<table>
<thead>
<tr>
<th>Title</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microelectronic Structures and Microelectromechanical Devices for</td>
<td></td>
</tr>
<tr>
<td>Optical Processing and Multimedia Applications</td>
<td></td>
</tr>
<tr>
<td>Miniaturized Systems with Micro-Optics and Micromechanics</td>
<td></td>
</tr>
<tr>
<td>Microelectronic Structures and MEMS for Optical Processing II</td>
<td></td>
</tr>
<tr>
<td>Miniaturized Systems with Micro-Optics and Micromechanics II</td>
<td></td>
</tr>
<tr>
<td>Microelectronic Structures and MEMS for Optical Processing III</td>
<td></td>
</tr>
<tr>
<td>Miniaturized Systems with Micro-Optics and Micromechanics III</td>
<td></td>
</tr>
<tr>
<td>Microelectronic Structures and MEMS for Optical Processing IV</td>
<td></td>
</tr>
<tr>
<td>Miniaturized Systems with Micro-Optics and MEMS</td>
<td></td>
</tr>
<tr>
<td>MOEMS and Miniaturized Systems</td>
<td></td>
</tr>
<tr>
<td>MOEMS and Miniaturized Systems II</td>
<td></td>
</tr>
</tbody>
</table>
**Microelectronic Structures and Microelectromechanical Devices for Optical Processing and Multimedia Applications**

**Plenary Papers**

*Projection displays and MEMS: timely convergence for a bright future (Abstract Only)*  
Larry J. Hornbeck, [1995]

*Recent trends in silicon micromachining technology*  
Hal Jerman, [1995]

**CRT/Optical Switches**

*Review of the current status of CRT technologies*  
Hua-Sou Tong, Chun-Min Hu, [1995]

*Micromachined three-dimensional tunable Fabry-Perot etalons*  
Lih-Yuan Lin, J. L. Shen, Shi-Sheng Lee, Ming C. Wu, [1995]

*Design and fabrication of ARROW thermo-optic modulators*  
Kamel Benaissa, Y. Lu, Arokia Nathan, [1995]

*Active interference filters using silicon-compatible materials*  
D. P. Poenar, Patrick J. French, Reinoud F. Wolffenbuttel, [1995]

*Realization of FDDI optical bypass switches using surface micromachining technology*  
Shi-Sheng Lee, Lih-Yuan Lin, Ming C. Wu, [1995]

*Simulation and fabrication of ARROW directional couplers*  
Kamel Benaissa, Arokia Nathan, S. T. Chu, Wei-Ping Huang, [1995]

*Piezoelectric fiber optic modulators and microtubes*  
Glen R. Fox, Claude A.P. Muller, Matthias Kuhn, Nava J. Setter, Nguyen Hong Ky, Hans G. Limberger, [1995]

**MEM Optical Devices**

*Projection display systems based on the Digital Micromirror Device (DMD)*  
Jack M. Younse, [1995]

*Implementation of hexagonal micromirror arrays as phase-mostly spatial light modulators*  
John H. Comtois, Victor M. Bright, Steven C. Gustafson, M. Adrian Michalicek, [1995]

*Fabrication of micromirror supported by electroplated nickel posts*  

*MEMS arrays for deformable mirrors*  
Raji Krishnamoorthy Mali, Thomas G. Bifano, [1995]

*Fabrication issues for silicon backplane active matrix miniature liquid crystal display*  
Ian Underwood, D. C. Burns, I. D. Rankine, D. J. Bennett, James D. Gourlay, Anthony O'Hara, David G. Vass, [1995]
Gas-phase silicon micromachining with xenon difluoride

Post-processing using microfabrication techniques to improve the optical performance of liquid crystal over silicon backplane spatial light modulators

Fabrication and characterization of gated Si field emitter arrays with gate aperture below 0.5 µm

Fabrication and characterization of the Pd-silicided emitters for field-emission devices
Chih-Chong Wang, Tze-Kun Ku, Ming-Shiann Feng, Iing-Jar Hsieh, Huang-Chung Cheng, [1995]
Miniaturized Systems with Micro-Optics and Micromechanics

Micromachined Optical Devices

Recent achievements on MOEM systems at Micromachine Center (MMC)
Ryo Ohta, [1996]

Micromirror arrays for active optical aberration control
Steven C. Gustafson, Theresa A. Tuthill, Edward A. Watson, [1996]

Fabrication of microlenses by combining silicon technology, mechanical micromachining and plastic molding
Uwe Koehler, Andreas E. Guber, W. Bier, Mathias Heckele, Thomas Schaller, [1996]

Miniaturized optical switches based on piezoelectrically driven microprism arrays
Rolf Goering, Steffen Gloeckner, Frank Bohrisch, [1996]

Micro-Optic/Actuators and Scanners

Realizing micro-optoelectromechanical devices through a commercial surface-micromachining process

Magnetically actuated MEMS scanning mirror
Raanan A. Miller, Geoffrey W. Burr, Yu-Chong Tai, Demetri Psaltis, [1996]

Actuation of polysilicon surface-micromachined mirrors
Norman C. Tien, Meng-Hsiung Kiang, Michael J. Daneman, Olav Solgaard, Kam Yin Lau, Richard S. Muller, [1996]

Analysis of optical beam steering using phased micromirror arrays
Edward A. Watson, Angela R. Miller, [1996]

Micro-Optic Integration

FPAs and thin film binary optic microlens integration

Optical network of silicon micromachined sensors
Mark L. Wilson, David W. Burns, J. David Zook, [1996]

Microjet printing of anamorphic microlens arrays
W. Royall Cox, Ting Chen, Daryl W. Ussery, Donald J. Hayes, R. F. Hoenigman, Duncan L. MacFarlane, E. Rabinovich, [1996]

Design and fabrication issues in the development of monolithic micro-optical systems
Charles M. Egert, Slobodan Rajic, [1996]

Micro-Optic Components I

Micro-size ball lenses for micro-optics: theory and experiment
Long Yang, Kok Wai Chang, Gary R. Trott, Richard P. Ratowsky, Robert J. Deri, Jeffrey S. Kallman, [1996]
Miniaturized Systems with Micro-Optics and Micromechanics (cont.)

