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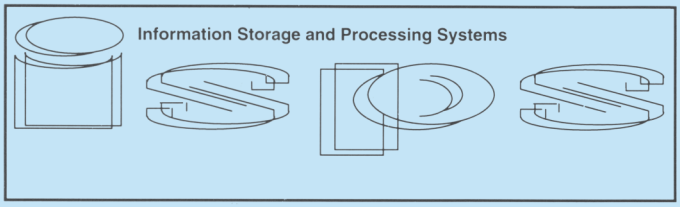
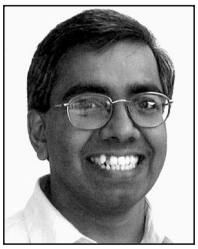


Information Storage and Processing Systems Division Newsletter

Sinan Müftü, Editor *Summer 2003*

Past Chair's Message



Anand Lakshmikumaran

On behalf of the Executive Committee, I would like to take this opportunity to thank the members of the Information Storage and Processing Systems (ISPS) division for their continued support of the division and its activities. One of the division's main activity over the past few years has been the annual conference on ISPS being held at Santa Clara. Last year's annual conference, held from June 16–18, 2002, was well attended with 120 participants distributed almost equally amongst industry and academia. In the spirit of expanding the division's activities to serve a more international audience from a wider range of industries, this year, the division jointly organized a conference on Micromechatronics for Information and Precision Equipment (MIPE) with the Information, Intelligence and Precision Equipment (IIP) division of JSME. The three-day long conference was held from June 16-18, 2003, at Yokohoma, Japan. It consisted of a half-day workshop on application of nanotechnology and roughly 200 presentations distributed over multiple sessions on magnetic and optical storage, precision, intelligent, and biomedical equipment and instrumentation.

In spite of the continued success of the annual conference and continued support by its members and the relentless effort put in by volunteers, both primary and secondary division memberships have stayed flat over the last couple of years. The mission of the division is to serve the mechanical engineers in the ISPS industries. For the past few years, the primary focus of the division's activities was geared towards the rapidly growing data storage industry and the associated research in universities. In the early years of the division, attention was also focused on other industries, including printers and scanners but activities (papers presented at the annual conference, for instance) have dwindled over the years. As the division becomes more entrenched, it is time to expand the scope of the division to address the needs of other ISPS industries and research beyond the data storage industry. This year's joint conference with JSME-IIP is one such attempt to address the needs of other ISPS industries.

"The mission of the division is to serve the ... engineers in industries related to the ISPS ... The division strives to serve the mechanical engineers by serving as a forum to exchange technical ideas, to provide continuing education, and to foster networking."

The division strives to serve the mechanical engineers by serving as a forum to exchange technical ideas, to provide continuing education, and to foster networking. In last year's newsletter, the immediate past-chair, Neal Schirle, expounded greatly on the benefits of networking, both to the individual and to the technical community as a whole; and, I strongly endorse the same. In addition to conferences and workshops, the division supports education by graduate scholarships at the ISPS conference each year. Starting this year, we are adding a more substantial scholarship to our existing ones in order to further encourage research and development in our field, as well as participation in division activities.

I would like to use the closing remarks to call on all members to help the division in achieving its mission, by participating in its activities, providing feedback and suggestions on how the division could better serve its members, and more importantly (but not always possible), by actively getting involved in the division's activities. Please feel free to contact any of the Executive Committee members if you have any suggestions or want to get more involved with the division. Finally, I wish to thank all the Executive Committee members and other volunteers who over the past year have put in all their effort towards the division's activities.

Anand Lakshmikumaran
StorageTek, Louisville, CO

New ISPS Graduate Student Fellowship

In addition to conferences and workshops, the division supports education by providing five graduate scholarships each year that constitutes free registration to its annual conference. In an effort to further support education and encourage research, the division is in the process of instituting a graduate student fellowship to be awarded as a monetary award to a single graduate student based on his/her research and peer recommendations. Nominations for this fellowship will be sought from all students pursuing research towards a post-graduate degree and the award selected by a committee based on well-defined guidelines. Please follow the postings on the ISPS web-site at http://www.asme.org/divisions/isps, for description of the award as well as the Call for Nominations.

