Program and Extended Abstracts

ISPS’08

18th Annual ASME Conference on Information Storage and Processing Systems

Participating Divisions:

ASME Information Storage and Processing Systems (ISPS) Division

June 16-17, 2008
Santa Clara, California, USA
May 20, 2008

Dear Colleagues:

Welcome to the ISPS’08, the 18th ASME Annual Conference on Information Storage & Processing Systems. The ISPS’08 is sponsored by the ISPS Division of the ASME and is held on June 16 and 17, 2008 at Santa Clara University, Santa Clara, California, USA. This conference offers an ideal forum for researchers in both industrial and academic environments to foster synergies in multi-disciplinary areas of the data storage and processing industry. This year’s conference program features technical tracks with 24 sessions addressing the researches, developments, and applications that include:

- Actuators & Suspensions
- Biomedical & Smart Machines
- Image Processing & Consumer Electronics
- Micro/Nano Technologies
- Optical Storage & Technologies
- Servo Control Technologies
- Shock & Flow Induced Vibrations
- Spindle Motor & Acoustics
- Tape Storage & Flexible Media Mechanics
- Tribology & Head-Disk Interface

We have about 88 contributed papers in the above areas and Dr. Kurt Petersen, Chief Executive Officer and Chairman of SiTime, is our conference dinner banquet speaker.

I would like to thank Santa Clara University for use of its facilities for the ISPS’08 conference, Dr. Neal Schirle of Hitachi GST as the Conference Treasurer and for the necessary arrangements with the University, and both Prof. I.Y. (Steve) Shen of University of Washington and Prof. Frank Talke of University of California, San Diego for sharing their insight on the conference technical programs, publications, and preparation. In addition, I would like to thank all the ISPS’08 session organizers, session (co-)chairs, and the ISPS Executive Members for their efforts and assistance in making ISPS’08 possible. Finally, I would like to thank all the presenters and participants of the conference. ASME ISPS’08 will not be successful without your participation.

Sincerely Yours,

Jen-Yuan (James) Chang
ISPS’08 Conference Chair
ASME ISPS’08 Conference is held in the west end of the Benson Center

Rooms:
- California Mission Room: basement floor of Benson Center
- Parlors D&E: west end of Benson Center
- Williman Room & Patio: south west corner of Benson Center
ISPS’08 – 18th Annual ASME Conference on Information Storage and Processing Systems

Conference Program Overview

Monday, June 16, 2008

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<td>08:00 am – 05:00 pm</td>
<td>Registration</td>
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<tr>
<td>08:00 am – 09:00 am</td>
<td>Continental Breakfast (Williman Patio)</td>
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<tr>
<td>08:45 am – 09:00 am</td>
<td>Conference Welcome (California Mission Room)</td>
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<table>
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<tr>
<th>Time</th>
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<td>09:00 am – 10:40 am</td>
<td>THN-A</td>
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<tr>
<td>10:40 am – 11:00 am</td>
<td>Break</td>
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<tr>
<td>11:00 am – 12:40 pm</td>
<td>THN-B</td>
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<tr>
<td>12:40 pm – 01:40 pm</td>
<td>Lunch (Williman Patio)</td>
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<tr>
<td>01:40 pm – 03:20 pm</td>
<td>THN-C</td>
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<tr>
<td>03:20 pm – 03:40 pm</td>
<td>Break</td>
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<tr>
<td>03:40 pm – 05:20 pm</td>
<td>THN-D</td>
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<tr>
<td>05:30 pm – 06:30 pm</td>
<td>• Social Hour</td>
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<td></td>
<td>• ISPS Executive Committee Meeting (Parlor A)</td>
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<tr>
<td>06:30 pm – 07:30 pm</td>
<td>Conference Dinner &amp; Awards (Williman Room)</td>
</tr>
<tr>
<td>07:30 pm – 08:30 pm</td>
<td>Keynote Speaker: Dr. Kurt Petersen: “The Rise of MEMS” (Williman Room)</td>
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Tuesday, June 17, 2008