Monolithically integrated refractive microlens standing perpendicular to the substrate
Charles R. King, Lih-Yuan Lin, Ming C. Wu, [1996]

Planar gradient-index cylindrical microlenses: flexible components for laser diode applications
Rolf Goering, Torsten Possner, Peter Schreiber, [1996]

Micro-Optic Components II

Novel method for making parabolic grating
Bo Chen, Lurong Guo, Jiyue Tang, Ping Xu, Ming-bao Zhou, [1996]

Fabrication of microlens arrays by reactive ion milling

Aspherization of cylindrical lenses by laser irradiation
Microelectronic Structures and MEMS for Optical Processing II

Plenary Papers

Application of micromachining technology to optical devices and systems
Hiroyuki Fujita, [1996]

Commercializing MEMS – too fast or too slow?

MEM Micromirrors

Control of a phase-locked laser diode array using piston micromirrors

Statistical performance evaluation of electrostatic micro actuators for a deformable mirror
Raji Krishnamoorthy Mali, Thomas G. Bifano, Guido V.H. Sandri, [1996]

Reflectivity of micromachined \{111\}-oriented silicon mirrors for optical input/output couplers

Micromirrors with single crystal silicon support structures
Zhimin Yao, Stephen W. Tang, Noel C. MacDonald, [1996]

Micromirror arrays for coherent beam steering and phase control

Linear array of CMOS double pass metal micromirrors
Johannes Buehler, Franz-Peter Steiner, Henry Baltes, [1996]

MOEM Devices

On-chip optical processing
M. Edward Motamedi, Ming C. Wu, Kristofer S. J. Pister, [1996]

Fabrication of optomechanical structures suitable for microwave phase conjugation
Boris Tsap, Kristofer S. J. Pister, Harold R. Fetterman, [1996]

Integration of DFB lasers with surface-micromachined wavelength-monitoring devices for WDM systems
Shi-Sheng Lee, Lih-Yuan Lin, Ming C. Wu, [1996]

New remote gas infrared optical fiber sensor
Yasser Alayli, Sofiane Bendamardji, Serge J. Huard, [1996]

Switchable Fresnel zone lenses for optical interconnections
Margit Ferstl, Anna-Maria Frisch, [1996]

Fabrication of micromechanical and optical components by ultraprecision cutting
Yutaka Yamagata, Toshiro Higuchi, Yuzuru Takashima, Katsunobu Ueda, [1996]
Materials Characterization and Optical Sensors

Tradeoffs in MEMS materials
Cleopatra Cabuz, [1996]

Fabrication and characterization of a Fabry-Perot-based chemical sensor
Jaeheon Han, Dean P. Neikirk, Mervyn Clevenger, John Thomas McDevitt, [1996]

Diffraction device for real-time recognizing and tracing the moving target
Guoliang Huang, Guofan Jin, Minxian Wu, Yingbai Yan, [1996]

CRT and LCD Devices

Optical polarization mode converter based on twist nematic liquid crystal (TNLC)

Bonding techniques for single crystal TFT AMLCDs
Sonja van der Groen, Maarten Rosmeulen, Philippe Jansen, Ludo Deferm, Kris Baert, [1996]

Analysis of field-emitter efficiency variations with geometry
In-Jae Chung, Antonino Iannella, Ahsan Hariz, [1996]

Additional Paper

MEMS for measuring deflection and deicing of helicopter rotors
Vasundara V. Varadan, Vijay K. Varadan, [1996]
Miniaturized Systems with Micro-Optics and Micromechanics II

Plenary Paper

MOEM systems in Europe
Patric R. Salomon, Olivier M. Pariaux, [1997]

MOEM Devices

Micro-opto-electro-mechanical (MOEM) adaptive optic system

Laser aperture integrated with position-sensing detectors
Evan D.H. Green, Kulwant S. Brar, [1997]

Surface micromachined tunable resonant cavity LED using wafer bonding

Design and fabrication of optoelectronic multichip module prototypes using MEMS fabrication techniques

Optical probe for micromachine performance analysis
Fred M. Dickey, Scott C. Holswade, Norman F. Smith, Samuel L. Miller, [1997]

InP-based micromechanical tunable and selective photodetector for WDM systems

Beam Steering and Micro-Optical Scanners

Potential of transmittive micro-optical systems for miniaturized scanners, modulators, and switches
Rolf Goering, Steffen Gloeckner, [1997]

Micromachined microscanners for optical scanning
Meng-Hsiung Kiang, Olav Solgaard, Richard S. Muller, Kam Yin Lau, [1997]

Microactuated mirrors for beam steering
Steven C. Gustafson, Gordon R. Little, David M. Burns, Victor M. Bright, Edward A. Watson, [1997]

Designs to improve polysilicon micromirror surface topology
David M. Burns, Victor M. Bright, [1997]

Two-dimensional miniature optical-scanning sensor with silicon micromachined scanning mirror
Masaaki Ikeda, Hiroshi Goto, Hiromi Totani, Minoru Sakata, Tsuneji Yada, [1997]
Miniaturized Systems with Micro-Optics and Micromechanics II (cont.)

