



# Computer Mechanics Laboratory

## 29<sup>th</sup> Annual Sponsors' Meeting

January 30, 2017

University of California, Berkeley

### Program

**Monday, January 30, 2017**

7:30 – 8:00      *Coffee and Rolls*

8:00 – 8:15      *Director David Bogy*

- WELCOME AND 2016 ANNUAL REPORT

#### **Session I      Servos and Actuators**

8:30 – 9:45      *Professor Tomizuka*

- A generalized anti-windup scheme considering amplitude and rate saturation      *Shiying Zhou*
- Robust multi-rate control for high-frequency disturbance attenuation      *Liting Sun*
- H-infinity based optimal disturbance estimation and rejection in high-precision systems      *Minghui Zheng*
- 2017 RESEARCH PROPOSALS

09:45 – 10:00      **Break**

#### **Session II      Head/Media Tribology**

10:00 – 11:00      *Professor Komvopoulos*

- Synthesis of Ultrathin Amorphous Carbon Overcoats for Heat-Assisted Magnetic Recording      *Josef Matlak*
- Ultrathin carbon overcoats for heat-assisted magnetic recording      *Shengxi Wang*
- 2017 RESEARCH PROPOSALS

#### **Session III      Servos and Actuators**

11:00 – 12:00      *Professor Horowitz*

- H<sub>2</sub>/H<sub>inf</sub> Data driven control design in frequency domain applicable to dual-stage HDD      *Omid Bagherieh*
- Settling Control of the Triple-Stage Hard Disk Drives Using Robust Output Feedback Model Predictive Controls      *Huy Nguyen & Omid Bagherieh*
- Vibration Rejection Algorithms Triple-Stage Hard Disk Drives      *Preteek Shah and Zhi Chen*

12:00 – 1:00      *Lunch catered to Banatao Auditorium (CITRIS Building)*

## Session IV

### Head/Media Interface for HAMR I: Tribology

1:00 – 2:30

*Professor Bogy*

- Effect of functional end-groups on lubricant reflow in HAMR *Soroush Sarabi*
- The effects of Viscoelasticity for HAMR Lubricants *Soroush Sarabi*
- Slider Particle Contamination in Heat Assisted Magnetic Recording *Siddhesh Sakhalkar*
- Atom-by-atom model for nanoscale wear of a single asperities *Dr. Yunian Shen*
- Heat Effect on the Near-Field Transducer for Heat-Assisted Magnetic Recording *Yueqiang Hu*

2:30 – 3:00

**Break**

## Session V

### Head/Media Interface for HAMR II: Heat Transfer

3:00 – 4:30

*Professor Bogy*

- CML 2010-2016: progress in nanoscale heat transfer *Dr. Bair Budaev*
- Use of an Embedded Contact Sensor to Study Nanoscale Heat Transfer in Heat Assisted Magnetic Recording *Haoyu Wu*
- Experimental and simulation study of nano scale HDI heat transfer using a PMR head *Yuan Ma*
- Effects of phonon conduction and phonon interference on HDI heat transfer in HAMR technology *Amin Ghafari*
- Near field thermal radiation between the slider and disk based on fluctuational electrodynamics *Chi Ma*
- Slider dynamics evolution at near contact/contact condition *Dr. Yu Wang*

4:30 – 5:00

**Open Forum Discussion and Industry Feedback** (*Banatao Auditorium*)

5:00 – 6:30

**Posters session and Buffet reception** (*Banatao Auditorium*)

6:00 – 6:30

**Advisory Council Meeting**

FANUC Room – 6<sup>th</sup> Floor, Etcheverry Hall

6:30 – 7:30

**Lab Tours and Discussions**

5119, 5121, 5147, 5149 & 5151 Etcheverry Hall