The graduate student scholarship committee consists of Professor Arvind Raman of Purdue University, Professor Steve Shen of University of Washington, and Dr. Srinivas Tadepalli of Seagate Technology.

The ISPS Annual Conference in 2004

One of the major activities of the division is to organize the ISPS Conference in order to serve the research and development needs of the ISPS community. The division has held the ISPS Symposium in conjunction with the International Mechanical Engineering Congress and Exposition (IMECE) of the ASME from 1989–1998. In 1999, the symposium was held at Santa Clara University (SCU) in California, for the first time. Since then SCU has been the venue of the ISPS Conference. This year, the ISPS Conference was jointly held with the Precision Equipment (IIP) division of JSME in Yokohama Japan. In 2004 the Conference will again be held at SCU in June, and it will be chaired by Dr. Srinivas Tadepalli of Seagate Technology.

The conference solicits presentations on magnetic and optical recording devices in the form of rigid, flexible disk or tape media; and such processing systems as copiers, printers, digital cameras and scanners. Technical sessions are held on the following areas:

Hard-disk drive (HDD) tribology
Hard-disk drive servo control
Flow-induced vibrations in HDDs
Spindle motor dynamics
Acoustics of HDDs
Optical data storage
Tape/flexible media handling.

The following topics in these thnical sessions, organized by experts in their respective field, reflect the interdisciplinary nature of the activities of the ISPS division: friction, wear, lubrication, corrosion, contamination, thin films, contact mechanics, dynamics, vibrations, actuators, servo motors, spindle dynamics, air flow, flow-induced vibrations, tracking, heat transfer, paper handling, roller mechanics and imaging science.

In order to encourage presentation of the latest results Conference publishes two-page abstracts related to each presentation. The authors are also encouraged to submit their presentations to the journal *Microsystem Technologies*.

"In 2004, the ISPS Conference will again be held at SCU on June 14–16"

Microsystem Technologies Journal

The *Microsystem Technologies: Micro- & Nanosystems and Information Storage & Processing Systems* (MST) journal provides rapid publication of important and timely results on electromechanical, materials science, design, and manufacturing issues of these systems and their components. The micro- & nanosystems include MEMS/NEMS, e.g. sensors and actuators, micromechatronics, optoelectronics, microfluidics and systems integration. Information storage systems include magnetic recording, optical recording, and other recording devices, e.g., rigid disk, flexible disk, tape and card drives. Processing systems include copiers, printers, scanners and digital cameras.

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The Ohio State University
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The journal is published by Springer and more information can be found at http://link.springer.de/link/service/journals/00542/index.htm.

Executive Committee 2003-2004

Chair
Professor Sinan Müftü
Dept. of Mechanical Engineering
Northeastern University
Boston, MA 02115-5000
617-373-4743; FAX: 617-373-2921
Email: smuftu@coe.neu.edu

Vice Chair/Conference/ Program Chair '04
Dr. Srinivas Tadepalli
NRW 129, Seagate Technology
7801 Computer Avenue South
Bloomington, MN 55435
952-402-5767; FAX 952-402-5740
Email: srinivas.tadepalli@seagate.com

Secretary/Newsletter Editor
Dr. Mike Suk
CKY/028-1, SSPD
IBM Corp.
5600 Cottle Road
San Jose, CA 95193
408-256-6435; FAX 408-256-1603
Email: suk@us.ibm.com

Publications Chair
Professor Bharat Bhushan
Department of Mechanical Engineering
The Ohio State University
206 West 18th Avenue
Columbus, OH 43210-1107
614-292-0651, 0171; FAX: 614-292-0325
Email: bhushan.2@osu.edu

Membership & Div. Develop. Co-Chair
Professor Steve Shen
Department of Mechanical Engineering
University of Washington
Seattle, WA 98195-2600
206-543-5718; FAX 206-685-8047
Email: ishen@u.washington.edu