Micro-Optics Integration I

Polymer guided-wave integrated optics: an enabling technology for micro-opto-electro-mechanical systems
Lawrence Anthony Hornak, Kolin S. Brown, B. J. Taylor, J. C. Barr, [1997]

Exact numerical technique for the analysis of Bragg reflectors in integrated optical filters

Optical displacement measurement using a monolithic Michelson interferometer
Daniel Hofstetter, Hans P. Zappe, [1997]

Novel architecture for silicon-based integrated interferometer with phase modulation by elasto-optic effect
Christophe Gorecki, Franck Chollet, Hideki Kawakatsu, [1997]

Loss reduction of abrupt waveguide bends using Fabry-Perot cavity for optical interconnects
Jau-Jan Deng, Yang-Tung Huang, [1997]

Microjoinery for optomechanical systems
C. Gonzalez, R. J. Welty, Scott D. Collins, Rosemary L. Smith, [1997]

Optical Processing and Control

Optical transformer and collimator for efficient fiber coupling

Optical communication link using micromachined corner cube reflector

Micro-optical beam transformation system for high-power laser diode bars with efficient brightness conservation
Rolf Goering, Peter Schreiber, Torsten Possner, [1997]

Micro-optical modulators and switches for multimode fiber applications
Steffen Gloeckner, Rolf Goering, Torsten Possner, Marcus Frank, [1997]

MOEM Processes

E-beam lithography: an efficient tool for the fabrication of diffractive and micro-optical elements
Ernst-Bernhard Kley, Bernd Schnabel, Uwe D. Zeitner, [1997]

Fabrication and application of subwavelength gratings
Bernd Schnabel, Ernst-Bernhard Kley, [1997]

Assembling of micro-optical components
Guenther Tittelbach, Ramona Eberhardt, Volker Guyenot, [1997]
Miniaturized Systems with Micro-Optics and Micromechanics II (cont.)

Strength of indium phosphide-based microstructures
Staffan Greek, Klas Hjort, Jan-Ake Schweitz, Christian Seassal, Jean-Louis Leclercq, Michel Gendry, Marie-Paule Besland, Pierre Viktorovitch, C. Figuet, V. Soulere, Y. Monteil, [1997]

Optical characterization methods of InP-based micro-opto-electro-mechanical systems

Dielectric microfilter arrays for multispectral measuring devices
Marcus Frank, Uwe B. Schallenberg, Norbert Kaiser, Wolfgang Buss, [1997]

Micro-optical and optomechanical systems fabricated by the LIGA technique
Juergen Mohr, Jost Goettert, Andre Mueller, Patrick Ruther, Klaus Wengeling, [1997]

Micro-optic fabrication using one-level gray-tone lithography
Klaus Reimer, Hans Joachim Quenzer, M. Juerss, Bernd Wagner, [1997]

LIGA tunable spectral filter performance

Silicon mirror arrays fabricated by using bulk and surface micromachining
Thomas Gessner, Wolfram Doetzelt, Detlef Billep, Ramon Hahn, Christian Kaufmann, Kersten Kehr, Steffen Kurth, Carmen Steiniger, Udo Wollmann, [1997]

Method of computer-controlled microlens processing and testing

Micro-Optics Integration II

Photonic crystal fabrication by way of coherent microparticle interaction
Laurence E. Malley, Drew A. Pommet, Michael A. Fiddy, [1997]

Fabrication of optical waveguides by the diffusion of Disperse Red 1 dye

New intensity GaAs electro-optic modulator realized by intersecting waveguides
Beniamino Castagnolo, Marisa Rizzi, Zhene Xu, [1997]

Electromagnetic near field induced by surface defects in microstructures
Zhi-Yuan Li, Guo-Zhen Yang, Ben-Yuan Gu, [1997]

MEM Actuator Materials

Ferroelectric PZT thin films on Si and SBN substrates
Ratnakar R. Neurgaonkar, Jeffrey G. Nelson, Joey Lin, James Cheng, [1997]

Ferroelectric PbZr_{1-x}Ti_xO_3 thin films made by various metalorganic chemical vapor deposition techniques
Tingkai Li, Peter A. Zawadzki, Richard A. Stall, William J. Kroll, [1997]
Ferroelectric SrBi$_2$Ta$_2$O$_9$ thin films made by one- and two-step metalorganic chemical vapor deposition

High-resolution Mueller matrix polarimetry of thin film PLZT electro-optic modulators
Elizabeth A. Sornsin, Russell A. Chipman, [1997]
Microelectronic Structures and MEMS for Optical Processing III

Optical MEM Design and Fabrication

Fabrication of microrelief surfaces using a one-step lithography process
Klaus Reimer, Ulrich Hofmann, M. Juerss, Wolfgang Pilz, Hans Joachim Quenzer, Bernd Wagner, [1997]

SAMPLE (Sandia agile MEMS prototyping, layout tools, and education)

Design and development of microstructures for MEMS applications
Sudhir Chandra, Janak Singh, Ami Chand, [1997]

Micro-Optical Components and Optical Interconnects

Refractive and diffractive elements for micro-optical systems
Philippe Nussbaum, Hans Peter Herzig, [1997]

Replicated diffractive optical lens components for laser-diode to fiber coupling in optical bench arrangements
Juergen Soechtig, Helmut Schift, Bruce D. Patterson, S. Westenhoefer, [1997]