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>08:00 am – 05:00 pm</td>
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<tr>
<td>08:00 am – 09:00 am</td>
<td>Continental Breakfast (Williman Patio)</td>
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<tbody>
<tr>
<td>09:00 am – 10:40 am</td>
<td>THN-E</td>
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<tr>
<td>10:40 am – 11:00 am</td>
<td>Break</td>
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<tr>
<td>11:00 am – 12:40 pm</td>
<td>THN-F</td>
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<tr>
<td>12:40 pm – 01:40 pm</td>
<td>Lunch (Williman Patio)</td>
</tr>
<tr>
<td>01:40 pm – 03:20 pm</td>
<td>SMA-A</td>
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<tr>
<td>03:20 pm – 03:40 pm</td>
<td>Break</td>
</tr>
<tr>
<td>03:40 pm – 05:20 pm</td>
<td>SMA-B</td>
</tr>
<tr>
<td>05:30 pm – 06:00 pm</td>
<td>Conference Closure</td>
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ANS : Actuators & Suspensions (2 sessions in Parlors D&E)
BSM : Biomedical & Smart Machines (2 sessions in Parlors D&E)
IPC : Image Processing & Consumer Electronics (1 session in Parlors D&E)
MNT : Micro/Nano Technologies (2 sessions in Williman Room)
OPT : Optical Storage & Technologies (4 sessions in Williman Room)
SCT : Servo Control Technologies (2 sessions in Parlors D&E)
SFV : Shock & Flow Induced Vibrations (2 sessions in Williman Room)
SMA : Spindle Motor & Acoustics (2 sessions in California Mission Room)
TFM : Tape Storage & Flexible Media Mechanics (1 session in Parlors D&E)
THN : Tribology & Head-Disk Interface (6 sessions in California Mission Room)
# ISPS’08 – 18th Annual ASME Conference on Information Storage and Processing Systems

## Conference Program: Monday June 16, 2008, 09:00am – 10:40am

<table>
<thead>
<tr>
<th>Session A: Tribology &amp; Head-Disk Interface</th>
<th>Time</th>
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<tbody>
<tr>
<td><strong>THN-A</strong></td>
<td><strong>09:00am</strong></td>
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<tr>
<td><strong>Session Organizers:</strong> Mike Suk (Samsung), Bo Liu (DSI, Singapore), Takayuki Yamamoto (Toshiba, Japan), and Junguo Xu (Hitachi Ltd.)</td>
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</tr>
<tr>
<td><strong>Session Chairs:</strong> Mike Suk &amp; Takayuki Yamamoto</td>
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<tr>
<td><strong>THN-A1</strong></td>
<td><strong>Mechanism Study of Scratch Induced Demagnetization for Perpendicular Magnetic Disks</strong></td>
</tr>
<tr>
<td>Masaru Furukawa, Junguo Xu, Yuki Shimizu, and Yukio Kato, Hitachi Ltd., Japan.</td>
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<tr>
<td><strong>THN-A2</strong></td>
<td><strong>Fluorine-ion-implanted Air-bearing Surface for Low-friction Head-disk Interface</strong></td>
</tr>
<tr>
<td>Yuki Shimizu, Junguo Xu, and Noritsugu Umehara, Hitachi Ltd. and Nagoya University, Japan.</td>
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</tr>
<tr>
<td><strong>THN-A3</strong></td>
<td><strong>Optimization of Micro Thermal Actuator for Flying Height Control</strong></td>
</tr>
<tr>
<td>Jin Liu, Jianhua Li, Junguo Xu, and Shinobu Yoshida, Hitachi Asia Ltd. and Hitachi Ltd., Japan.</td>
<td></td>
</tr>
<tr>
<td><strong>THN-A4</strong></td>
<td><strong>Slider Surface Control for Ultra-High Density Recording</strong></td>
</tr>
<tr>
<td>Febiana Tjiptoharsono, Leonard V. Gonzaga, Mingsheng Zhang, Wei Hua, and Bo Liu, Data Storage Institute, Singapore.</td>
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<table>
<thead>
<tr>
<th>Session B: Servo Control Technologies</th>
<th>Time</th>
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<tr>
<td><strong>SCT-A</strong></td>
<td><strong>09:00am</strong></td>
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<tr>
<td><strong>Session Organizers:</strong> Raymond de Callafon (UCSD) and Jie Yu (Western Digital)</td>
<td></td>
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<tr>
<td><strong>Session Chair:</strong> Raymond de Callafon</td>
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<tr>
<td><strong>SCT-A1</strong></td>
<td><strong>Fast Prototyping of Advanced Servo Control on FPGA with Application on Magnetic Recording System</strong></td>
</tr>
<tr>
<td>Jul Nee Teoh, Fan Hong, Wai Ee Wong, and Chunling Du, Data Storage Institute, Singapore.</td>
<td></td>
</tr>
<tr>
<td><strong>SCT-A2</strong></td>
<td><strong>An Integrated Servo Analysis Platform with Signal Generation and Vibration Modeling for Patterned Media Technology</strong></td>
</tr>
<tr>
<td>Wai Ee Wong, Songhua Zhang, Fan Hong, and Xiaoxin Zou, Data Storage Institute, Singapore.</td>
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<thead>
<tr>
<th>Session A: Optical Storage &amp; Technologies</th>
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<tr>
<td><strong>OPT-A</strong></td>
<td><strong>09:00am</strong></td>
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<tr>
<td><strong>Session Organizers:</strong> No-Cheol Park (Yonsei U, Korea), Paul C.-P. Chao (NCTU, Taiwan), and Min-Chun Pan (NCU, Taiwan)</td>
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<tr>
<td><strong>Session Chair:</strong> Min-Chun Pan</td>
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<tr>
<td><strong>OPT-A1</strong></td>
<td><strong>Improved Gap Servo System using Brake Pulse for SIL based Near-Field Recording System</strong></td>
</tr>
<tr>
<td>Joong-Gon Kim, Min-Seok Kang, Won-Ho Shin, No-Cheol Park, Hyun-Seok Yang, and Young-Pil Park, Yonsei University, Korea.</td>
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</tr>
<tr>
<td><strong>OPT-A2</strong></td>
<td><strong>Vibration Analysis and Structural Dynamics Modification of Slim Optical Disk Drive</strong></td>
</tr>
<tr>
<td>Seungho Lim, Kyungtae Kim, No-Cheol Park, Young-Pil Park, In-Hwan Lee, Han-Baek Lee and Ik-Joo Cha, Yonsei University and Hitachi-LG Data Storage, Korea.</td>
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</tr>
<tr>
<td><strong>OPT-A3</strong></td>
<td><strong>The Research Based on Advanced SIL NFR System</strong></td>
</tr>
<tr>
<td>In Gu Han, Jin Moo Park, In Sang Song, Jeong Kyo Seo, In Ho Choi, and Byung Hun Min, LG Electronics, Korea.</td>
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</tr>
<tr>
<td><strong>OPT-A4</strong></td>
<td><strong>Analysis on Aberration Characteristics on SIL Based Multiple Layered NFR Optics and Discussion on Cost Effective Compensation Method of Aberration</strong></td>
</tr>
<tr>
<td>Wan-Chin Kim, No-Cheol Park, Young-Pil Park, Yonsei University, Korea.</td>
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</table>