Membership & Div. Develop. Co-Chair
Rich Jewett
Imation Corp.
1 Imation Place
Bldg 304-2A-30
Oakdale, MN 55128
651-704-5276; FAX 651-704-3017
Email: rejewett@imation.com

ASME Technical Program Manager
Fred M. Goldfarb
Manager, Technical Programs
ASME International
Three Park Avenue, 22W3
New York, NY 10016
212-591-7470; FAX 212-591-7671
Email: goldfarbf@asme.org

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2003 JSME-IIP/ASME-ISPS Joint Conference on Micromechatronics for Information and Precision Equipment

June 15-18, 2003
Yokohama, Japan

www.jsme.or.jp/iip/english.htm

This year the Information, Intelligence and Precision Division (IIP) of the Japanese Society of Mechanical Engineers (JSME) and the ISPS co-hosted the joint Conference on Micromechatronics for Information and Precision Equipment (MIPE). This Conference covered the following traditional ISPS and IIP topics:

- *Copy Machines, Printers, Scanners and Printing Systems*
- *Flexible Media Handling Mechanics*
- *Magnetic Recording Storage*
  - *Head Disk Interface*
  - *Mechanism and Control*
- *Micro- and Nanosystem Science and Tech.*
- *Micromechatronics*
- *Optical Devices*
- *Precision Equipment*
- *Wearable Information Equipment*
- *Medical and Bio Treatment Equipment*

Conference organizers:

Chairman:
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Mike Suk, IBM STD, USA

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Secretary: Prof. Kenichi Fukuzawa, Nagoya Univ., Japan

Over 200 presentations/posters will be presented. See the Conference web page for the full list and updates.

Magnetic Recording Storage (HDI)

- "Examination of Flying Height of Magnetic Head Slider in Simulations and Measurements at Nanometer-order Spacing," Y. Takeuchi, K. Tanaka, T. Odaka, F. Muranushi, Hitachi
- "Elimination of Fly Height Measurement Error by Correction with N, K value," T. Nakamura, T. Matsumoto, T. Chikazawa, IBM Japan
- "Development of a head COC thickness measuring method by means of AES without ion sputtering," S. Matsumura, Y. Tagashira, IBM Japan
- "Evaluation of Ultraviolet Rays-Assisted Bonding between PFPE Lubricant and DLC from Spreading of Molecularly Thin Film," Y. Mitsuya, Y. Hayashi, K. Gotou, H. Zhang, Nagoya University
- "Wear Modeling Of The Head /Disk Interface At Low Fly Height," W. Peng, Y.-T. Hsia, Seagate Technology
- "Direct Visualization of Thin Film Spreading over Magnetic Disk Surface by Low-Coherence Interferometry," H. Zhang, Y. Mitsuya, S. Ishida, K. Fukuzawa, Nagoya University
- "Characteristics of Alkanoleamine-Terminated Perfluoropolyether Lubricant for Hard Disk Media," N. Kobayashi, M. Ikegami, Y. Fujii, Moresco
- "Glide Noise Caused by Organic Hydrocarbon on DLC Overcoat of Magnetic Recording Disk," M. Shoda, T. Kozaki, T. Ono, H. Matsumoto, H. Tani, Hitachi
- "Improvement of DLC overcoat using an additive gas and its application to lower flying height hard disk medium," T. Ono, M. Shoda, H. Matsumoto, H. Tani, T. Yatsue, Y. Kokaku, Hitachi
- "Flow induced vibration of shrouded corotating disk systems at subcritical speed range," S. Kisaki, S. Masuda, S. Obi, Keio University
- "Simulation of Slider Flying Over a Wavy Surface," Z. Deng, Y. Ueno, T. Inagaki, Matsushita
- "Topology and Shape Optimization of Suspension Assembly for High Density HDDs," S. Yu, B Liu, Data Storage Inst.
- "Local deformation and crown influence on the slider flying performance," Y. Han, B. Liu, C P. Tso, Data Storage Inst.
- "Flying Stability Concerns in Laser Texture Zone," K. W. Ng, Z. Yuan, B. Liu, Data Storage Institute
- "Active Head Sliders Using Piezoelectric Thin Films for Flying-Height Control," K. Suzuki, T. Akimatsu, K. Sasaki, M. Kurita, University of Tokyo
- "Component Design Features For Near-Contact Recording," V. Raman, D.R. Gillis and R.F. Wolter, IBM-STD
- "The Evaporation and Readsorption of Lubricant Film Molecules in Hard Disks," B. Zhang, A. Nakajima, Saga U.
- "Fiber Wobbling Shear Force Measurement for Head-Disk Interface," S. Itoh, K. Fukuzawa, H. Zhang, Y. Mitsuya, Nagoya University
- "Flying Characteristics of a Slider with Ultrasmall Spacing Considering Surface Force," H. Matsuoka, S. Ohkubo, K. Inagaki, S. Fukui, Tottori University
- "Flying characteristics in the free molecular region (Influence of accommodation coefficients)," S. Fukui, H. Shimada, K. Yamane and H. Matsuoka, Tottori University
- "Dynamic characteristics of flying head slider with ultra thin spacings (CIP method and linearized method),"S. Fukui, H. Matsui, K. Yamane and H. Matsuoka, Tottori University
- "A Parametric Study of Head-Disk Interface Instability due to Intermolecular Forces," B. Thornton, D. Bogy, UC Berkeley
- "Interaction between nano-spacing flying head sliders and ultra-thin liquid lubricant films with non-uniform distribution in HDDs," N. Tagawa, N. Yoshioka, A. Mori, Kansai Univ.
- "A Polarisation Interferometer For Flying Height," D. Jenkins, X. Liu, W. Clegg, C.R.I.S.T.
- "Influence of Slider Air-Bearing Design on Disk Effective Take-off Height," Kris Schouterden, M. Suk, V. Raman, IBM
- "Numerical Simulation of Slider Air Bearing Based on a Mesh-free Method," X. Li, H. Du, Bo Liu, G. K. Lau
- "Disk Drive Generates High Speed Real Random Numbers," E. Schreck, W. Ertel, Maxtor