Thermal management in planar optical systems with active components
Christiane Gimkiewicz, Juergen Jahns, [1997]

Compact optical interconnect module
Bruce R. Peters, Patrick J. Reardon, Janine V. Reardon, [1997]

MOEM Switches

Multichannel fiber-optic switches based on MOEM systems
Steffen Gloeckner, Rolf Goering, Bernt Goetz, [1997]

Fiber-coupled variable attenuator using a MARS modulator

G-performance characterization of surface-micromachined FDDI optical bypass switches
Shi-Sheng Lee, M. Edward Motamedi, Ming C. Wu, [1997]

Micro-opto-mechanical systems: applications in pulsed fiber lasers and optical switching
Yves-Alain Peter, Etienne Rochat, Hans Peter Herzig, [1997]

Micromirrors, Modulators, and Actuators

Design, modeling and verification of MEMS silicon torsion mirror

Nonlinear flexures for stable deflection of an electrostatically actuated micromirror
David M. Burns, Victor M. Bright, [1997]

Vertical thermal actuators for micro-opto-electro-mechanical systems
William D. Cowan, Victor M. Bright, [1997]
Effects of membrane curvature on the optical performance of the Mechanical Anti-Reflection Switch (MARS) modulator
Keith W. Goossen, James A. Walker, Dennis S. Greywall, [1997]

Integrated optics for displacement sensors
Thiemo Lang, Isabelle Schanen-Duport, Pierre Benech, [1997]

Strategies toward the development of integrated chemical sensors fabricated from light-emitting porous silicon
Jeffrey L. Coffer, Libing Zhang, John St. John, [1997]

Physical and chemical sensing using monolithic semiconductor optical transducers
Hans P. Zappe, Daniel Hofstetter, Bernd Maisenhoelder, Michael Moser, Peter Riel, Rino E. Kunz, [1997]

Construction of a fully functional NSOM using MUMPs technology
Vladimir Aksyuk, Bradley Barber, Peter L. Gammel, David J. Bishop, [1997]

Tristimulus color sensitive photodetector in a BiCMOS technology

Buried double p-n junction structure using a CMOS process for wavelength detection
Miniaturized Systems with Micro-Optics and Micromechanics III

Plenary Paper

Application of micro- and nanotechnologies for the fabrication of optical devices
Wolfgang Ehrfeld, Hans-Dieter Bauer, [1998]

MOEMS Technology

Polymer waveguides for telecom, datacom, and sensor applications

Optical measurement of LIGA milliengine performance
Fred M. Dickey, Scott C. Holswade, Todd R. Christenson, Ernest J. Garcia, Marc A. Polosky, [1998]

Miniaturized fiber optical switches with nonmoving polymeric mirrors for tele- and data-communication networks fabricated using the LIGA technology
Michel Neumeier, Wolfgang Ehrfeld, Jutta Jaeger, Antoni Picard, Jens Schulze, [1998]

Design and fabrication of optical MEMS using a four-level planarized surface-micromachined polycrystalline silicon process
M. Adrian Michalicek, John H. Comtois, Heather K. Schriner, [1998]

Hybridization, assembling, and testing of miniaturized optoelectronic modules for sensors and microsystems
Harri K. Kopola, Pentti Karioja, Outi Rusanen, Heikki Lehto, Jorma Lammasniemi, [1998]

Beam Steering/Scanning/Micromirrors

MOEM scan engine for bar code reading and factory automation

MEMS-based diffractive optical-beam-steering technology
David A. Winick, Bruce Duewer, Som Chaudhury, John Wilson, John Tucker, Umut Eksi, Paul D. Franzon, [1998]

System integration of micro-optical systems for beam steering and modulation applications
Steffen Gloeckner, Peter Dannberg, Rolf Goering, Frank Bohrisch, Peter Buecker, [1998]

Resonating large-angle and low-consumption micromachined optical scanner
Sam Calmes, Sandra Schweizer, Philippe Renaud, [1998]

Automatic test equipment for the micromirror array
Hoseong Kim, Kwangwoo Cho, Yong-Kweon Kim, Jong-Woo Shin, Hyung-Jae Shin, Jae-Ho Moon, [1998]

Micro-Optics/Materials Integration

Polymer waveguide cointegration with microelectromechanical systems (MEMS) for integrated optical metrology
Fill factor improvement using microlens arrays  
Edward A. Watson, Donald T. Miller, Kenneth J. Barnard, [1998]

Fiber optic MEMS pressure sensors based on evanescent field interaction  
Massood Tabib-Azar, Boonsong Sutapun, Diana Glawe, [1998]

Optimum design of GaAs waveguides intersecting modulator  
Zhene Xu, Marisa Rizzi, Beniamino Castagnolo, [1998]

Near-field scanning optical microscopy: electromagnetic coupling between the aperture tip and the sample  
Ben-Yuan Gu, Zhi-Yuan Li, Guo-Zhen Yang, [1998]

Complex microprism structures and their application to multichannel fiber optic switches  
Rolf Goering, Steffen Gloeckner, Ernst-Bernhard Kley, Frank Thoma, [1998]

MOEMS Devices

MOEMS: a new European competence center--core competencies, additional technologies, and industrial objectives  
Jean Frederic Clerc, Patrick Louis Mottier, [1998]

Mechanical-optical analysis of InP-based Bragg membranes for selective tunable WDM receivers  

MEMS-based microgratings: preliminary results of novel configurations  
James Castracane, Mikhail Gutin, [1998]

In-package active fiber optic micro-aligner  

Evanescent field sensing: cavity-coupled refractive index sensor (CRIS)  
Lars R. Lindvold, Lars Lading, [1998]

