

ISPS'07 - 17th Annual ASME Conference on Information Storage and Processing Systems

June 18 and 19, 2007 at Santa Clara University, Santa Clara, CA, USA

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Welcome!

Welcome to the homepage of the **17th annual ASME Information Storage & Processing Systems (ISPS) Conference**. The ISPS'07 is sponsored by the [ISPS](#) Division of the [ASME](#) and will be held on **June 18 and 19, 2007** at [Santa Clara University, California, USA](#).



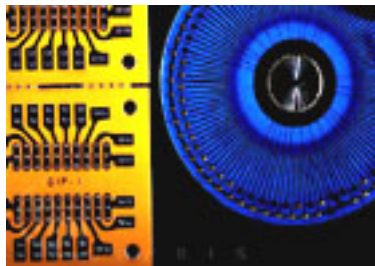
The **conference program**, along with author index and detailed schedule of presentations is now available for [download in the form of a PDF file](#).

Online registration for the conference is now open. Please follow the link to [conference fees and online registration](#) and register **before June 8th** for an early registration discount.

Due to the interdisciplinary nature of the research involved in data storage and processing systems, the conference features [Technical Sessions](#) that focuses on applications and research topics that include:

- **Actuators & Suspensions:** actuator and (dual-stage) suspension design, dynamics, analysis
- **Servo Control & Servo Technology:** dynamics, vibrations, servo design, servo writing, tracking

ASME ISPS division



and seeking.

- **Tribology & Head/Media Interface:** friction, wear, lubrication, corrosion, contamination, thin films, contact mechanics, heat transfer.
- **Spindle Motor & Acoustics:** design, vibrations, acoustics and tribology related aspects
- **Flexible Media Mechanics & Tape Storage:** design, lateral tape motion, tape tension, media
- **Optical Storage & Technology:** design, media, holographic storage, servo related aspects
- **Shock Analysis & Flow Induced Vibrations:** operational and non-operational shock analysis, flow induced vibrations
- **Micro/Nano Technologies:** production, novel design concepts, patterned media, MEMS, NEMS and nanotechnology
- **Image Processing & Consumer Electronics:** digital camera, camcorder, ink jet, thermal, laser printing, optical, etc.

Solicitation for Contributions

Contributions are solicited for technical presentations at the ASME ISPS'07 conference. Contributions should be submitted via a one-page abstract for reviewing purposes. Please submit a one-page abstract (in Word or PDF) by **February 16, 2007** via email to our administrative support Marina Robenko, email: mrobenko@ucsd.edu. Once the one-page abstract is accepted for presentation, the authors shall prepare a three-page extended abstract to be included in a conference booklet. **Templates for the three-page extended abstract** can be found under the [publication information](#). Presenters are also offered the opportunity and encouraged to submit a full paper to be peer-reviewed and published in a [Special Edition of Microsystem Technologies](#).

Conference Background and Highlights

In the [ASME](#) (American Society of Mechanical Engineers), the [ISPS](#) (Information Storage and Processing Systems) Division is the major division working on storage systems that include disk drives, tape drives and optical drives. The ISPS Division has held their annual conference at Santa Clara University, CA in June almost every year in cooperation with the Tribology division of the ASME and provides an environment in which researchers of both academic and industrial background share their latests development on data storage systems. Tri-annually, the ISPS division joins forces with the IIP (Information, Intelligent, and Precision Machines) Division of the JSME (Japanese Society of Mechanical Engineers) to organize a joint conference called MIPE (Micromechatronics for Information and Precision Equipment). The ISPS'07 conference offers:

- Reduced registration fees for ASME members.
- Discount registraton fees for Graduate Students.
- [Conference Fellowships for Graduate students](#) to waive registration fees for students.
- Best paper awards.

Important Deadlines

To respond to our [call for papers for the ISPS'07 conference](#), a **one-page abstract** (Word, PDF) must be submitted via email to our administrative support Marina Robenko, email: mrobenko@ucsd.edu. Once the one-page abstract is accepted for presentation, the authors shall prepare a **three-page extended abstract** to be included in the conference booklet. Templates for the three-page extended abstract can be found under the [publication information](#). In addition, presenters are also offered the opportunity and encouraged to submit a full paper to be peer-reviewed and published in a Special Edition of Microsystem Technologies.

For submissions of contributions for technical presentations at the ASME ISPS'07 conference the following deadlines should be taken into account:

- **February 16, 2007:** 1-page abstract due, submit to Marina Robenko, email: mrobenko@ucsd.edu.
- **March 1, 2007:** Notification of acceptance via email based on 1-page abstract.
- **March 31, 2007:** 3-page extended abstract due for conference booklet publication. Templates for the three-page extended abstract can be found under the [publication information](#).
- **March 31, 2007:** For Graduate Students only: submission of [ISPS Fellowship and/or Conference Scholarship](#).
- **June 18-19, 2007:** ISPS'07 Conference at Santa Clara University, CA, USA.
- **July 31, 2007:** Updated and hard deadline for full paper submitted to Microsystems Technologies. Your paper will need to be submitted via the [on-line submission web site of Microsystem Technologies](#). If you are interested in the opportunity to submit a full paper and participate in the Special Edition of Microsystem Technologies, please [see the details on the submission process of your full paper](#).

Registration

On-line registration for the ASME ISPS'07 conference is now available via WebRegPro. Registration fees will depend on early registration (before Friday, June 8th) and affiliation (ASME member or graduate student). Please follow the link to [information on registration fees and online registration](#).

NOTE: early registration discount will end on **Friday, June 8th, 2007**. So please make sure you [register before June 8th, 2007](#).

To help you plan your visit, the conference program along with author index and detailed schedule of presentations is now [available for download in the form of a PDF file](#).

What is included

All registrants will get a copy of the program and extended abstracts. These will be available for pick-up at the conference site. Unfortunately, there will be NO package mailed to participants before the event. The two day registration fee includes:

1. Attendance to the ISPS'07 conference on June 18 & 19, 2007.
2. Continental breakfast & lunch on June 18 & 19, 2007.
3. With early registration: dinner banquet on Monday, June 18, 2007.
4. Conference booklet and CD of presented extended (3 page) abstracts.

Your conference name badge will be available at the conference registration desk. It must be worn at all times to gain admittance to all conference sessions and meals.

Technical Program

The technical program for the ASME ISPS'07 conference on June 18 and 19, 2007 consists of parallel technical sessions in which papers are presented by a 25 minute talk. In addition, a conference dinner is scheduled for Monday June 18th. The conference dinner will be used to present the best paper awards, the ISPS Graduate Student Fellowship and will host our guest speaker *Dr. Edward Grochowski* who will present a lecture entitled *Magnetic Hard Disk Drives And Competitive Technologies - What Is The Future Of Storage?*

A quick overview of the conference program is outlined below, but a more detailed version with author index and schedule of presentations [can now be downloaded in the form of a PDF file](#) or follow the link for information on the [guest lecture and background of Dr. Edward Grochowski](#).

Day 1 - Monday, June 18th, 2007	
8:00 am - 5:00 pm	registration desk open
8:15 am - 9:00 am	Continental Breakfast (Williman Patio)
8:45 am - 9:00 am	Conference Welcome (California Mission Room)
9:00 am - 10:40 am	3 Parallel Technical Sessions (4 papers/session, each 25 minutes)
10:40am - 11:00am	Break
11:00am - 12:40pm	3 Parallel Technical Sessions (4 papers/session, each 25 minutes)
12:40pm - 1:40pm	Lunch
1:40pm - 3:20pm	3 Parallel Technical Sessions (4 papers/session, each 25 minutes)
3:20pm - 3:40pm	Break

3:40pm - 5:20pm	3 Parallel Technical Sessions (4 papers/session, each 25 minutes)
5:20pm - 6:30pm	Hor's d'oevres (Williman Patio)
6:30pm - 7:30pm	Conference Dinner with Best Paper Awards
7:30pm - 8:30pm	Guest speaker: Dr. Edward Grochowski

Day 2 - Tuesday, June 19th, 2007	
8:00 am - 3:00 pm	registration desk open
8:15 am - 9:00 am	Continental Breakfast (Williman Patio)
9:00 am - 10:40 am	3 Parallel Technical Sessions (4 papers/session, each 25 minutes)
10:40am - 11:00am	Break
11:00am - 12:40pm	3 Parallel Technical Sessions (4 papers/session, each 25 minutes)
12:40pm - 1:40pm	Lunch
1:40pm - 3:20pm	3 Parallel Technical Sessions (4 papers/session, each 25 minutes)
3:20pm - 3:30pm	Conference Closure

Detailed [conference program information](#) with author index is available in the form of a PDF file.