- "Mechanical Stability of the Interface Between a Padded Slider and Magnetic Recording Disk," R. Martin, B. Strom, Maxtor
- "Slider Vibration Reduction Using Slider Surface Texture," L. Zhou, M. Beck, H. H. Gatzen, K. Altshuler, F. Talke, UCSD
- "Development of a Low-profile, Small-diameter HDD Motor for Mobile Applications," S. Obata, K. Matsuoka, H. Kita, M. Miyamoto, K. Miyamori , H. Noda, Matsushita
- "Spreading and Replenishment Simulation of Ultrathin Lubricant Films," Q. Guo, M. S. Jhon ,Y. T. Hsia, CMU
- "Lubricant-Slider Interaction and Lubricant Depletion in Near Contact Recording," J. Xu, H. Tanaka, Y. Miyake, Y. Ootani, Hitachi
- "Friction Control by Micro-vibration under Micro-load for Magnetic Recording Storage," L. Su, J. Xu, M. Kurita, K. Kato, K. Adachi, Tohoku U.
- "Effect of the Suspension on Dynamic Loading Process," M Suk, D. Gillis, IBM
- "The study of the stiction free magnetic recording head with DLC pad," S. Takagi, Matsushita
- "Effect of Lubricant on Glide Avalanche Height and Slider Vibration," H. Kohira, H. Tanaka, Hitachi
- "Investigation of Slider-Disk Contact using Magnetic Read Back Signal," T.Yamazaki, H.Kohira, T.Tanaka, Hitachi
- "Investigation On Corrosion Behaviour On Hard Disks," D. Xu, E. Liu, B. Liu, Nanyang Technological University
- "Pin-on-Disk Wear Study on Thin-Film Disks for Contact Recording Systems," S. Kobatake, K. Nagata, S. Miyazawa, Y. Kawakubo, S. Hirono, Shinshu Univ
- "2-DOF analysis of friction-induced slider vibrations in near contact regime," Masami Yamane and Kyosuke Ono, Tokyo Institute of Technology
- "Identification of contact stiffness and damping characteristics between spherical slider and magnetic disk surface," S. Oohara and Kyosuke Ono, Tokyo Institute of Technology