Micromachine Components and Imaging

Piezoelectrical elements for micro-optical applications  
Bernt Goetz, Thomas Martin, Peter Buecker, [1998]

Ultrahigh-density optical recording using a scanning near-field optical microscope  
Yuan Ying Lu, Din Ping Tsai, Wen Rei Guo, Sheng-Chang Chen, Jia Reuy Liu, Han-Ping David Shieh, [1998]

Microlens arrays formed by melting photoresist and ion beam milling  
Xinjian Yi, Xin-Yu Zhang, Yi Li, Xing-Rong Zhao, [1998]
Fabrication of micro-optical surface profiles by using grayscale masks
Ernst-Bernhard Kley, Frank Thoma, Uwe D. Zeitner, L. Wittig, Harald Aagedal, [1998]

Nonsilicon micromachining for MOEMS elements
Yi-Xin Chen, Xiao-Lin Zhao, Zong-Guang Wang, [1998]

Novel highly scalable and very high torque micromotor for MEMS and MOEMS applications using the mechanical rectification of oscillatory motion
Massood Tabib-Azar, Boonsong Sutapun, M. Edward Motamedi, [1998]
Microelectronic Structures and MEMS for Optical Processing IV

Plenary Papers

Microassembly technologies for MEMS
Michael Cohn, Karl Boehringer, J. Mark Noworolski, Angad Singh, Chris Keller, Kenneth Goldberg, Roger Howe, [1998]

Finding markets for microstructures
James Knutti, [1998]

Micromachining technologies for miniaturized communication devices
Clark Nguyen, [1998]

Micromirrors

Novel beam-steering micromirror device
R. Wayne Fuchs, Hubert Jerominek, Nicholas Swart, Yacouba Diawara, Mario Lehoux, Ghislain Bilodeau, Simon Savard, Felix Cayer, Yves Rouleau, Patrick Lemire, [1998]

Optical characteristics of GaAs MSM photodetectors flip-chip bonded upon micromirrors using micromachined conductive polymer bumps
Kwang Wook Oh, Chong Ahn, Kenneth Roenker, [1998]

Modeling and measurement of electrostatic micromirror array fabricated with single-layer polysilicon micromachining technology
Young-Hoon Min, Yong-Kweon Kim, [1998]

Design and fabrication of micromirror array with hidden joint structures
Chang-Hyeon Ji, Yong-Kweon Kim, [1998]

Micro-Optical Components and Microsensors

Highly sensitive hydrogen sensors using palladium-coated fiber optics with exposed cores and evanescent field interactions
Massood Tabib-Azar, Boonsong Sutapun, Rose Petrick, Alex Kazemi, [1998]

Micromachined structure for Si transmission optical components
Minoru Sasaki, Yuji Arai, Hitoshi Takebe, Wataru Kamada, Kazuhiro Hane, [1998]

Design and experiment of microelectrode arrays for deformable membrane mirror
Chienliu Chang, Peizen Chang, Kaihsiang Yen, [1998]

Micro-optical distance sensor fabricated by the LIGA process
Hajime Nakajima, Patrick Ruther, Juergen Mohr, Toshiro Nakashima, Kazuo Takashima, Teruo Usami, [1998]

Laser amplifiers in optical displays and micromachining systems
Gueorgii Pettrash, Vladimir Chvykov, Konstantin Zemskov, [1998]

Optomechanical Switches

Fabrication of replicated high-precision insert elements for micro-optical bench arrangements
Helmut Schift, Juergen Soechtig, Fredy Glaus, A. Vonlanthen, S. Westenhoefer, [1998]
Optical coupling analysis and vibration characterization for packaging of 2X2 MEMS vertical torsion mirror switches
Long-Sun Huang, Shi-sheng Lee, M. Edward Motamedi, Ming Wu, Chang-Jin Kim, [1998]

Silicon wafer-scale microfabrication factory using scanning probe microrobots: applications of MOEMS in manufacturing
Massood Tabib-Azar, Morton Litt, [1998]

Modulators and Microactuators

Design and fabrication of hidden-spring-structure-type micro-SLM for phase and amplitude modulation
Seok-Whan Chung, Yong-Kweon Kim, [1998]

Package for systematic design of acousto-optic deflectors
Bizhan Rashidian, Babak Zarin-Rafie, [1998]

High-brightness projection display systems based on the thin-film actuated mirror array (TFAMA)
Kyu-Ho Hwang, Myung-Kwon Koo, Sang-Gook Kim, [1998]

MOEMS Devices and Characterization

Reshaping technique for MOEM system fabrication
Murat Okyar, Xiqing Sun, William Carr, [1998]

Characterization of micro-opto-electro-mechanical devices
Mahyar Dadkhah, Amit Burstein, M. Edward Motamedi, Sangtae Park, [1998]

XY-stage for alignment of optical elements in MOEMS
Yves-Alain Peter, Hans Peter Herzig, Stefano Bottinelli, [1998]

MOEM pressure and other physical sensors using photon tunneling and optical evanescent fields with exponential sensitivities and excellent stabilities
Massood Tabib-Azar, Boonsong Sutapun, [1998]

Applications of shape-memory alloys in MOEMS and in optics
Boonsong Sutapun, Massood Tabib-Azar, Michael Huff, [1998]

Extremely high aspect ratio metal structures for suspension of a micro-optical shutter
Allan Hui, Risaku Toda, Masayoshi Esashi, [1998]
Miniaturized Systems with Micro-Optics and MEMS

Plenary Papers

Electrokinetic microfluidic systems
L. J. Bousse, [1999]