10:40am Adjourn

10:40pm-11:00am Coffee break
THN-B: Tribology & Head-Disk Interface Session B
California Mission Room

Session Organizers: Mike Suk (Samsung), Bo Liu (DSI, Singapore), Takayuki Yamamoto (Toshiba, Japan), and Junguo Xu (Hitachi Ltd.)

Session Chairs: Junguo Xu and Mike Suk
11:00am
THN-B1 Effects of Environment Temperature and Humidity on Thermal Flying Height Adjustment

11:25am
THN -B2 LDV Investigation of Unstable Head Air Bearing Resonance
Bert Feliss and Ferdinand Hendriks, Hitachi GST, USA.

11:50am
THN -B3 Passive Acoustic Monitoring of Head Disc Interface Interactions
Antanas Daugela, Jason W. Riddering, Subra Nagarajam, and Zine E. Boutaghou, Seagate Technology LLC, USA.

12:15am
THN –B4 An Experimental Study of Designed Disk Bump to Improve the Unloading Performance in HDD
Yonghyun Lee, Hyung-Jun Lee, Ki-Hoon Kim, No-Cheol Park, and Young-Pil Park, Yonsei University and Samsung Electronics, Korea.

SCT-B: Servo Control Technologies Session B
Parlors D&E

Session Organizers: Raymond de Callafon (UCSD) and Jie Yu (Western Digital)

Session Chair: Jie Yu
11:00am
SCT-B1 An Effective Observer Design for Characterization and Compensation of Periodic Disturbances
Dongho Oh, Jung Kwan Lee, and J. C. Koo, Samsung Electronics and Sungkyunkwan University, Korea.

11:30am
SCT -B2 Evidence of Lubricant Glassing Phenomena in Hard Disk Drive Pivot Bearings
Daniel Helmick and William Messner, Carnegie Mellon University, USA.