Magnetic Recording Storage (Mechanism and Control)

- "Disk Erase of HDD servo pattern by highly efficient permanent magnet," Mitsuru Kitamura, Akira Morita, Hitoshi Tamura, IBM Japan
- "Develop microdrive assembly process," Hitoshi Tamura, Kazuya Takeda, Hisashi Kakuta, Toshiya Furihara, IBM-Japan
- "Unified Design of Time-Varying Gain Type Access Control and Integral Type Servo Control by Means of Nonstationary Optimal Control Method," S. Hara, Toyota Technological Institute
- "Flow-velocity measurement in actual HDDs by particle-image-velocimetry and flow simulation," N. Nishijima, T. Kubo, H. Shimizu, Y. Hirono, M. Tokuyama, S. Nakamura, Hitachi
- "Aerodynamically and Structurally Coupled Vibration of Multiple Co-Rotating Disks in Computer Hard Disk Drives," Jung Seo Park and I. Y. Shen, University of Washington
- "Discrete-time Mode Switching Control in Hard Disk Drive Servo Systems," V. Venkataramanan, Y. Li, Y. Wang and G. Guo, Nanyang Technological University
- "An Iterative Learning Approach to Compensation for the Servo Track Writing Error in High Track Density Disk Drives," C.-I. Kang and C.-H. Kim, Cheju National University
- "An Adaptive Notch Filter for Suppressing Mechanical Resonance in High Track Density Disk Drives," C.-I. Kang, C.-H. Kim, Cheju National Univ.
- "Pawl inertia latch design for ramp loading drive," J. Chang, V. Sharma, F. Morris, Samsung
- "Residual Vibrationless Seeking Design based on Final-State Control in Hard Disk Drives," A. Okuyama, M. Kobayashi, T. Horiguchi, K. Shishida, Hitachi
- "Optimal Design of Smart Carriage Arm in Magnetic Disk Drive for Vibration Suppression," F. Ohashi, I. Kajiwara, M. Iwadare, T. Arisaka, Tokyo Institute of Technology
- "Optimization of Smart Structure For Realizing High Controllability," T. Omori, I. Kajiwara, Tokyo Institute of Technology
- "Micromachined Electrostatic Actuator For R/W Head Positioning," J. Chen, Y. Lu, J.P. Yang, S. X. Chen, Data Storage Institute
- "High Frequency Disturbance Rejection in Hard Disk Drives," S.-H. Lee, C. C. Chung, Hanyang University
- "Aerodynamically Induced Vibration and Power Consumption in Hard Disk Drives," S.-O. Cho, S.-Y. Lee, Y.-C. Rhim, Sogang University
- "Linear Actuator for Precise Track Following," S. Mori, T. Hoshino, H. Tada, G. Obinata, K. Ouchi, Akita Research Institute of Advanced Tech.
- "Aeroelastic Flutter of Enclosed Rotating Disks," N. Kang , A. Raman, Purdue U.
- "Finite Element Modal Analysis of a Spinning Flexible Disk-Spindle System in a HDD Considering the Flexibility of Supporting Structure" G. H. Jang , J. H. Han, Hanyang University
- "Acceleration Feedforward Control based on Adaptive Identification of Transfer Characteristics for Hard disk Drives," N. Bando, S. Oh, Y. Hori, University of Tokyo
- "Development of a robust HDD spindle motor to minimize the change of dynamic characteristics due to temperature variation," G. H. Jang, D. K. Kim and H. S. Lee, Hanyang University
- "Development of a Head Actuator Based on the New Design Concept for the Wide Servo Bandwidth in a Hard Disk Drive," T. Arisaka, T. Simizu, H. Masuda, T. Atsumi and G. Nakamura, Hitachi
- "Realization of an Adaptive Voltage Driver for Voice Coil Motor," R. Oboe, P. Capretta, R. Antonello, U. of Padova
- "Aerodynamically Induced Vibration and Power Consumption in Hard Disk Drives," S.-O. Cho, Seung-Yop Lee, Yoon-Chul Rhim, Sogang University
- "A Piezoelectric Micro-Actuator With Extended Base-Plate And Flexural Magnification," G. K. Lau, H. Du, Nanyang Technological University
- "A Variable Structure Estimator for Hard Disk Drives," K. Ohno, R. Horowitz, Fujitsu
- "Symmetrical Piezoelectric Microactuators for Magnetic Disk Drives," K. Kurihara, T. Mita, M. Hida, S. Koganezawa, Fujitsu
- "Parameter Studies for Optimizing Flex Circuits in Hard Disk Drives," M. Brake J. Wickert, CMU
- "Airflow and Contamination with Titanium Carbide Particles," B. Feliss, IBM
- "Actuator Bode Measurement beyond Nyquist Frequency in Hard Disk Drives," Xiaoping Hu, Maxtor
- "Quantitative Study of Magnetic Tape Abrasivity Using Accelerated Wear Testing," P. Chou, D. Kubeldis, M. Lamers, ASME
- "Performances of Journal Bearing with MoS2-Shot Coating for Spindle of Magnetic Recording Storage System," T. Hirayama, N. Hishida, H. Ishida, H. Yabe, Ryukoku University
- "Suppressing Sensitivity Hump in HDD Dual-Stage Servo Systems," C. K. Pang, D. Wu, G. Guo, T. C. Chong, Y. Wang, Data Storage Institute
- "FEM analysis and control of micro actuator with piezoelectric element for spinstand," A. Naganawa, S. Mori, H. Tada, Y. Shibuya , G. Obinata, K. Ouchi, Akita University
- "Diamagnetic Levitation and Electrostatic Motor: Components for Future HDDs?" H. Bleuler, R. Moser, T. Higuchi, F. Barrot
- "Robust Design of Microactuator for HDD Head Positioning," W.H. Jia, J.P. Yang, M.A. Jabbar, S.X. Chen, Data SI
- "Optimizing Servo-Signal Design in a Hard-Disk Drive," K. Akagi, K. Yasuna K. Shishida, Hitachi
- "Robust Design of Microactuator for HDD Head Positioning," W.H. Jia, J.P. Yang, M.A. Jabbar and S. X. Chen, DSI

