduction

9:10AM   **Paul Siegel Group - Signal Processing and Coding**

On the Optimality of Permutation on Polarizing Kernels	Wei Wu
Slepian-Wolf Polar Coding with Unknown Correlation	Karthik Nagarjuna Tunuguntula
RNN-Based Detection for Magnetic Recording Channels	Simeng Zheng
TDNN, LSTM and Performance Analysis of Bad Page Detector for NAND Flash Memory	Yi Liu
Error Prediction with Ensemble Learners	Navya Sree Prem

10:30AM   **15 MINUTE BREAK**

10:45AM   **Steve Swanson - Non-Volatile Solid State Memory**

An Analysis of Realistic Non-Volatile Memory Architecture with VANS	Zixuan Wang
CPU Profile-Based Tiering File System for Flash Storage	Yu Nakanishi

11:20AM   **Max Di Ventra - Unconventional Computing with Memory**

Mode-Assisted Unsupervised Learning of Restricted Boltzmann Machines	Haik Manukian

RESEARCH REVIEW PROGRAM

Thursday, October 17, 2019

11:40AM   **Kenji Nomura - Thin-Film Electronics and Advanced Materials**

Resistive Switching Memory Effects in P-Type Cu_2O Nanowire	Chi-Hsin Huang
Hydrogen Defect Termination for SnO Based p-channel TFTs	Alex Lee

12:15PM   Lunch in the CMRR Lobby

1:10PM   **Invited Speaker: Gert Cauwenberghs, Bioengineering Department**
                      Memory-Efficient Neuromorphic Learning and Inference

2:05PM   **Eric Fullerton - Magnetic Films and Nanostructures**

Summary of Group Research	Eric Fullerton
Skyrmion Nucleation in Co/Ni/Pt-based Heterostructures	Jeff Brock
Giant Spin Hall Effect in Mesoscopic Hall Bars of Ultrathin Au/Si Hyperbolic Metamaterials	Mohammed El Hadri
Study of Spin Transport and Dynamics in Magnetic Insulators	Hailong Wang

3:00PM   **15 MINUTE BREAK**

3:15PM   **Vitaliy Lomakin - Micromagnetic Modeling and Recording Physics**

Evaluation of the Thermal Fluctuations in the Landau-Lifshitz-Bloch Model at High Temperature	Marco Menarini
A Real-time Algorithm to Reconstruct 3D Object in CXDI Based on Massively Parallel Processing	Fangzhou Ai

Vitaliy Lomakin - Micromagnetic Modeling and Recording Physics (cont.)

Computing Resonant Modes and Excitation States in Micromagnetic Systems with Finite Element Based Solvers	Zhounan Lin
Landau-Lifshitz-Gilbert Equation (LLGE) Coupled Two Spin Channel Model Finite Element Method (FEM) Solver In Consideration of Spin Hall Effect	Xueyang Wang
Magnetization Switching and Thermal Stability in Perpendicular Magnetic Tunnel Junctions with Surface Defects	Iana Volvach

4:30PM   **Ping Liu and Shirley Meng - Sustainable Power and Energy Center**

Memristive Behavhior in Lithium Ion Battery Materials	Thomas Wynn
Draining Over Blocking: Nano-Composite Janus Separators for Mitigating Internal Shorting of Lithium Batteries	Matthew Gonzalez

5:00PM   **Poster Session**

5:30PM   **Reception in the CMRR Lobby**

6:00PM   **Advisory Council Meeting**

RESEARCH REVIEW PROGRAM

Friday, October 18, 2019

8:30AM   Continental Breakfast in the CMRR Lobby

9:00AM   **Frank Talke Group - Tribology, Mechanics, and Medical Device Technology**

Tip and Surface Enhanced Raman Spectroscopy of Hard Disks	Ben Suen
Summary of Bias Voltage Tribology Studies and Reliability of HAMR-Disk Interface	Tan Trinh
Applications of LDV: Disk Run-Out and Thin Film Characterization	Christoph Schade
The Design and Modeling of an Intraocular Pressure Sensor	Alex Phan
Drift Minimization of an Intraocular Pressure Sensor	Christoph Schade

10:00AM   **15 MINUTE BREAK**

10:15AM

Anchoring Methods for an Intraocular Pressure Sensor	Phuong Truong
Internet-Enabled Ophthalmic Instrumentation	Buu Truong
Esophagus Deflection Device	Karcher Morris
Design of a Detachable Bronchoscope	Matthew Kohanfars
Biofilm Retardant Catheter	Oren Gotlib

12:00PM   Lunch in the CMRR Lobby