12:00am
SCT -B3 Servo Systems Design for Low Sample Rate Disk Drive Systems
Peng Yan, Lee Mckenzie, Reed Hanson, Todd Lyle, Brian Pollock, Priyadarshee Mathur, and Samir Mittal, Seagate Technology, USA.

OPT-B: Optical Storage & Technologies Session B
Williman Room

Session Organizers: No-Cheol Park (Yonsei U, Korea), Paul C.-P. Chao (NCTU, Taiwan), and Min-Chun Pan (NCU, Taiwan)

Session Chair: Paul C.-P. Chao
11:00am
OPT-B1 Assembly and Evaluation of Solid Immersion Lens Optical Head for Dual Layer Incident Recording
Yong-Joong Yoon, Cheol-Ki Min, Wan-Chin Kim, No-Cheol Park, and Young-Pil Park, Yonsei University, Korea.

11:25am
OPT -B2 Adaptive Hybrid Tracking-Error Control for DVD Drives in Vehicle Systems
Chun Chien and Min-Chun Pan, National Central University, Taiwan.

11:50am
OPT -B3 Wavelet Based Binary Data Compression in Holographic Data Storage System
Jang Hyun Kim, Hyunseok Yang, Jin Bae Park, Young-Pil Park, Yonsei University, Korea.

12:15am
OPT –B4 Read-out and Tracking Characteristics of a Triangular Aperture Mounted Head Slider Applied a Polarized Violet Laser Source
Toshifumi Okubo, Majung Park, Masakazu Hirata, Manabu Oumi, and Kunio Nakajima, Toyo University and Seiko Instruments Inc., Japan.

12:40pm   Adjourn
12:40pm-01:40pm  Lunch
THN-C: Tribology & Head-Disk Interface Session C  
California Mission Room

Session Organizers: Mike Suk (Samsung), Bo Liu (DSI, Singapore), Takayuki Yamamoto (Toshiba, Japan), and Junguo Xu (Hitachi Ltd.)

Session Chairs: Bo Liu and Junguo Xu
01:40pm
THN-C1  
Optical Constant and the Fly Height Measurement Accuracy in Intensity Based Interferometry and Phase Shift Detection Interferometry  
C. L. Ong, ZM Yuan, B. Liu, J. Liu J, and Yoshida Shinobu, Data Storage Institute and Hitachi Asia Ltd., Singapore.

02:05pm
THN-C2  
Angstrom-Level Measurement of Heater-Induced Deformation on Flying Sliders  
Christopher A. Lacey, MicroPhysics, Inc., USA.

02:30pm
THN-C3  
The Effect of Vibration, Amplitude of Vibration, Roughness, and Speed on the Coefficient of Friction of Metals  

02:55pm
THN-C4  
Experimental Inquiries into the Lubricant Pickup in Hard Disk Drives  
X.-C. Guo, D. J. Pocker, V. Raman, A. Spool, Q. Dai, and N. Bach, Hitachi GST, USA.

BSM-A: Biomedical & Smart Machines Session A  
Parlors D&E

Session Organizers: Jen-Yuan (James) Chang (Washington State University, USA) and Mir Behrad Khamesee (University of Waterloo, Canada)

Session Chair: Jen-Yuan (James) Chang
01:40pm
BSM-A1  
Pattern Recognition Model to Control Walking Cycle Based on Lower Limb Sensory Information  
Roozbeh Borjjan, James Lim, William Melek, and Behrad Khamesee, University of Waterloo, Canada.

02:05pm
BSM-A2  
Development and Modeling of a Novel Electromagnetic Damper  
Babak Ebrahimi, Mir Behrad Khamesee, and M. Farid Golnaraghi, University of Waterloo and Simon Fraser University, Canada.

02:30pm  
BSM-A3  
Performance Evaluation of a Novel Eddy Current Damper: Frequency Domain  
Babak Ebrahimi, Mir Behrad Khamesee, and M. Farid Golnaraghi, University of Waterloo and Simon Fraser University, Canada.

02:55pm  
BSM-A4  
Design and Development of a MEMS Comb Accelerometer for Phacoemulsification Handpiece  
M. Mottaghi, F. Ghaliachi, H. Badri Ghavifekr, and H. Niroomand Osouli, Sahand University of Technology, Iran.

MNT-A: Micro/Nano Technologies Session A  
Williman Room

Session Organizers: Lin Wu (U Nebraska), Li Tan (U Nebraska), and Wei Xue (WSU, Vancouver)

Session Chairs: Li Tan and Lin Wu
01:40pm
MNT-A1  
Invited Talk: Nanoparticles Secreted from Ivy Rootlets for Surface Climbing  
Maozi Liu, Mingjun Zhang, Harry Prest, and Steve Fischer, Agilent Technologies and University of Tennessee, USA.