- "New Method for Evaluation of the Ultra-Thin Air Film Spacing between Head Sliders and Disk Surfaces on Magnetic Disk Files," T. Odaka, K. Tanaka, Y. Takeuchi
- "The Effects of Arm Edge Shape on Airflow and Slider Off-Track Vibration in a Modeled HDD," T. Watanabe, H. Gross, D. Bogy and Ö Savas, Fujitsu
- "Stabilization control of vibration modes using a digital observer," H. Yamaura, O. Shin-ichi, K. Ono, Tokyo Inst. of Tech.
- "Design Study of a high natural frequency positioning mechanism," M. Saitoh, H. Yamaura, K. Ono, Tokyo Institute of Technology
- "Stability Analysis of Disk Spindle Supported a Full Cylindrical Journal Bearing and Pivot Bearing," S. Murashita, K. Ono, Tokyo Inst. of Tech.
- "Antenna Stabilizing Control System Employing Strapdown 2 Axis Azimuth/Elevation Method for Maritime Statellite Communication," T Murakoshi, Tokimec Inc.
- "Servo Design for High-TPI Hard Disk Drives Using a Delay-Accommodating State Estimator," Y.-H. Kim, S.-H. Chu, D. Oh, S.W. Kang, Y.S. Han, T.Y. Hwang, Samsung
- "Position Error Reduction In A Disk Drive Using Head Gimbal Assembly With Radial Motion Capability," D.-H. Oh, Y.-H. Kim, S.-W. Kang, Y.-S. Han, T.-Y. Hwang, Samsung
- "A study on the disk vibration control by disk damper for 100ktpi hard disk drive design," Y. S. Han, S. W. Kang, D. H. Oh, T. Y. Hwang, G Tran, Samsung
- "Experimental Studies and Simulation for air flow in helical scan system," K. Hasegawa, Y. Mizoh, Matsushita