Conference Venue

The ISPS'07 conference will be on **June 18 and 19, 2007** and held at the **Benson Memorial Center of Santa Clara University, Santa Clara, CA, USA**. Within the Benson Memorial Center, the technical presentations will take place in the following three meeting rooms: **California Mission Room, Williman Room, and Parlors BCD**.



Santa Clara University (SCU) is located in the heart of northern California and is in close proximity of the Silicon Valley. The SCU campus is just one minute from the San Jose International Airport and about 30 minutes south of the San Francisco International Airport. SCU is known for its beautiful Mission campus, features a Mission Garden and often has been called one of the most beautiful colleges in California. The Benson Memorial Center at **Santa Clara University** is marked by a fountain in front and is home to a Market Square food court, campus bookstore, post office, multicultural center, and many conference meeting rooms. The Market Square offers a variety of dining options, including organic and vegetarian choices, home-style meals, and international cuisine.

The links below are maintained by SCU and provide additional information on SCU and our conference venue for the ISPS'07:

- [Virtual Tour](#) of Santa Clara University
- [Driving directions](#) to Santa Clara University
- [On-line](#) and [printable \(PDF\)](#) Campus Map of Santa Clara University
- [Parking](#) information for Santa Clara University
- [Transportation](#) (Ground and Air) information to Santa Clara University
- [Lodging](#) information on hotels near Santa Clara University

Accommodation and Lodging near Santa Clara University

The ISPS'07 conference will be on **June 18 and 19, 2007** and held at the **Benson Memorial Center** of **Santa Clara University**, Santa Clara, CA, USA. Many hotels are located close to **Santa Clara University** (SCU) and a list of hotels within approximately a 1 miles radius of SCU is given below.

0.1 miles [map]	Candlewood Suites 481 El Camino Real Santa Clara, CA	Phone: 408-241-9305 Fax: 408-241-9307 Toll-free: 888-226-3539 http://www.CandlewoodSuites.com
0.5 miles [map]	Super 8 Motel 1860 The Alameda San Jose, CA	Phone: 408-293-9361 Fax: 408-293-5170 Toll-free: 800-800-8000 http://www.the.super8.com/13690
0.6 miles [map]	Best Western Airport Plaza 2118 The Alameda San Jose, CA	Phone: 408-243-2400 Fax: 408-243-5478 Toll-free: 800-228-5150 http://www.svhotels.com
0.8 miles [map]	Days Inn 859 El Camino Real Santa Clara, CA	Phone: 408-244-2840 Fax: 408-984-5720 Toll-free: none http://www.daysinnsantaclara.com
1 mile [map]	Madison Street B&B Inn 1390 Madison Street Santa Clara, CA	Phone: 408-249-5541 Fax: 408-249-6676 Toll-free: 800-791-5541 http://www.MadisonStreetInn.com
1 mile [map]	Holiday Inn Express 1700 El Camino Real Santa Clara, CA	Phone: 408-554-9200 Fax: 408-554-8917 Toll-free: 800-465-4329 http://www.santaclarahie.com

1.1 miles **Ramada Limited**
[[map](#)] 1655 El Camino Real
Santa Clara, CA

Phone: 408-244-8313
Fax: 408-554-9167
Toll-free:
<http://www.ramadasantaclara.com>

In addition to the hotels listed above, the links below are maintained by SCU and provide additional information on lodging close to SCU and our conference venue for the ISPS'07:

- [Lodging](#) information on hotels near Santa Clara University
- [Transportation](#) (Ground and Air) information to Santa Clara University
- [Driving directions](#) to Santa Clara University
- [Virtual Tour](#) of Santa Clara University
- [On-line](#) and [printable \(PDF\)](#) Campus Map of Santa Clara University
- [Parking](#) information for Santa Clara University

been called one of the most beautiful colleges in California. For more information, follow the external links below. The links maintained by SCU provide additional information on the conference venue at SCU for the ISPS'07:

- [Santa Clara Chamber of Commerce](#)
- [Santa Clara Convention and Visitor's Bureau](#)
- The [Santa Clara Broncos!](#)
- The [Santa Clara Weekly](#), SCU's weekly undergraduate newspaper
- [Virtual Tour](#) of Santa Clara University
- [Driving directions](#) to Santa Clara University
- [On-line](#) and [printable \(PDF\)](#) Campus Map of Santa Clara University
- [Parking](#) information for Santa Clara University
- [Transportation](#) (Ground and Air) information to Santa Clara University
- [Lodging](#) information on hotels near Santa Clara University

ISPS'07 Contract Information

For any questions or remarks with respect to the ISPS'07 conference, please feel free to contact one of the conference chairs:

[Raymond A. de Callafon](#) University of California, San Diego email: callafon@ucsd.edu

[Frank. E. Talke](#) University of California, San Diego email: ftalke@ucsd.edu

The ISPS'07 website is maintained by [Raymond A. de Callafon](#), in case you like to [report any errors or broken links](#).



Information Storage & Processing Systems Division

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**ISPS Conference, 2008
Santa Clara, CA**

[NEWS](#)

About ISPS

The **Information Storage & Processing Systems** Division of ASME serves the mechanical engineer engaged in the data storage and information processing systems industries, such as printers, scanners and digital cameras.

The primary focus has been in the rapidly growing data storage industry dominated by rigid and floppy disks, magnetic tape, VCR and optical disk technologies. Numerous mechanics and material problems are found with the domains of these "miniature" products, where nano- & micro- are the common dimension prefixes!

Let us know if we can help you be a better engineer, or consider joining us and becoming an active and involved ASME member.



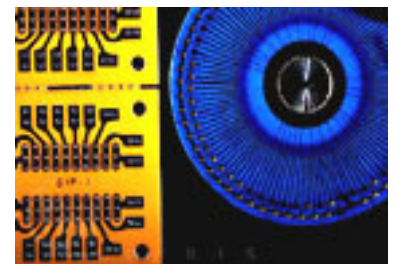
Program and Extended Abstracts

ISPS'07

**17th Annual ASME Conference on
Information Storage and
Processing Systems**

Participating Division:

ASME Information Storage and Processing Systems (ISPS) Division



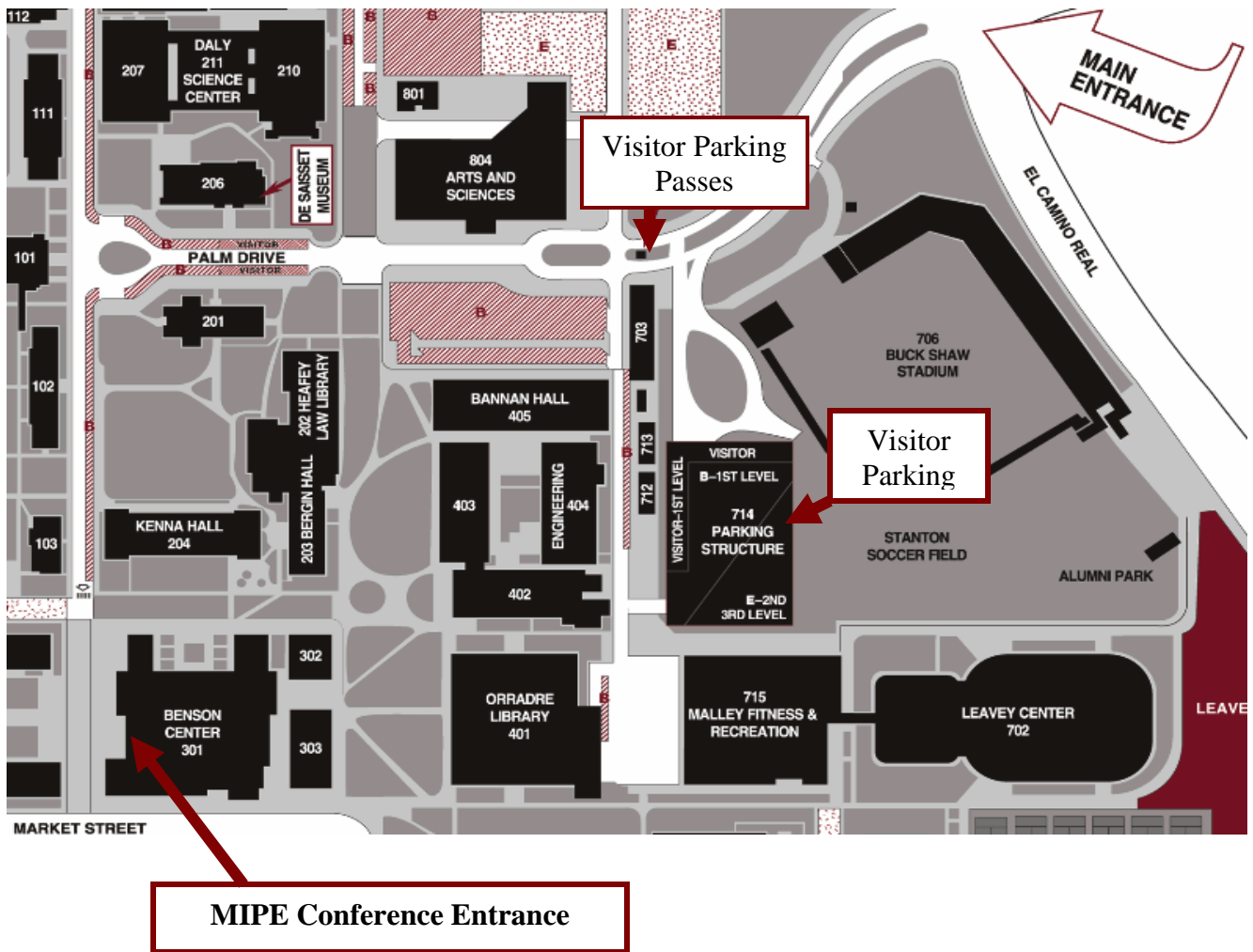
**June 18 & 19, 2007
Santa Clara, California, USA**

Santa Clara University Campus Map

❖ ASME/JSME Joint MIPE Conference held in the west end of the Benson Center

Rooms:

- California Mission (also called Brass Rail): basement floor of Benson Center
- Parlor B/C/D: west end of Benson Center
- Williman room & Patio: south west corner of Benson Center





Information Storage and Processing Systems

<http://www.asme.org/divisions/isps>

A DIVISION OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

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2006-2007

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June 11, 2007

Dear Colleagues:

Welcome to the 2007 ASME Information Storage & Processing Systems (ISPS) Conference. The ISPS'07 is sponsored by the ISPS Division of the ASME and is held on June 18 and 19, 2007 at Santa Clara University, California, USA. The ISPS'07 is the 17th annual ISPS conference and offers an ideal forum for researchers in both academic and industrial environments to foster synergies in multi-disciplinary areas of the data storage and processing industry. This year's conference program features Technical Sessions with applications and research topics that include:

- **Actuators & Suspensions:** actuator and (dual-stage) suspension design, dynamics, analysis.
- **Servo Control & Servo Technology:** dynamics, vibrations, servo design, servo writing, tracking and seeking.
- **Tribology & Head/Media Interface:** friction, wear, lubrication, corrosion, contamination, thin films, contact mechanics, heat transfer.
- **Spindle Motor & Acoustics:** design, vibrations, acoustics and tribology related aspects.
- **Flexible Media Mechanics & Tape Storage:** design, lateral tape motion, tape tension, media
- **Optical Storage & Technology:** design, media, holographic storage, servo related aspects.
- **Shock Analysis & Flow Induced Vibrations:** operational and non-operational shock analysis, flow induced vibrations.
- **Micro/Nano Technologies:** production, novel design concepts, patterned media, MEMS, NEMS and nano-technology.
- **Image Processing & Consumer Electronics:** digital camera, camcorder, ink jet, thermal, laser printing, optical systems.

We have over 80 contributed papers in the above areas and Dr. Edward Grochowski, storage industry consultant and strong supporter of IDEMA is our conference dinner banquet speaker. He will give a talk entitled: Magnetic Hard Disk Drives And Competitive Technologies - What Is The Future Of Storage?

We would like to use this opportunity to thank Santa Clara University for use of its facilities for the ISPS'07 conference, Dr. Neal Schirle of Hitachi GST as the Conference Treasurer and for the necessary arrangements with Santa Clara University, and both Prof. I. Y. (Steve) Shen of the University of Washington and Prof. Jen-Yuan Chang of Washington State University for sharing their expertise and insight on the conference technical programs and publications. In addition, we would like to thank all the ISPS'07 session organizers, session (co-)chairs and the ISPS Executive Members for their efforts and assistance in making ISPS'07 possible. Last, but not least, a final word of gratitude goes towards all presenters and participants of the conference. Obviously, ISPS'07 will not be successful without your dedicated participation.

Sincerely Yours,
Raymond de Callafon and Frank Talke,
ISPS'07 Conference Chairs

Conference Program Overview

Monday, June 18, 2007

Time	Sessions	Location
8:00am - 5:00pm	Registration Desk Open	1st floor
8:00am - 9:00am	Continental Breakfast	Williman Patio
8:45am - 9:00am	Conference Welcome	California Mission Room
9:00am - 10:40am	THMI-A Tribology & Head/Media Interface	California Mission Room
	MNT Micro & Nano Technologies	Parlors D&E
	SAFV-A Shock Analysis & Flow Vibrations	Williman Room
10:40am - 11:00am	Break	
11:00am - 12:40pm	THMI-B Tribology & Head/Media Interface	California Mission Room
	SCST-A Servo Control & Servo Technology	Parlors D&E
	SAFV-B Shock Analysis & Flow Vibrations	Williman Room
12:40pm - 1:40pm	Lunch	
1:40pm - 3:20pm	THMI-C Tribology & Head/Media Interface	California Mission Room
	SCST-B Servo Control & Servo Technology	Parlors D&E
	SAFV-C Shock Analysis & Flow Vibrations	Williman Room
3:20pm - 3:40pm	Break	
3:40pm - 5:20pm	THMI-D Tribology & Head/Media Interface	California Mission Room
	SCST-C Servo Control & Servo Technology	Parlors D&E
	FMTS Flexible Media & Tape Storage	Williman Room
5:20pm - 6:30pm	Social Hour	Williman Patio
6:30pm - 7:30pm	Conference Dinner & Awards	
7:30pm - 8:30pm	Guest Speaker: Dr. Edward Grochowski	

Tuesday, June 19, 2007

Time	Sessions	Location
8:00am - 12:00pm	Registration Desk Open	1st floor
8:00am - 9:00am	Continental Breakfast	Williman Patio
9:00am - 10:40am	THMI-E Tribology & Head/Media Interface	California Mission Room
	AS-A Actuators & Suspensions	Parlors D&E
	IPCE Image Processing & Consumer Electronics	Williman Room
10:40am - 11:00am	Break	
11:00am - 12:40pm	SMA-A Spindle Motor & Acoustics	California Mission Room
	AS-B Actuators & Suspensions	Parlors D&E
	OST-A Optical Storage & Technology	Williman Room
12:40pm - 1:40pm	Lunch	
1:40pm - 3:20pm	SMA-B Spindle Motor & Acoustics	California Mission Room
	AS-C Actuators & Suspensions	Parlors D&E
	OST-B Optical Storage & Technology	Williman Room
3:20pm - 3:30pm	Conference Closure	