02:15pm
MNT-A2  
A CMOS-MEMS Frequency Adaptive Micro-Resonator with Multiple Comb-Drive Electrodes  
J. C. Chiou, L. J. Shieh, Y. J. Lin, and K. C. Hou, National Chiao Tung University, Taiwan.

02:45pm
MNT-A3  
Analysis and Fabrication of Ultrasonic Inkjet Ejector  
Min-Chun Pan, Lian-Chi Chang, Ron-An Hsiaw, and Wen-Ching Shih, National Central University and Tatung University, Taiwan.

03:20pm   Adjourn

03:20pm-03:40pm   Coffee break
THN-D: Tribology & Head-Disk Interface Session D
California Mission Room

Session Organizers: Mike Suk (Samsung), Bo Liu (DSI, Singapore), Takayuki Yamamoto (Toshiba, Japan), and Junguo Xu (Hitachi Ltd.)

Session Chairs: Bo Liu and Takayuki Yamamoto
03:40pm

THN-D1 Theoretical Investigations of Slider Shock Response
Jun-ichi Ichihara and Naozumi Tsuda, Fujitsu Laboratories Ltd., Japan.

04:05pm

THN-D2 A New Evaluation Method of Surface Energy of Ultra-thin Film
Hiroshige Matsuoka, Katsumori Ono, and Shigehisa Fukui, Tottori University, Japan.

04:30pm

THN-D3 Particulate Contamination Control of Suspension Assemblies in Hard Disk Drives: Measurement, Removal and Review of Cleanability Based on Function
Trichy Pasupathy, Mohammad Kazemi, and Patrick LaLonde, Hutchinson Technology Incorporated, USA.

04:55pm

THN-D4 Iteration Method for Analysis of Write-Current-Induced Thermal Protrusion

BSM-B: Biomedical & Smart Machines Session B
Parlors D&E

Session Organizers: Jen-Yuan (James) Chang (Washington State University, USA) and Mir Behrad Khamesee (University of Waterloo, Canada)

Session Chair: Mir Behrad Khamesee
03:40pm

BSM-B1 Portable Eeg-Based Biomedical System with Drowsiness Detection In Smart Room Control

04:05pm

BSM-B2 Design and Control a Capsule-Robot Based on Micro-Needle Technology and Magnetically Control
Saman Hosseini and Mir Behrad Khamesee, University of Waterloo, Canada.

03:40pm

BSM-B3 Detection and Avoidance of Pole- and Bar-Shape Obstacles for a Guide-Dog Robot
Shozo Saegusa, Gouki Fujimoto, Yuya Yasuda, Yoshitaka Uratani, Eiichiro Tanaka, and Yoshiaki Makino, Hiroshima University and Sasebo National College of Technology, Japan.

04:55pm

BSM-B4 An Autonomous Barrier Application System for Agriculture Targeted Pest Control
Eric Allwine, Todd Lee, and Jen-Yuan (James) Chang, Washington State University, USA.

MNT-B: Micro/Nano Technologies Session B
Williman Room

Session Organizers: Lin Wu (U Nebraska), Li Tan (U Nebraska), and Wei Xue (WSU, Vancouver)

Session Chairs: Wei Xue and Lin Wu
03:40pm

MNT-B1 Research of Slider Behavior over Patterned Media
Ki-Hoon Kim, Younghyun Lee, No-Cheol Park, and Young-Pil Park, Yonsei University, Korea.

04:10pm

MNT-B2 Phenomenological Nanoindentation Technique in Quality Control of Data Transmission Optoelectronics Devices
Antanas Daugela, Norm Gitis, and Vladimir Gelfandinbein, Seagate Technology LLC and Center for Tribology Inc., USA.

04:40pm

MNT-B3 Actuation, Stopping, and Collection of Microbots
Hao Li and Cheng Luo, University of Texas at Arlington, USA.

05:20pm Adjourn
THN-E: Tribology & Head-Disk Interface Session E
California Mission Room

Session Organizers: Mike Suk (Samsung), Bo Liu (DSI, Singapore), Takayuki Yamamoto (Toshiba, Japan), and Junguo Xu (Hitachi Ltd.)