Optical Devices

- "Stiction Free Capacitive Actuators Using Double Sacrificial Layers Process," J. Fujita, T. Itoh, K. Yamada, T. Fukami, Mitsubishi
- "Development of grating-image type micro-encoder by Si-micromachining: improvements of integration and zero-point detection," K.Hane, R.Kamata, M.Mitamura, Y.Kanamori, Y.Ito, Tohoku Univieristy
- "A Rotary Vertical Mirror for Optical Switching," M. Hu, H. Du, S. Ling, and B. Liu, NTU
- Characteristics and control of MEMS mirrors for optical cross-connect switch," J. Yamaguchi, N. Takeuchi, A. Shimizu, T. Yamamoto, E. Higurashi, R. Sawada, Y. Uenishi, NTT
- "Design and Fabrication of Plasmon-enhanced Optical Heads," M. Yanagisawa, J. Fujikata, T. Ishi, H. Yokota, K. Kato, M. Nakada, K. Ishihara, K. Ohashi, NEC
- "Design of Swing Arm Type Actuator and Suspension for Micro Optical Disk Drive," E.-J. Hong, D.-W. Kim, N.-C. Park, Y.-P. Park, Yonsei University
- "Design of Optical Path for Small Form Factor Optical Disk Drive and Fabrication of Polymeric Micro-Compensatory Lens," K.-S. Jung, H. Kim, N.-C. Park, S. Kang, Y. Park, Yonsei University
- "Design and Fabrication of wafer-based High Numerical Aperture Microlens," Y.-S. Kim, Seung-jae Lee, No-cheol Park, Young-pil Park, Yonsei University
- "Vibration analysis of the omnidirectional stylish DVD deck," Tae-Wook Park, LG Electronics Inc.
- "New Direct Seek Control Design of Optical Disk Drives," F. Dong, Y. Wang, J. Zhou, Nanyang Technological Univ.
- "Robust Loop-Shaping Controller Design for an Optical Disk System based on Disturbance Measurement Results," J.-Y. Choi, H.-G. Jun, H. Yang, N.-C. Park, Y.-P. Park, Yonsei University
- "Design and Optimization of Actuator for Micro Optical Disk Drive," D.-J. Lee, K.-S. Woo, N.-C. Park, Y.-P. Park, Yonsei University
- "The development of the Optical Flying Head for the magneto-optical recording system," G. Kawasaki, T. Matsumoto, N. Kanto, K. Tezuka, Fujitsu
- "Development of the optical flying head positioning mechanism for the near-field optical recording system," S. Seko, K. Yamada, N. Kojima, K. Ishioka, K. Takahashi, K. Watanabe, Sony
- "3-D Measurement of Micro Thermal Deformation in an Optical Pickup Using Holographic Interferometry," S. Cho, Y. Seo, S. Kang, Yonsei University
- "A Scanning Laser Microscope Incorporating SIL for High-Density Magneto-Optical Recording," D. Jenkins, S. Edmund, W. Clegg, U. of Plymouth
- "A Novel Motor Manufacturing Tech. Using Spiral type Core for Information Devices," A. Hashimoto, A. Matsui, M. Motohashi, N. Miyake, H. Ota, Y. Nakanishi, H. Nishimura, Mitsubishi
- "Readout Characteristics of Flexible Monolithic Optical Head Slider obtained using Avalanche-Photo-Diode (APD)-Based Detector," T. Hirota, T. Ohkubo, K. Itao, University of Tokyo
- "Contact Force Detection on a Minute Aperture Mounted Optical Contact Head Slider Using Acoustic Emission Sensor," T. Ohkubo, K. Tanaka, T. Hirota, H. Hosaka, K. Itao, Y. Shinohara, H. Maeda, K. Kato, Y. Mitsuoka, K. Nakajima, Tokyo University