- AS : Actuators & Suspensions (3 sessions)
- SCST : Servo Control & Servo Technology (3 sessions)
- THMI : Tribology & Head/Media Interface (5 sessions)
- SMA : Spindle Motor & Acoustics (2 sessions)
- FMTS : Flexible Media & Tape Storage (1 session)
- OST : Optical Storage & Technology (2 sessions)
- SAFV : Shock Analysis & Flow Induced Vibrations (3 sessions)
- MNT : Micro & Nano Technologies (1 session)
- IPCE : Image Processing & Consumer Electronics (1 session)

Conference Program, Monday June 18, 2007, 9:00am – 10:40am

THMI-A : Tribology & Head/Media Interface Session A

Monday, June 18, 2007, 9:00am – 10:40am

California Mission Room

Session Organizers: *Frank E. Talke*, Center for Magnetic Recording Research, University of California, San Diego, CA, USA, *Bo Liu*, Data Storage Institute, Singapore & *Junguo Xu*, Hitachi, Ltd., Japan

Session Chairs: *Frank E. Talke & Junguo Xu*

THMI-A1 | Numerical Simulations Of The Head/Disk Interface For Patterned Media

9:00am
Aravind N. Murthy, Frank E. Talke, Center for Magnetic Recording Research, University of California, San Diego, USA

THMI-A2 | Contamination Testing of Server Class Drives

9:25am
Bert Feliss, Ricardo Duque, John Burns, Hitachi Global Storage Technologies, San Jose, USA

THMI-A3 | In-Plane Vibrations of Partial Contact Sliders in Hard Disk Drives

9:50am
Du Chen, David B. Bogy, University of California, Berkeley, USA

THMI-A4 | Long Scratch Detection and Prediction for Disk Drives Based on Hierarchical Clustering and Curve Fit

10:15am
Julian Stoev, Jinwon Choi, Nam-Guk Kim, Ho Seong Lee, Samsung Electronics, Suwon, Republic of Korea

MNT : Micro & Nano Technologies Session

Monday, June 18, 2007, 9:00am – 10:40am

Parlors D&E

Session Organizers: *Toshiki Hirano*, Hitachi Global Storage Technologies, San Jose Research Center, CA, USA, *Lin Wu*, University of Nebraska-Lincoln, NE, USA

Session Chairs: *Toshiki Hirano & Evgenia Kim*

MNT-1 | Generation of Micro/Nanopatterns of Conducting Polymers and Metals Using an Innovative Intermediate-Layer Lithography Approach

9:00am
Cheng Luo, Louisiana Tech University, Ruston, LA, USA

MNT-2 | Conducting Polymer Micropattern Sensor Arrays of High Sensitivity

9:25am
Anirban Chakraborty, Ganga Parthasarathi, Cheng Luo, Louisiana Tech University, Ruston, LA, USA

MNT-3 | Tuning Pattern Features and Density with Sequential Stretching Lithography

9:50am
Haojing Lin, Li Tan, Zheng Li, University of Nebraska-Lincoln, NE, USA

MNT-4 | 10:15am

Optical Metamaterials in the Near IR Range - Linear optical characterization of the "fishnet" structure

E. Kim, Y.R. Shen, W. Wu, E. Ponizovskaya, Z. Yu, A. Bratkovski, S.Y. Wang, University of California, Berkeley & HP Labs, Palo Alto, CA, USA

SAFV-A : Shock Analysis & Flow Vibrations Session A

Monday, June 18, 2007, 9:00am – 10:40am

Williman Room

Session Organizers: *Srinivas Tadepalli*, Seagate Technology, Shakopee, MN, *Norio Tagawa*, Kansai University, Japan, *Jen-Yuan Chang*, Washington State University, Richland, WA, USA

Session Chairs: *Srinivas Tadepalli & Norio Tagawa*

SAFV-A1 | Flow Induced Vibrations Caused by Turbulent Jets Behind the Trailing Edges of HDD Arms in 15000 RPM Hard Disk Drives

9:00am
T.H. Yip, Q.D. Zhang, B.L. Ibrahim See, A*STAR Data Storage Institute, Singapore

SAFV-A2 | Efficient Simulation Of HDD Shock Response Using Model Order Reduction

9:25am
Wu Zhong Lin, Eng Teo Ong, Eng Hong Ong, Data Storage Institute, Singapore

SAFV-A3 | An Investigation of Flow-Induced off-Track Vibration of Head Gimbal Assemblies in Hard Disk Drives

9:50am
M. Kazemi, A. Tokuda, Hutchinson Technology Inc., MN, USA

SAFV-A4 | Investigation of Soft Failure of Operational HDD under Forced Vibration

10:15am
J.Q. Mou, K.T. Chua, E.H. Ong, S.H. Lam and K.P. Tan, Data Storage Institute, Singapore

Conference Program, Monday June 18, 2007, 11:00am – 12:40pm

THMI-B : Tribology & Head/Media Interface Session B

Monday, June 18, 2007, 11:00am – 12:40pm

California Mission Room

Session Organizers: *Frank E. Talke*, Center for Magnetic Recording Research, University of California, San Diego, CA, USA, *Bo Liu*, Data Storage Institute, Singapore & *Junguo Xu*, Hitachi, Ltd., Japan

Session Chairs: *Junguo Xu & Frank E. Talke*

**THMI-B1
11:00am**

Slider Behavior during Ambient Pressure Change

Jun-Ichi Ichihara, Fujitsu Laboratories Ltd., Atsugi, Japan

**THMI-B2
11:25am**

Thermal and Fluid Dynamic Study on Voice Coil Temperature Rise during Faster and Frequent Seeking in Hard Disk Drives

Keiji Aruga, Keishi Shimizu, Masaya Suwa, Yoshiharu Matsuda, Fujitsu Ltd., Kawasaki, Japan

**THMI-B3
11:50am**

Thermal Network Model for Temperature Prediction in Hard Disk Drive

Y.L. Low, B.L. Ibrahim See, C.P.H. Tan, J.Q. Mou, E.H. Ong, A*STAR Data Storage Institute, Singapore

**THMI-B4
12:15pm**

The Physics behind Lubricant Transfer from Disk to Slider and Strategies to Minimize the Transfer

Yansheng Ma, Bo Liu, Data Storage Institute, Singapore

SCST-A : Servo Control & Servo Technology Session A

Monday, June 18, 2007, 11:00am – 12:40pm

Parlors D&E

Session Organizers: *Raymond de Callafon*, University of California, San Diego, CA, USA, *Jie Yu*, Western Digital Technologies, Lake Forest, CA, USA, *Guoxiao Guo*, Western Digital Technologies, Lake Forest, CA, USA

Session Chairs: *Jie Yu & Riccardo Antonello*

**SCST-A1
11:00am**

Improved Disturbance Rejection with On-line Adaptive Pole-Zero Compensation on a Φ -Shaped PZT Active Suspension

Chee Khiang Pang, Sai Cheong Tam, Guoxiao Guo, Ben M. Chen, Frank L. Lewis, Tong Heng Lee, Chunling Du, A*STAR Data Storage Institute, National University of Singapore & University of Texas at Arlington, TX, USA

**SCST-A2
11:25am**

New Position Error Signal Generation Method for SPM Based Data Storage System

Choong Woo Lee, Chung Choo Chung, Young-Sik Kim, Hanyang University, Seoul, Korea & LG Electronics Institute of Technology, Korea