3D silicon photonic lattices: cornerstone of an emerging photonics revolution
J. G. Fleming, S.-Y. Lin, [1999]

MOEM Scanners

Development of a compact optical MEMS scanner with integrated VCSEL light source and diffractive optics
Thomas Krygowski, David Reyes, M. Steven Rodgers, James Smith, Mial Warren, William Sweatt, Olga Blum-Spahn, Joel Wendt, Randolph Asbill, [1999]

Electrostatically driven micromirrors for a miniaturized confocal laser scanning microscope
Ulrich Hofmann, Sascha Muehlmann, Martin Witt, Klaus Doerschel, Rijk Schuetz, Bernd Wagner, [1999]

Miniaturized time-scanning Fourier Transform Spectrometer based on silicon technology
Omar Manzardo, Hans Peter Herzig, Cornel Marxer, Nico de Rooij, [1999]

Pixel-by-pixel aberration correction for scanned-beam micro-optical instruments
David Dickensheets, Paul Ashcraft, Phillip Himmer, [1999]

Low-temperature approaches for fabrication of high-frequency microscanners

Micromirror Devices

Micromirror arrays fabricated by flip-chip assembly
M. Adrian Michalicek, Wenge Zhang, Kevin Harsh, Victor Bright, Y. Lee, [1999]

Analogously working micromirror arrays
Kersten Kehr, Steffen Kurth, Jan Mehner, Christian Kaufmann, Ramon Hahn, Wolfram Doetzel, Thomas Gessner, [1999]

Self-aligned assembly of microlens arrays with micromirrors
Adisorn Tuantranont, Victor Bright, Wenge Zhang, Jianglong Zhang, Y. Lee, [1999]

Micromechanical reliability evaluation of mirror devices through applying accelerated electrostatic force
Byungwoo Park, Jonguk Bu, Dongil Kwon, [1999]

Magnetically driven surface-micromachined mirrors for optical applications
Gwo-Bin Lee, Thomas Tsao, [1999]

MOEMS Switches/Shutters

Operating principles of an electrothermal vibrometer for optical switching applications
Min-fan Pai, Norman Tien, [1999]
Miniaturized Systems with Micro-Optics and MEMS (cont.)

Wireless electro-optic switching network for optical fiber sensor array using MEMS-IDT devices
Vijay Varadan, Vasundara Varadan, [1999]

Miniaturized piezoelectrically driven fiber optic switches with transmittive micro-optics
Rolf Goering, Thomas Martin, Bernt Goetz, Dirk Doering, [1999]

Electromechanically driven microchopper for integration in microspectrometers based on LIGA technology
Peter Krippner, Juergen Mohr, Volker Saile, [1999]

Addressable microslit-array devices for miniaturized systems
Thomas Seifert, Rainer Riesenbe, Peter Buecker, Thomas Martin, Bernt Goetz, [1999]

Electrostatic microshutters-micromirrors array for light modulation systems
Marco Pizzi, Valerian Koniachkine, Elena Bassino, Sabino Sinesi, Piero Perlo, [1999]

MOEMS for Sensing Applications

Optical and mechanical design of an InP-based tunable detector for gas-sensing applications
Paolo Bondavalli, Taha Benyattou, Michel Garrigues, Jean Louis Leclercq, Philippe Regreny, K. Sun, Pierre Viktorovitch, Sebastain Cortial, Xavier Hugon, Christophe Pautet, [1999]

Integrated micro-optical fluorescence detection system for microfluidic electrochromatography

Novel, highly sensitive chemical and biological sensors based on integrated MOEM and MEMS technologies
Fariborz Maseeh, Andrew Swiecki, [1999]

Optical characteristics of PZT thin film actuator-driven micro-optical scanning sensor with multilayer stacked device structure
Hiromi Totani, Masaaki Ikeda, Akira Akiba, Takahiro Masuda, Hiroshi Goto, Mikio Matsumoto, [1999]

Optical sensing of absorbing and inhomogeneous media by AC-reflection near the critical angle
Augusto Garcia-Valenzuela, M. Pena-Gomar, [1999]

Micromirrors for direct writing systems and scanners
Hubert Lakner, Wolfgang Doleschal, Peter Duerr, Andreas Gehner, Harald Schenk, Alexander Wolter, Guenter Zimmer, [1999]

MOEMS Devices

MOEMS applications at Sandia National Laboratories
David Plummer, [1999]
Miniaturized Systems with Micro-Optics and MEMS (cont.)

Miniature ultrasonic transducers with optical strain readout
Chung-Hoon Lee, Amit Lal, [1999]

Optical readout of microaccelerometer code features
Scott Holswade, Fred Dickey, Charles Sullivan, Marc Polosky, Richard Shagam, [1999]

Finite element modeling of micromachined MEMS photon devices
Boyd Evans, D. Schonberger, Panos Datskos, [1999]

Advanced micromoulding of optical components

MOEMS for Display Application

16-k infrared micromirror arrays with large-beam deflection and .10-mm pixel size
Klaus Reimer, R. Engelke, Martin Witt, Bernd Wagner, [1999]

Through-wafer interrogation of microstructure motion for MEMS feedback control
Jeremy Dawson, Jingdong Chen, Kolin Brown, Parviz Famouri, Lawrence Hornak, [1999]

Design and FEM simulation: all-light-processing infrared image transducer
Liuqiang Zhang, Gen Yang, [1999]

MOEMS Integration

Miniature illuminator for laser Doppler velocimeter assembled on micromachined silicon optical bench
Alexander Ksendzov, Richard Martin, Darius Modarress, Mory Gharib, [1999]