Session Chairs: Takayuki Yamamoto and Mike Suk

09:00am
THN-E1 Visualization of Mechanisms for Lubricant Transfer between Disk and Slider Surfaces
C. Mathew Mate, Hitachi GST, USA.

09:25am
THN-E2 Three-dimensional Deformation Analyses of the Ultra-thin Liquid Film Surface (Linearized Analyses for the Steady State)
Shigehisa Fukui, Keisuke Hitomi, Soichi Shimizu, Fumito Saeki, and Hiroshige Matsuoka, Tottori University, Japan.

09:50am
THN-E3 A Study of 3-axis Measurement for Detecting the Slider Dynamics during Load/Unload
Yonghyun Lee, Seokhwan Kim, Hyun Choi, Ki-Hoon Kim, No-Cheol Park, and Young-Pil Park, Yonsei University, Korea.

10:15am
THN-E4 Measuring Surface Energy Variations of Discrete Track Recording Media
Ralf Brunner, Izhak Etsion, and Frank E. Talke, University of California, San Diego, USA and 2Technion-Israel Institute of Technology, Israel.

IPC: Image Processing & Consumer Electronics

Session Organizers: Alex Geerlings (Philips, Netherlands) and Jr-Yi Shen (Hitachi GST)

Session Chairs: Alex Geerlings and Jr-Yi Shen

09:00am
IPC-1 Experimental Identification of Abnormal Noise and Vibration of a High-Speed Polygon Mirror Scanner Motor Due to Mechanical Contact of Bearing

09:30am
IPC-2 Real-Time Vision-Assisted Micro-Scaled Object Identification and Tracking
He Huang and Jen-Yuan (James) Chang, Washington State University, USA.

10:00am
IPC-3 Auto-Focusing Image Photographing Device Including Flexible Diaphragm for Mobile Phone Camera and Wireless Capsule Endoscope
Byung Youn Song, Do Sun Nam, Jeen Gi Kim, Kyung Sik Shin, and Junghoon Lee, Seoul National University and MuTAS Inc., Korea.

OPT-C: Optical Storage & Technologies Session C

Session Organizers: No-Cheol Park (Yonsei U, Korea), Paul C.-P. Chao (NCTU, Taiwan), and Min-Chun Pan (NCU, Taiwan)

Session Chair: No-Cheol Park

09:00am
OPT -C1 Real Time Light Intensity Control Algorithm Using Digital Image Mask for the Holographic Data Storage System
Sang-Hoon Kim, Jang Hyun Kim, Hyunseok Yang, Joo-Youn Park, and Young-Pil Park, Yonsei University and DAEWOO Electronics Corp., Korea.

09:25am
OPT -C2 Tilt Compensation Method Based on Disturbance Observer for Holographic Data Storage System
Yong Hee Lee, Sang-hoon Kim, Jang Hyun Kim, Hyunseok Yang, Joo-Youn Park, Yonsei University and DAEWOO Electronics Corp., Korea.

09:50am
OPT -C3 A Collision Protection Method by Velocity Control for SIL Based Near-Filed Recording System
Hyunwoo Hwang, Sang-Hoon Kim, Joong-Gon Kim, Tae-Wook Kwon, Hyunseok Yang, No-Cheol Park, and Young-Pil Park, Yonsei University, Korea.

10:15am
OPT -C4 Thermal Analysis of Rotary VCM Actuator for Small Form Factor Optical Disk Drive
Myeong-Gyu Song, Sang Yang Kim, Jung-Hyun Woo, No-Cheol Park, Young-Pil Park, and Jeonghoon Yoo, Yonsei University, Korea.

10:40am Adjourn

10:40pm-11:00am Coffee break
THN-F: Tribology & Head-Disk Interface Session F
California Mission Room

Session Organizers: Mike Suk (Samsung), Bo Liu (DSI, Singapore), Takayuki Yamamoto (Toshiba, Japan), and Junguo Xu (Hitachi Ltd.)

Session Chairs: Junguo Xu and Bo Liu
11:00am
THN-F1 Simulation on Soft Contact Phenomena at Head Disk Interface
Jianhua Li and Junguo Xu, Hitachi Ltd., Japan.

11:25am
Norio Tagawa, Jun-ichi Hatakeyama, and Atsunobu Mori, Kansai University, Japan.

11:50am
THN-F3 A Spherical-Pad Head Slider for Stable Low-Clearance Recording
Yuki Shimizu, Kyosuke Ono, Junguo Xu, Ryuji Tsuchiyama, and Hidetoshi Anan, Hitachi Ltd. and Hitachi GST, Japan.