Copy Machines, Printers, Scanners and Printing Systems

- "FEM Simulation of Paper Feed Mechanism with Reverse Roller," S. Yanabe, Y. Hosokawa and T. Maeda, Nagaoka University of Technology
- "Traveling Wave Transport of Particles and Particle Size Classification," H. Kawamoto, N. Hasagawa and K. Seki, Waseda University
- "Computational Fluid Dynamic Analysis of Ionic Wind in Corona Devices," H. Okamoto, K. Mori, Fuji Xerox Co.
- "Electrostatic Pull-off of Magnetic Bead Chains in Two-Component Magnetic Electrophotography," N. Nakayama, H. Kawamoto, M. Nakatsuhara, Waseda U.
- "Aspects of Backwards Transport on a Traveling Wave Device," R. Kober, Aachen University of Technology
- "Banding Reduction in Electrophotographic Processes through Spatial-Sampled Linear Parameter Varying Repetitive Control," C.-L. Chen and G. T.-C. Chiu, Purdue University
- "Airflow and Scattering Toner Motion Analysis in a Development Unit," Keisuke Uchida, Ricoh
- "Numerical Model of Separating Discharge," M. Kadonaga, Ricoh
- "Electrostatic Inkjet Phenomena Utilizing Pin-to-Plate System," H. Kawamato, K. Arai, R. Koizumi and S. Umezu, Waseda University
- "Paper Separation and Feed Utilizing Electrostatic Force," H. Kawamato, S. Umezu, J. Shiraishi, Waseda University
- "Investigation of a Non-Magnetic and Non-Contact AC Development Process in Electrophotograph," M. Nakano, H. Kawamoto, Waseda University

Flexible Media Feeding and Handling Mechanics

- "LTO Cartridge Reel Deflection Under Tape Packing Stresses, " P. Poorman, Hewlett-Packard
- "A Method to Estimate the Amount of Swelling in Rollers Under Working Conditions," Y. Kobayashi, N. Hiraoka, H. Ogawa, T. Nishimura, Toshiba
- "Tape Edge Wear and Its Relationship to Lateral Tape Motion," J.Wang, F. Talke,
- "High Frequency Lateral Tape Motion and the Dynamics of Tape Edge Contact," R. Taylor, F. Talke, UCSD
- "High frequency dynamic-viscoelasticity of tribology for rubber roller on paper," N. Omata ,Y. Honma ,Q.-Q. NI, Kyoto Institute of Technology
- "A Sheet-Handling Mechanism Using a Tape and Drum," T. Satou , A. Nomiyama , Y. Niioka, Hitachi
- "Tape mechanics over a flat recording head," S. Muftu, Northeastern Univ.
- "Traction Between a Web and a Smooth Roller," S. Muftu, Northeastern Univ.
- "Traction at the Nip Region of Winding Roll with Reel Drum," M. Sasaki, K. Kohno, K. Tanimoto, S. Takahashi , S. Suzuki, Y. Sueoka, Mitsubishi

Calendar of Relevant Events

2003

September 9-10:	**DISKCON USA 2003** (www.idema.org)
November 3-7:	**International Symposium on Optical Memory 2003** (optics.bk.tsukuba.ac.jp/isom)
December 1-5:	**Materials Research Society 2003 Fall Meeting** ww.mrs.org/meetings/future_meetings.html

2004

January 5-9:	**9th Joint MMM-Intermag Conference** (www.aip.org/mmm/futureconf.html)
April 12-16:	**Materials Research Society (MRS) 2004 Spring Meeting** (www.mrs.org/meetings/future_meetings.html)
May 31-June 2:	**Perpendicular Magnetic Recording Conference (PMRC)** Sendai, Japan
June 7-11:	**4th International Symposium on Metallic Multilayers** (NIST) Boulder, Colorado,
November 7-11:	**49th Conference on Magnetism and Magnetic Materials** (www.aip.org/mmm/futureconf.html)

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