**SCST-A3
11:50am**

Identification, Control Design and Control Implementation on a Linear Tape Open Drive

T. ten Dam, R.A. de Callafon, Eindhoven University of Technology, the Netherlands & University of California, San Diego, USA

**SCST-A4
12:15pm**

Investigation of the position error signal of an operating hard disk drive due to temperature varying condition

S.J. Park, G.H. Jang, Samsung Electro-mechanics Co. Ltd. & Hanyang University, Korea

SAFV-B : Shock Analysis & Flow Vibrations Session B

Monday, June 18, 2007, 11:00am – 12:40pm

Williman Room

Session Organizers: *Srinivas Tadepalli*, Seagate Technology, Shakopee, MN, *Norio Tagawa*, Kansai University, Japan, *Jen-Yuan Chang*, Washington State University, Richland, WA, USA

Session Chairs: *Bert Feliss & Norio Tagawa*

**SAFV-B1
11:00am**

Simulation of the Shock Effects on the Performance of the Tab-Ramp Interface during the Unloading Process of a Hard Disk Drive

Hongrui Ao, Shao Wang, Bin Gu, Dongwei Shu, Quock Y. Ng, Samuel Gan, Nanyang Technological University & Seagate Technology International, Singapore

**SAFV-B2
11:25am**

Non-Operational Shock Testing in Server Class Drives

Bert Feliss, Aravind N. Murthy, Frank E. Talke, Hitachi Global Storage Technologies, San Jose & Center for Magnetic Recording Research, University of California, San Diego, USA

**SAFV-B3
11:50am**

Advanced Modeling Techniques for the HDD Level Op-shock Analysis

Jifang (Jeff) Tian, Jia-Yang Juang, Fu-Ying Huang, Hitachi Global Storage Technologies, San Jose, CA, USA

**SAFV-B4
12:15pm**

Flow Induced Vibration Caused by Weight-Saving Hole on Actuator Arm Using Large Eddy Simulation

Albert Tan Chok Shiong, Maria Anastasia Suriadi, Data Storage Institute, Singapore

Conference Program, Monday June 18, 2007, 1:40pm – 3:20pm

THMI-C : Tribology & Head/Media Interface Session C

Monday, June 18, 2007, 1:40pm – 3:20pm

California Mission Room

Session Organizers: *Frank E. Talke*, Center for Magnetic Recording Research, University of California, San Diego, CA, USA, *Bo Liu*, Data Storage Institute, Singapore & *Junguo Xu*, Hitachi, Ltd., Japan

Session Chairs: *Frank E. Talke & Yansheng Ma*

THMI-C1 | Approaches to Reduce Effect of Short-Range Interactions in Head Disk Interface **1:40pm**

Mingsheng Zhang, Bo Liu, Febiana Tjiptoharsono, Data Storage Institute, Singapore

THMI-C2 | Flyability Testing for Sliders on Patterned Media **2:05pm**

DE Lee, Maik Duwensee, Shoji Suzuki, Judy Lin, David Wachenschwanz, Jih-Ping Peng, Frank E. Talke, University of California, San Diego, KOMAG Inc., San Jose & Western Digital Technologies, San Jose, CA, USA

THMI-C3 | Experimental Study of Slider-Lubricant Interaction with Different Sliders **2:30pm**

Yijun Man, Bo Liu, Data Storage Institute, Singapore

THMI-C4 | Study on the Influence of Lubricant to Contact Potential **2:55pm**

Ka We Ng, Bo Liu, Mingsheng Zhang, Siang Huei Leong, Zhimin Yuan, Data Storage Institute, Singapore

SCST-B : Servo Control & Servo Technology Session B

Monday, June 18, 2007, 1:40pm – 3:20pm

Parlors D&E

Session Organizers: *Raymond de Callafon*, University of California, San Diego, CA, USA, *Jie Yu*, Western Digital Technologies, Lake Forest, CA, USA, *Guoxiao Guo*, Western Digital Technologies, Lake Forest, CA, USA

Session Chairs: *Guoxiao Guo & Raymond de Callafon*

SCST-B1 | A Disturbance Compensator with Enhanced Frequency Tolerance for the Efficient Head Positioning **1:40pm**

Dong Ho Oh, J.C. Koo, Sang Bong Lee, Ho Sung Lee, Samsung Electronics & Sungkyunkwan University, Korea

SCST-B2 | An Adaptive Gain Compensation Scheme for HDD Position Loop Seeking **2:05pm**

Jie Yu, Western Digital Technologies, Lake Forest, CA, USA

SCST-B3 | Servocontrol Relevant Identification in a Commercial Hard Disk Drive **2:30pm**

Riccardo Antonello, Roberto Oboe, Raymond A. de Callafon, Mariolino de Cecco, University of Trento, Italy & University of California, San Diego, USA

SCST-B4 | Controller Design to Attenuate Effects of External Disturbances **2:55pm**

Sang Min Suh, Dong Ho Oh, Ho Seong Lee, Servo Group, Storage System Division Samsung Electronics Co., Ltd

SAFV-C : Shock Analysis & Flow Vibrations Session C

Monday, June 18, 2007, 1:40pm – 3:20pm

Williman Room

Session Organizers: *Srinivas Tadepalli*, Seagate Technology, Shakopee, MN, *Norio Tagawa*, Kansai University, Japan, *Jen-Yuan Chang*, Washington State University, Richland, WA, USA

Session Chairs: *Jen-Yuan Chang & Srinivas Tadepalli*

SAFV-C1 | Mobile HDD Operational Shock Performance Evaluation Through Modeling and Experimental Measurement **1:40pm**

Yu-Min Lee, Jiasheng Zhu, Li Zhao, Chen-Chi Lin, Dennis Chen, Shahab Tabrizi, Western Digital Technologies Inc., San Jose, CA, USA

SAFV-C2 | Numerical Experiments on the Flow Past Actuators of HDDs **2:05pm**

Ferdinand Hendriks, Andre Chan, Hitachi Global Storage Technologies, San Jose, CA, USA

SAFV-C3 | Disk Flutter Feed-Forward **2:30pm**

Toshiki Hirano, Tetsuo Semba, Matthew White, Hitachi Global Storage Technologies, San Jose, CA, USA

Conference Program, Monday June 18, 2007, 3:40pm – 5:20pm

THMI-D : Tribology & Head/Media Interface Session D

Monday, June 18, 2007, 3:40pm – 5:20pm

California Mission Room

Session Organizers: *Frank E. Talke*, Center for Magnetic Recording Research, University of California, San Diego, CA, USA, *Bo Liu*, Data Storage Institute, Singapore & *Junguo Xu*, Hitachi, Ltd., Japan

Session Chairs: *Yansheng Ma & Frank E. Talke*

THMI-D1 3:40pm

Evaluation of the Slider-Disk Contact during Load/Unload using AE and Electrical Resistance Measurement

Yonghyun Lee, Soo-Cheol Lim, No-Cheol Park, Young-Pil Park, Center for Information Storage Device, Yonsei University, Seoul, Korea

THMI-D2 4:05pm

Friction Between Surfaces Separated by Molecularly-Thin Perfluoropolyether Films

R. Brunner, G.W. Tyndall, R.J. Waltman, F.E. Talke, Center for Magnetic Recording Research, University of California, San Diego, USA, Samsung Information Systems America & Hitachi Global Storage Technologies, San Jose, USA

THMI-D3 4:30pm

Slider/Disk Compliance Effect on Flying Attitudes of Air Bearing

Qinghua Zeng, Xinjiang Shen, Yen Fu, Ellis Cha, SAE Magnetics, Milpitas, USA

THMI-D4 4:55pm

Nano-Texturing of Magnetic Recording Sliders via Laser Ablation

U.P. Hausmann, Ph. Joerges, J. Heinzl, F.E. Talke, Technische Universität München, Universität Stuttgart, Germany & Center for Magnetic Recording Research, University of California, San Diego, USA