12:15pm
THN-F4 The Effect of Grooves of Discrete Track Recording Media on the Touch-Down and Take-Off Hysteresis of Magnetic Recording Sliders
Y. Yoon and F. E. Talke, University of California, San Diego, USA.

TFM: Tape Storage & Flexible Media Mechanics
Parlors D&E

Session Organizers: Richard Jewett (Imation), Douglas Johnson (Imation), and Jeff McAllister (HP)

Session Chairs: Douglas Johnson and Jeff McAllister
11:00am
TFM-1 Design of a Dual Stage Actuator Tape Head Controller
Uwe Boettcher, Bart Raeymaekers, Raymond A. de Callafon, and Frank E. Talke, University of California, San Diego, USA.

11:25am
TFM-2 Development of Bank-Note Thickness Detecting Mechanism in ATM
You-hoon Yoon, Joon-young Kim, Donghoon Sun, and Yoon-il Baek, INautilus Hyosung, Korea.

12:00pm
TFM-3 Design and Active Guiding of Tape Lateral Motion with Traveling Wave Driven PZT Actuator
Steve Jordan and Jen-Yuan (James) Chang, Washington State University, USA.

12:15pm
TFM-4 Method for Complete De-Convolution of a Position Error Signal
Jeffrey S. McAllister and Donald J. Fasen, Hewlett-Packard, USA.

OPT-D: Optical Storage & Technologies Session D
Williman Room

Session Organizers: No-Cheol Park (Yonsei U, Korea), Paul C.-P. Chao (NCTU, Taiwan), and Min-Chun Pan (NCU, Taiwan)

Session Chair: No-Cheol Park
11:00am
OPT-D1 Precision Positioning of a Three-Axis Optical Pickup via a Double Phase-Lead Compensator Equipped with Auto-Tuned Parameters
Paul C.-P. Chao and J.-Y. Shen, National Chiao Tung University and Chung Yuan Christian University, Taiwan.

11:30am
OPT-D2 Improvement of Tolerance Characteristics of Low F/Number Compact Camera Module for Image Restoration Using Wavefront Coding
Sang-Hyuck Lee, No-Cheol Park, and Young-Pil Park, Yonsei University, Korea.

12:00pm
OPT-D3 Robust Dual-Stage and Repetitive Control Designs for an Optical Pickup with Parallel Cantilever Beams Powered by Piezo-Actuators
Paul C.-P. Chao, Lun-De Liao, Ming-Hsun Chung, and Jeng-Sheng Hunag, National Chiao Tung University and Chung Yuan Christian University, Taiwan.
SMA-A: Spindle Motor & Acoustics Session A

California Mission Room

Session Organizers: Steve Shen (U Washington), Gunhee Jang (Hanyang U, Korea), Jun-ichi Ichihara (Fujitsu Lab, Japan), and T. Jintanawan (Chulalongkorn U, Thailand)

Session Chairs: Steve Shen and Jun-ichi Ichihara

01:40pm

J. H. Ding and C. W. Ji, Western Digital Technologies, USA.

02:05pm

SMA-A2 A Study of Acoustic Noise Generating Mechanism of Small Form Factor HDDs

02:30pm

SMA-A3 Simulating Disk Motion in Operating Shock from Frequency Response Measurements
Dan Blick and Li Zhou, Western Digital Technologies, USA.

02:55pm

SMA-A4 Development of Benchmark Drive for Investigation of EM-Noise in HDD Spindle Motors
Surapong Suwankawin, Thitima Jintanawan, and Pairod Singhatanadgid, Chulalongkorn University, Thailand.

ANS-A: Actuators & Suspensions Session A

Parlors D&E

Session Organizers: Keiji Aruga (Fujitsu), Chen-Chi Lin (Western Digital), Fu-Ying Huang (Hitachi GST), and Sean Kang (Samsung)

Session Chairs: Keiji Aruga and Chen-Chi Lin

01:40pm

ANS-A1 Modifying HDD Suspension Design to Improve Its Shock Resistance
Eng Teo ONG and Eng Hong ONG, Data Storage Institute, Singapore.

02:10pm

ANS-A2 A Predictive Technique for Evaluating Structural Vibration Gain of Damped Suspensions in Hard Disk Drives (HDDs)
Mark Lowry, Hutchinson Technology Inc., USA.