Development of micromanipulation system for operations in scanning electron microscope

Design and analysis of a micro-optical position readout for acceleration sensing
Richard Shagam, Fred Dickey, Scott Holswade, [1999]

Photovoltaic on-demand high-voltage pulse generator as an on-board power source for electrostatic actuator array
Jeong-Bong Lee, Mark Allen, Ajeet Rohatgi, [1999]

Ultrathin Si photodetector for an integrated optical interferometer
Xiaoyu Mi, Minoru Sasaki, Kazuhiro Hane, [1999]

Poster Session

One-dimensional vibration sensor using a Si-cantilever coupled with an optical fiber
Katsuhisa Toshima, Harunobu Sato, Mitsuteru Kimura, [1999]

Sensitivity of (bio)-chemical sensors based on laser-excited surface plasmon resonance
Joel Villatoro, Augusto Garcia-Valenzuela, [1999]
Miniaturized Systems with Micro-Optics and MEMS (cont.)

Optical binary switch and amplitude modulator micromirror arrays
Edward Kolesar, Peter Allen, Noah Boydston, Jeffrey Howard, Simon Ko, Josh Wilken, [1999]

Micromachined silicon optical bench for the low-cost optical module
Ki-Chang Song, Jonguk Bu, Young-Sam Jeon, Chil-Keun Park, Jae-Hoon Jeong, Han-Joon Koh, Min-Ho Choi, [1999]

Miniaturized photoelectric angular sensor with simplified design
Niculae Dumbravescu, Silviu Schiaua, [1999]

Programmable two-dimensional microshutter arrays
Samuel Moseley, Rainer Fettig, Alexander Kutyrev, Charles Bowers, Randy Kimble, Jon Orloff, Bruce Woodgate, [1999]

Integrated multiwavelength laser source module with micromachined mirrors
Youngjoo Yee, Young-Sam Jeon, Jonguk Bu, Geun-ho Kim, [1999]

Charging effects in electrostatically actuated membrane devices
Keith Goossen, James Walker, Joseph Ford, [1999]

Manufacture of aluminium micromirror arrays using a dual damascene process
David Calton, Tom Stevenson, Ian Underwood, Alan Gundlach, [1999]
MOEMS and Miniaturized Systems

Plenary Session

MEMS/MOEMS for lightwave networks: Can little machines make it big?
David Bishop, Vladimir Aksyuk, Cristian Bolle, C. Randy Giles, Flavio Pardo, Jim Walker, [2000]

Bulk micromachining for sensors and actuators
Masayoshi Esashi, [2000]

Microsystems for diverse applications using recently developed microfabrication techniques
Laurent Dellmann, Terunobu Akiyama, Danick Briand, Sebastien Gautsch, Olivier Guenat, Benedikt Guldimann, Philippe Luginbuhl, Cornel Marxer, Urs Staufner, Bart van der Schoot, Nico de Rooij, [2000]

MOEMS Hot Topic

Materials impacts on micro-opto-electro-mechanical systems
William Cowan, [2000]

MOEMS-Based Optical Switch

Latching-type 2x2 and 1x4 fiber-optic switches
Peter Kopka, Martin Hoffmann, Edgar Voges, [2000]

Status of the development of a 128x128 microshutter array
Samuel Moseley, Rainer Fettig, Alexander Kutyrev, Mary Li, David Mott, Bruce Woodgate, [2000]

Hybrid MOEMS approaches for fiber optic switches and switch matrices
Rolf Goering, Frank Wippermann, Kay Kubitz, [2000]

Optical 2x2 switch matrix with electromechanical micromotors
Antonio Ruzzu, Dirk Haller, Juergen Mohr, Ulrike Wallrabe, [2000]

Design and realization of a novel polymer-based single-mode integrated optical beam splitter

Beam Steering and Scanning

Miniature high-resolution imaging system with 3D MOEMS beam scanning for Mars exploration
David Dickensheets, Phillip Himmer, Robert Friholm, B. Jeffrey Lutzenberger, [2000]

Improvement of microtorsional mirror for high-frequency scanning
Hung-Yi Lin, Ming-Tsing Wu, Weileun Fang, [2000]

Scanning silicon micromirror using a bidirectionally movable magnetic microactuator
Hyoung Cho, Jun Yan, Stephen Kowel, Fred Beyette, Chong Ahn, [2000]

Design and modeling of large deflection micromechanical 1D and 2D scanning mirrors
Harald Schenk, Peter Duerr, Detlef Kunze, Hubert Lakner, Heinz Kueck, [2000]
Pivoting micromirror designs for large orientation angles
Ernest Garcia, [2000]

Development of modules for micro-optical integration and MOEMS packaging
Karl-Heinz Brenner, [2000]

MOEMS arrays for interconnect applications
James Castracane, Bai Xu, Christian Baks, Mikhail Gutin, Olga Gutin, [2000]

Assembly processes for micro-optical beam transformation systems for high-power diode laser bars and stacks
Claudia Gaertner, Veit Bluemel, Bernd Hoefer, Anke Kraeplin, Torsten Possner, Peter Schreiber, [2000]

Advantages of scanned-beam MOEMS approach to microdisplay and related applications
Todd McIntyre, Thor Osborn, Radu Andrei, [2000]

Thermally actuated microprojector for optical display applications
Sandra Schweizer, Peter Cousseau, Sebastien Schiesser, Gerhard Lammel, Sam Calmes, Philippe Renaud, [2000]

Optical performance requirements for MEMS-scanner-based microdisplays
Hakan Urey, David Wine, Thor Osborn, [2000]