SCST-C : Servo Control & Servo Technology Session C

Monday, June 18, 2007, 3:40pm – 5:20pm

Parlors D&E

Session Organizers: *Raymond de Callafon*, University of California, San Diego, CA, USA, *Jie Yu*, Western Digital Technologies, Lake Forest, CA, USA, *Guoxiao Guo*, Western Digital Technologies, Lake Forest, CA, USA

Session Chairs: *Jie Yu & Raymond de Callafon*

SCST-C1 3:40pm

A KYP Lemma and Nonlinear Estimator Based Controller and Implementation to Achieve Ultra-High Density for a Servo Track Writer

Chunling Du, Jingliang Zhang, Eng Hong Ong, Lihua Xie, A*STAR Data Storage Institute & Nanyang Technological University, Singapore

SCST-C2 4:05pm

Time-Optimal Input Shaping For Discrete-Time LTI Systems with Application to Seek Profiles of a HDD System

O.N. Starnes, R.A. De Callafon, Norwegian University of Science and Technology, Trondheim, Norway & University of California San Diego, USA

SCST-C3 4:30pm

Development of Dynamic Tilt Control Method and Servo Algorithm in Gap Servo NFR

Seong-Hun Lee, Jeong-Kyo Seo, Do-Hyeon Son, In-Ho Choi, Byung-Hoon Min, Digital Storage Frontier Group, Digital Storage Research Lab., LG Electronics Inc., Korea

SCST-C4 4:55pm

Improving Protection Process Using the Luenberger Observer for SIL Based Near-Field Recording System

Tae-Wook Kwon, Sang-Hoon Kim, Jang Hyun Kim, Joong-Gon Kim, Hyunseok Yang, No-Cheol Park, Young-Pil Park, Yonsei University, Korea

FMTS : Flexible Media & Tape Storage Session

Monday, June 18, 2007, 3:40pm – 5:20pm

Williman Room

Session Organizers: *Richard Jewett*, Imation Corporation, Oakdale, MN, USA, *Jeffrey McAllister*, Hewlett-Packard, Storage Works Division, Boise, ID, USA

Session Chairs: *Jeffrey S. McAllister & Richard Jewett*

FMTS-1 3:40pm

Method for Characterizing Lateral Tape Motion

Jeffrey S. McAllister, Donald J. Fasen, Hewlett-Packard, Storage Works Division, Boise, ID, USA

FMTS-2 4:05pm

Synchronous Servo Channel Design for Tape Drive Systems

Giovanni Cherubini, Evangelos Eleftheriou, Jens Jelitto, Robert Hutchins, IBM Zurich Research Laboratory, Switzerland & IBM Tucson, Tucson, USA

FMTS-3 4:30pm

Free Vibration Analysis of Thin, Tensioned, Helically-Wrapped Webs Using Finite Element Method with Mindlin-Reissner Shell Elements

Ernesto Lopez, Sinan Müftü, James Masters, Northeastern University, Boston, USA

FMTS-4 4:55pm

Modeling and Control of Lateral Tape Motion for Improved Performance

Charles E. Kinney, Raymond A. de Callafon, University of California, San Diego, USA

Dinner, Awards and Guest Speaker, Monday June 18, 2007, 6:30pm - 8:30pm

Dinner Presentation

Magnetic Hard Disk Drives And Competitive Technologies - What Is The Future Of Storage?

Dr. Edward Grochowski, Computer Storage Consultant

Abstract

A principal characteristic of HDD products throughout their road to becoming the principal storage technology in use today is the steady stream of innovations which have resulted in unprecedented capacity, reliability, and performance increases while concurrently reducing price per gigabyte. These innovations have traversed the fields of mechanics, magnetics, electronics and basic engineering design resulting in a storage product which is the cornerstone of today's computer and information revolution. But the requirements for continuing this technology road race are significant, and competitive pressures from alternative technologies, as Flash memories, are very pronounced. The exact nature of these HDD future innovations; as patterned bit media, heat activated recording and advanced mechanical designs will be appraised to estimate how these could continue the capacity and price trends for HDD products. In addition, an analysis of alternative, more esoteric storage technologies will be given to provide an overall assessment of HDD products and storage of the future.



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Dr. Grochowski began his career with IBM's microelectronic silicon activity in New York and later joined the IBM Almaden Research Center in California where his interests included hard disk drive and component technology, and their evolutionary trends. Dr. Grochowski holds nine patents and has authored and presented numerous articles on magnetic disk drives and component technology, including a website of storage trend charts. These charts are regarded as industry road maps and are widely quoted as references. He earned a Ph.D. from New York University in Chemical/Materials Engineering and served as Executive Director of IDEMA USA (International Disk Drive Equipment and Materials Association), a non profit hard disk drive organization serving the storage industry. He has chaired the IDEMA Conference Committee and presented at DISKCON USA and DISKCON Asia Pacific, as well as the prestigious IDEMA Symposium series, and coordinated the 4K byte long sector standards committee for IDEMA. Dr. Grochowski is also a member of the IEEE and is a well known speaker on hard disk drive trends and alternative storage technologies. Dr. Grochowski is presently active as a storage industry consultant. His prior and present clients include Hitachi GST, IDC (International Data Corp.), TrendFocus and he continues to support IDEMA.

Conference Program, Tuesday June 19, 2007, 9:00am – 10:40am

THMI-E : Tribology & Head/Media Interface Session E

Tuesday, June 19, 2007, 9:00am – 10:40am

California Mission Room

Session Organizers: *Frank E. Talke*, Center for Magnetic Recording Research, University of California, San Diego, CA, USA, *Bo Liu*, Data Storage Institute, Singapore & *Junguo Xu*, Hitachi, Ltd., Japan

Session Chairs: *Frank E. Talke & Rohit P. Ambekar*

THMI-E1 | **Study of Head-Disk Interface in Laser-Assisted Magnetic Recording**
9:00am
Norio Tagawa, *Hisamitsu Yano*, *Atsunobu Mori*, High Technology Research Center, Kansai University, Japan

THMI-E2 | **Slider-Lubricant Interactions at the Head-Disk Interface Part I: Existence of a Critical Clearance**
9:25am
Rohit P. Ambekar, *David B. Bogy*, *C. Singh Bhatia*, University of California, Berkeley, Hitachi Global Storage Technologies, San Jose, USA

THMI-E3 | **Slider-Lubricant Interactions at the Head-Disk Interface Part II: Effect of Media-Type, Lube Molecular Weight and Additives**
9:50am
Rohit P. Ambekar, *David B. Bogy*, *C. Singh Bhatia*, *T. Watanabe*, University of California, Berkeley, Hitachi Global Storage Technologies, San Jose, USA & *Fuji Electric Device Technology*, Japan

THMI-E4 | **Effect of Thermal Pole Tip Protrusion and Disk Roughness on Slider Disk Contacts**
10:15am
Jianfeng Xu, *James D. Kiely*, *Yiao-Tee Hsia*, *Frank E. Talke*, Center for Magnetic Recording Research, University of California, San Diego & *Seagate Technology*, Pittsburgh, USA

AS-A : Actuators & Suspensions Session A

Tuesday, June 19, 2007, 9:00am – 10:40am

Parlors D&E

Session Organizers: *Jen-Yuan Chang*, Washington State University, Richland, WA, USA, *Keiji Aruga* Fujitsu Ltd., Kawasaki, Japan, *Fu-Ying Huang*, Hitachi Global Storage Technologies, San Jose, CA, USA

Session Chairs: *Keiji Aruga & Fu-Ying Huang*

AS-A1 | **Design of Micromirror Actuator by Ionic Polymer Metal Composites**
9:00am
Hyun Uk Yun, *Chul Jin Kim*, *Sung Joo Kim*, *No-Cheol Park*, *Hyunseok Yang*, *Young-Pil Park*, Center for Information Storage Device (CISD), Yonsei University, Seoul, Korea