02:40pm

ANS-A3 Inertia Magnetic Latch Design Considering Actuator Load Unload
Yanning Liu, Seong Woo (Sean) Kang, Seungman (Paul) Chang, Samsung Information Systems America, USA.

SFV-A: Shock & Flow Induced Vibrations Session A

Williman Room

Session Organizers: Yu-Min Lee (Western Digital), Ferdi Hendriks (Hitachi GST), Srinivas T. Tadepalli (Seagate), and Norio Tagawa (Kansai U, Japan)

Session Chairs: Yu-Min Lee and Norio Tagawa

01:40pm

SFV-A1 On Taylor Vortices and Ekman Layers in Flow-Induced Vibration
Ferdinand Hendriks, Hitachi GST, USA

02:05pm

SFV-A2 Vibration Model with Interaction Between Air and Structure for Rotating Disk Surrounded by Shroud
Takehiko Eguchi, Hitachi Ltd., Japan.

02:30pm

SFV-A3 Mitigation of Flow Induced Vibration of Head Gimbal Assembly
Q.D. Zhang, T.C.S. Tan, K. Sundaravadivelu, M. A. Suriadi, G.L. Chin, and T.H. Yip, Data Storage Institute, Singapore.

02:55pm

SFV-A4 Modal Contribution Analysis of a Complete Flexible Operating HDD Affecting the Head-Disk Motion due to Shock

03:20pm

Adjourn

03:20pm-03:40pm Coffee break
SMA-B: Spindle Motor & Acoustics Session B
California Mission Room

Session Organizers: Steve Shen (U Washington), Gunhee Jang (Hanyang U, Korea), Jun-ichi Ichihara (Fujitsu Lab, Japan), and T. Jintanawan (Chulalongkorn U, Thailand)

Session Chairs: Gunhee Jang and T. Jintanawan
03:40pm

04:05pm

04:30pm
SMA-B3 A Parametric Study on Rocking Vibration of 0.85-in HDD Spindle Motors with Tie-Shaft Design Tsung-Liang Wu and I. Y. Shen, University of Washington, USA.

04:55pm
SMA-B4 A Non-Contact Mechanical Characteristics Measurement Method for High Revolutionary Speed Precision Fluid Dynamic Bearing Rotors Y. S. Ihn, S.K. Kim, M.E. Kim, Dongho Oh, and J.C. Koo, Sungkyunkwan University, Korea and 2Samsung Information Systems America, USA.

ANS-B: Actuators & Suspensions Session B
Parlors D&E

Session Organizers: Keiji Aruga (Fujitsu), Chen-Chi Lin (Western Digital), Fu-Ying Huang (Hitachi GST), and Sean Kang (Samsung)

Session Chairs: Fu-Ying Huang and Sean Kang
03:40pm

04:10pm
ANS-B2 Shaker Performance Requirements for HGA Resonance Testing Dan Weber and Rajiv Dama, Seagate Technology, USA.

04:40pm
ANS-B3 A Robust Latch Design Ludu Huang, Scott Watson, John Edwards, Qing Zhang, Dave Myers, and Nils Larson, Hitachi GST and Western Digital, USA.
* One-page abstract only

SFV-B: Shock & Flow Induced Vibrations Session B
Williman Room

Session Organizers: Yu-Min Lee (Western Digital), Ferdi Hendriks (Hitachi GST), Srinivas T. Tadepalli (Seagate), and Norio Tagawa (Kansai U, Japan)

Session Chairs: Ferdi Hendriks and Srinivas T. Tadepalli
03:40pm
SFV-B1 Investigation of Viscoelastic Film Damper for Hard Disk Drive J.Q. Mou, E.H. Ong, S.T. Tan, and Z. Chen, Data Storage Institute and Nanyany Technological University, Singapore.

04:10pm

04:40pm
SFV-B3 Design of Hole of a Carriage Arm of HDD to Reduce Flow Induced Vibration Satomitsu Imai, Cameo Plala, Japan.
* One-page abstract only

05:20pm Adjourn
ANS-A: Actuators & Suspensions Session A

Tuesday, June 17, 2008, 01:40 pm – 03:20 pm

Session Organizers:
Keiji Aruga (Fujitsu), Chen-Chi Lin (Western Digital), Fu-Ying Huang (Hitachi GST), and Sean Kang (Samsung)

Session Chairs: Keije Aruga and Chen-Chi Lin

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03:10pm  Adjourn

03:10pm-03:40pm  Coffee break