AS-A2 | **Design of Moving Magnet Type Pickup Actuator Using Inserted Coil**
9:25am
Yoon-Ki Kim, *Myeong-Gyu Song*, *No-Cheol Park*, *Young-Pil Park*, *Nobuaki Onagi*, *Goichi Akanuma*, Center for Information Storage Device, Yonsei University, Seoul, Korea & *Ricoh Company Ltd.*, Yokohama, Japan

AS-A3 | **Precision Positioning and Experimental Validation of a Parallel Piezo-Beam Lens Holder for Fine Track-Following in a Dual-Stage Actuator for Data-Storage Device**
9:50am
Paul C.P. Chao, *Lun-De Liao*, *Ming-Hsun Chung*, National Chiao Tung University, National Cheng Kung University & *Chung-Yuan Christian University*, Taiwan

AS-A4 | **Parameter Sensitivity Analysis of Disk Drive Head Load Control System**
10:15am
J.H. Ding, *A. Desai*, *M. Liebman*, *J. Chen*, *H. Melkote*, *Western Digital Technologies*, Lake Forest, CA, USA

IPCE : Image Processing & Consumer Electronics Session

Tuesday, June 19, 2007, 9:00am – 10:40am

Williman Room

Session Organizers: *Jen-Yuan Chang*, Washington State University, Richland, WA, USA, *George T.-C. Chiu*, Purdue University, West Lafayette, IN, USA

Session Chairs: *Jen-Yuan Chang & Gunhee Jang*

IPCE-1 | **Finite Element Analysis of Unbalance Response of a High-speed Polygon Mirror Scanner Motor Considering the Flexibility of the Structure**
9:00am
G.H. Jang, *K.M. Jung*, *C.H. Seo*, *M.G. Kim*, Hanyang University, Seoul, Korea

IPCE-2 | **Micro-Scale Robotic Vision Guided System and Method for Flex Cable Assembling in High Density Magnetic Disk Drives**
9:25am
J.Y. Chang, *K. Fawzi*, *R. Moates*, and *E. Rothenberg*, Washington State University, Richland, WA & *Hitachi Global Storage Technologies*, San Jose, CA, USA

IPCE-3 | **Small Form Factor (SFF) Actuator Design For Camera Phone Lens Systems**
9:50am
Jae Seok Choi, *Jeonghoon Yoo*, *No-Cheol Park*, Center for Information Storage Device, Yonsei University Seoul, Korea

IPCE-4 | **Analysis of Flexible Media Using ALE Finite Element Method**
10:15am
Jung-Geun Jee, *Young-Hoon Jang*, *No-Cheol Park* and *Young-Pil Park*, Center for Information Storage Device & Yonsei University, Seoul, Korea

Conference Program, Tuesday June 19, 2007, 11:00am – 12:40pm

SMA-A : Spindle Motor & Acoustics Session A

Tuesday, June 19, 2007, 11:00am – 12:40pm

California Mission Room

Session Organizers: *I.Y. (Steve) Shen*, University of Washington, Seattle, WA, USA, *Gunhee Jang*, Hanyang University, Korea, *Jun-Ichi Ichihara*, Fujitsu Laboratories Ltd., Atsugi, Japan

Session Chairs: *I.Y. (Steve) Shen & Gunhee Jang*

SMA-A1 | Experimental Studies of 0.85-in Hard Disk Drive Spindle Motors

11:00am

Tsung-Liang Wu, I.Y. (Steve) Shen, F. Okamoto, T. Asada, University of Washington, Seattle, WA, USA, *Panasonic Shikoku Electronics Co. Ltd.*, Japan

SMA-A2 | Dynamics of a Tilted HDD Spindle System Due to the Manufacturing Tolerance of FDBs

11:25am

G.H. Jang, K.Y. Koak, H.W. Kim, Hanyang University, Seoul, Korea

SMA-A3 | A High Precision Autofocus Algorithm for Spindle Motor Eccentricity Measurement System

11:50am

J.C. Huang, C. Bi, Data Storage Institute, Singapore

SMA-A4 | Design and Construction of an In-Situ Inspection Machine for Ensuring the Dynamic Performance of Fluid Bearings in Data Storage Devices

12:15pm

C.W. Chiu, Paul C.P. Chao, C.Y. Shen, National Chiao Tung University & Chung Yuan Christian University, Taiwan

AS-B : Actuators & Suspensions Session B

Tuesday, June 19, 2007, 11:00am – 12:40pm

Parlors D&E

Session Organizers: *Jen-Yuan Chang*, Washington State University, Richland, WA, USA, *Keiji Aruga* Fujitsu Ltd., Kawasaki, Japan, *Fu-Ying Huang*, Hitachi Global Storage Technologies, San Jose, CA, USA

Session Chairs: *Keiji Aruga & Jen-Yuan Chang*

AS-B1 | Optimal Dimple Point of SFF HDD Suspension for Improving the Unloading Performance

11:00am

Ki-Hoon Kim, Younghyun Lee, No-Cheol Park, Hyunseok Yang, Young-Pil Park, Department of Mechanical Engineering & Center for Information Storage Device, Yonsei University, Seoul, Korea

AS-B2 | Active Head Slider with Piezoelectric Actuator using Shear Mode Deformation

11:25am

Irizo Naniwa, Kazuo Sato, Shigeo Nakamura, Kazutaka Sato, Junguo Xu, Hitachi, Ltd. & Nagoya University, Japan

AS-B3 | Finite Element Simulation of Ball Swaging Process of Jointing HGA with Actuator Arm and Gram Load Calculation

11:50am

Jian Yang, Chen-Chi Lin, Shahab Tabrizi, Western Digital Technologies Inc., San Jose, CA, USA

AS-B4 | Piezoelectric Film Attached Suspension for Detecting Disk Flutter and Reducing Track Misregistration

12:15pm

Shinichi Ohtsuka, Shinji Koganezawa, Takeyori Hara, Kei Funabashi, Takuji Matsuzawa, Fujitsu Ltd., Japan

OST-A : Optical Storage & Technology Session A

Tuesday, June 19, 2007, 11:00am – 12:40pm

Williman Room

Session Organizers: *No-Cheol Park*, Yonsei University, Korea, *Shozo Saegusa*, Hiroshima University, Japan

Session Chairs: *No-Cheol Park & Jeonghoon Yoo*

OST-A1 | Ultra Slim Actuator and SERVO System Margin in Optical Disc Drive

11:00am

Hyung-Joo Kang, Jong-Jin Lee, Sam-Nyol Hong, Eui-Seok Ko, Byung-Hoon Min, Digital Storage Research Lab., LG Electronics Inc., Korea

OST-A2 | New Multiplexing Method of Holographic Data Storage System

11:25am

Jang Hyun Kim, Sang-Hoon Kim, Junho Yang, Hyunseok Yang, Jin Bae Park, Young-Pil Park, Yonsei University, Seoul, Korea

OST-A3 | Improved Gap Control for SIL Based Near Field Recording System

11:50am

Joong-Gon Kim, Min-Seok Kang, Tae-Wook Kwon, Jun Jeong, No-Cheol Park, Hyun-Seok Yang, Young-Pil Park, Center for Information Storage Device, Yonsei University & Dongyang Technical College, Seoul, Korea

OST-A4 | Design of Hybrid Types Optical Pickup Actuator for System Stability in High Density Reading and Recording

12:15pm

Jung-Hyun Woo, Dong-Ju Lee, Myong-Gyu Song, No-Cheol Park, Young-Pil Park, Nobuaki Onagi, Goichi Akanuma, Center for Information Storage Device, Yonsei University, Seoul & Manufacturing Technology R&D Center, Ricoh, Yokohama, Korea

Conference Program, Tuesday June 19, 2007, 1:40pm – 3:20pm

SMA-B : Spindle Motor & Acoustics Session B

Tuesday, June 19, 2007, 1:40pm – 3:20pm

California Mission Room

Session Organizers: *I.Y. (Steve) Shen*, University of Washington, Seattle, WA, USA, *Gunhee Jang*, Hanyang University, Korea, *Jun-Ichi Ichihara*, Fujitsu Laboratories Ltd., Atsugi, Japan

Session Chairs: *Gunhee Jang & I.Y. (Steve) Shen*

SMA-B1 | Wedge Spindle Speed Control with Eccentricity Compensation for Hard Disk Drives

1:40pm
Zhi Wang, Hemant Melkote, Joe Chen, Duc Phan, Western Digital Corporation, Lake Forest & San Jose, CA, USA

SMA-B2 | Analysis of Electrically Excited Vibration Modes and Acoustic Noise in a FDB Spindle Motor

2:05pm
Nopdanai Ajavakom, Apirat Sillapapinij, Chulalongkorn University, Bangkok, Thailand

SMA-B3 | Role of Stator-Base Interference Fit on Vibration Transmission and Acoustic Noise in FDB Spindle Motors for HDD

2:30pm
Thitima Jintanawan, Kran Chungphaisan, Kongkiti Liwcharoenchai, Puttiporn Junkaew, Paired Singhatanadgid, Chulalongkorn University, Bangkok, Thailand

SMA-B4 | A Fast Spinning-Up Scheme for Hard Disk Drive Spindle Motors

2:55pm
Quan Jiang, Cao Bi, Song Lin, Data Storage Institute, Singapore

AS-C : Actuators & Suspensions Session C

Tuesday, June 19, 2007, 1:40pm – 3:20pm

Parlors D&E

Session Organizers: *Jen-Yuan Chang*, Washington State University, Richland, WA, USA, *Keiji Aruga* Fujitsu Ltd., Kawasaki, Japan, *Fu-Ying Huang*, Hitachi Global Storage Technologies, San Jose, CA, USA

Session Chairs: *Jen-Yuan Chang & Fu-Ying Huang*

AS-C1 | "Gimbal Chip" – a micro-fabricated chip that replaces gimbal function of a suspension

1:40pm
Toshiki Hirano, Henry Yang, Hitachi Global Storage Technologies, San Jose Research Center, CA, USA

AS-C2 | Design of a Dual Stage Actuator Tape Head with High Bandwidth Track-Following Capability

2:05pm
Bart Raeymaekers, Matthew R. Graham, Raymond A. de Callafon, Frank E. Talke, Center for Magnetic Recording Research, University of California, San Diego, CA, USA

AS-C3 | Prediction of Position Error Signal of a Hard Disk Drive Undergoing a Long Seek

2:30pm
Tsung-Liang Wu, Chaw-Wu Tseng, Chen-Chi Lin, Shahab Hatam-Tabrizi, I.Y. (Steve) Shen, University of Washington, Seattle, WA & Western Digital Technologies, San Jose, CA, USA

AS-C4 | Proposition of Magnetic Head Positioning Mechanism by Using of Contact Force

2:55pm
Yuta Kamoshita, Hiroshi Yamaura, Tokyo Institute of Technology, Japan

OST-B : Optical Storage & Technology Session B

Tuesday, June 19, 2007, 1:40pm – 3:20pm

Williman Room

Session Organizers: *No-Cheol Park*, Yonsei University, Korea, *Shozo Saegusa*, Hiroshima University, Japan

Session Chairs: *Jeonghoon Yoo & No-Cheol Park*

OST-B1 | Tracking Servo Controller Design for Holographic Data Storage System

1:40pm
Junho Yang, Sang-Hoon Kim, Jang Hyun Kim, Yong Hee Lee, Hyunseok Yang, Joo-Youn Park, Young-Pil Park, Yonsei University, Seoul & DAEWOO Electronics Corp., Korea

OST-B2 | Design and Experimental Verification of a Controller with Auto-Tuned Parameters for Precision Positioning of a Three-Axis Optical Pickup

2:05pm
Paul C.P. Chao, C.Y. Shen, National Chiao Tung University & Chung-Yuan Christian University, Taiwan

OST-B3 | Tilt Detection and Servo Control Method for the Holographic Data Storage System

2:30pm
Sang-Hoon Kim, Jang Hyun Kim, Junho Yang, Hyunseok Yang, Joo-Youn Park, Young-Pil Park, Center for Information Storage Device, Yonsei University, Seoul, & DAEWOO Electronics Corp., Korea

OST-B4 | Sub-100-nm ROM Pattern Readout Using a Non-Circular Protruded Aperture Mounted Optical Head Slider

2:55pm
Toshifumi Ohkubo, Majung Park, Masakazu Hirata, Manabu Oumi, Kunio Nakajima, Toyo University & Seiko Instruments Inc., JAPAN

Authors and Chairs

Ajavakom, N.	SMA-B2	Hirano, T.	chair MNT, SAFV-C3, AS-C1
Akanuma, G.	AS-A2, OST-A4	Hirata, M.	OST-B4
Ambekar, R.P.	chair THMI-E, THMI-E2, THMI-E3	Hong, S.N.	OST-A1
Antonello, R.	chair SCST-A, SCST-B3	Hsia, Y.T.	THMI-E4
Ao, H.	SAFV-B1	Huang, F.Y.	chair AS-A, SAFV-B3, chair AS-C
Aruga, K.	THMI-B2, chair AS-A, chair AS-B	Huang, J.C.	SMA-A3
Asada, T.	SMA-A1	Hutchins, R.	FMTS-2
Bi, C.	SMA-A3, SMA-B4	Ibrahim See, B.L.	SAFV-A1, THMI-B3
Bogy, D.B.	THMI-A3, THMI-E2, THMI-E3	Ichihara, J.I.	THMI-B1
Bratkovski, A.	MNT-4	Jang, G.H.	SCST-A4, chair IPCE, IPCE-1, chair SMA-A-A
Brunner, R.	THMI-D2		SMA-A2, chair SMA-B
Burns, J.	THMI-A2	Jang, Y.H.	IPCE-4
Cha, E.	THMI-D3	Jee, J.G.	IPCE-4
Chakraborty, A.	MNT-2	Jelitto, J.	FMTS-2
Chan, A.	SAFV-C2	Jeong, J.	OST-A3
Chang, J.Y.	chair SAFV-C, chair IPCE, IPCE-2	Jewett, R.	chair FMTS
	chair AS-B, chair AS-C	Jiang, Q.	SMA-B4
Chao, P.C.P.	AS-A3, SMA-A4, OST-B2	Jintanawan, T.	SMA-B3
Chen, B.M.	SCST-A1	Joerges, Ph.	THMI-D4
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ISPS Division Fellowship and ISPS Conference Scholarships for Graduate Students

The ISPS division of the ASME offers two kinds of scholarships to graduate students who work in the general area of Information Storage and Processing Systems: the **ISPS Division Graduate Student Fellowship** and the **ISPS Conference Scholarships for Graduate Students**. More details on these awards is given below.

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In order to encourage technical research related to the field of Information Storage and Processing Systems, among Mechanical Engineering graduate Students across the world, the ISPS Division awards one graduate student fellowship each calendar year. The graduate fellowship consists of a monetary award of \$1500 and free registration for the annual ISPS Conference in the year the award is granted. For more information on how to apply for this scholarship, please see the [division web page](#).

ISPS Conference Scholarships for Graduate Students

Five graduate student scholarships are offered for the ISPS Conference. The conference scholarship offers free of charge enrollment to the conference, all handouts, and catered meals. All graduate students who wish to be considered for the scholarship are required to submit a brief (1 page maximum) description of the student's thesis research and a brief statement of the applicability of their thesis research to the research areas of the ISPS Division. Send your application Professor Jen-Yuan (James) Chang at Washington State University, email: jychang@tricity.wsu.edu. by the (hard) deadline of April 13, 2007. For more information on the ISPS Conference Scholarships for Graduate Students, please contact Professor Jen-Yuan (James) Chang:

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