Performance of a biaxial MEMS-based scanner for microdisplay applications
David Wine, Mark Helsel, Lorne Jenkins, Hakan Urey, Thor Osborn, [2000]

Metrology for laser-structured microdevices by CCD-camera-based vision systems
Andreas Ostlender, Udo Puetz, Ernst-Wolfgang Kreutz, [2000]

Optical sensing of microsystem motion and performance
Scott Holswade, Fred Dickey, [2000]

MEMS feedback control using through-wafer optical device monitoring
Jeremy Dawson, Limin Wang, Jingdong Chen, Parviz Famouri, Lawrence Hornak, [2000]

MEMS/MEOMS: metrology and machine vision
Rick Conner, [2000]

Fabrication of the moving liquid mirror (MLM) spatial light modulator in a standard CMOS process
Alexander Wolter, Hubert Lakner, Heinz Kueck, Wolfgang Doleschal, Kay-Uwe Kirstein, Andreas Rieck, Kai Frohberg, [2000]
MOEMS and Miniaturized Systems (cont.)

MOEMS WDM Applications

MEMS actuators for silicon micro-optical elements
Norman Tien, David McCormick, [2000]

Surface-micromachined mirrors for scalable fiber optic switching applications
Uma Krishnamoorthy, Paul Hagelin, Jonathan Heritage, Olav Solgaard, [2000]

Polysilicon micromachining 3D mirror integrated frequency tuner for WDM applications
Xuming Zhang, F. Chollet, Fook Chau, Chenggen Quan, Ai Liu, [2000]

Low-cost microspectrometer
Gerhard Lammel, Sandra Schweizer, Philippe Renaud, [2000]

MOEMS Integration

Design and fabrication of optical microcavities using III-V semiconductor-based MOEMS
Pierre Viktorovich, Jean Louis Leclercq, Eric Goutain, D. Rondi, [2000]

New design for an integrated Fourier transform spectrometer
Omar Manzardo, Hans Peter Herzig, Benedikt Guildimann, Cornel Marxer, Nico de Rooij, [2000]

Lucent Microstar micromirror array technology for large optical crossconnects
Vladimir Aksyuk, Flavio Pardo, Cristian Bolle, Susanne Arney, C. Randy Giles, David Bishop, [2000]

Electromechanical simulation of a large-aperture MOEMS Fabry-Perot tunable filter
Jonathan Kuhn, Richard Barclay, Matthew Greenhouse, David Mott, Shobita Satyapal, [2000]

MOEMS Scanning Arrays

Micromirrors and micromirror arrays for scanning applications
Thomas Gessner, Steffen Kurth, Christian Kaufmann, Joachim Markert, Andreas Ehrlich, Wolfram Doetzel, [2000]

Micromirror arrays for wavefront correction
Andreas Gehner, Michael Wildenhain, Hubert Lakner, [2000]

Test system for micromirror arrays
Peter Duerr, Thomas Tanneberger, Alexander Wolter, Wolfram Kluge, Wolfgang Doleschal, Hubert Lakner, [2000]

Development of individually addressable micromirror arrays for space applications
Sanghamitra Dutta, Audrey Ewin, Murzy Jhabvala, Carl Kotecki, Jonathan Kuhn, David Mott, [2000]

Design and fabrication of optical-MEMS pressure sensor arrays
Samhita Dasgupta, Jie Zhou, J. Wolff, Howard Jackson, Joseph Boyd, [2000]

Microsensor Integration

MOEMS pressure sensors for propulsion applications
Joseph Boyd, Samhita Dasgupta, Howard Jackson, [2000]
MOEMS and Miniaturized Systems (cont.)

Control and shape design of an electrically damped comb drive for digital switches
Yijian Chen, [2000]

Positioning strategies and sensor integration in tools for assembling MOEMS
Gunther Reinhart, Dirk Jacob, [2000]

Integrated optical motion detection microsystem with programmable resolution
Anton Pletonsek, Janez Trontelj, [2000]
MOEMS and Miniaturized Systems II

Hot Topics

MEMS devices for all optical networks
Armand Neukermans, [2001]

MOEMS for optical communication: status of the European industrial activities and technical and economical trends for the next three years
Eric Mounier, Jean-Christophe Eloy, [2001]

Thermal management in optical MEMS
Joseph Talghader, [2001]

Shutter, Modulator, and Scanner I

MEMS spatial light modulators with integrated electronics
Steven Cornelissen, Thomas Bifano, Paul Bierden, [2001]

Design optimization of an electrostatically driven micro scanning mirror
Harald Schenk, Alexander Wolter, Hubert Lakner, [2001]

High-frequency raster pinch correction scanner for retinal scanning displays
Hakan Urey, Frank DeWitt, Karlton Powell, Mircea Bayer, [2001]

Fiber Optics and MOEMS Switches

MOEMS: enabling technologies for large optical cross-connects
Patrick Chu, Shi-sheng Lee, Sangtae Park, Ming-Ju Tsai, Igal Brener, David Peale, Robert Doran, Chuan Pu, [2001]

Self-assembly of surface-micromachined structures using electrostatic attraction
Robert Johnstone, M. Parameswaran, [2001]

Fast 1x2 and 2x2 fiber optic switches with piezoelectric actuation
Rolf Goering, Kay Kubitz, [2001]

Silicon-on-insulator micromechanical optical switch with postprocessed polymeric waveguides
Thor Bakke, Chris Tigges, Charles Sullivan, [2001]

Low-cost fiber collimation for MOEMS switches by ink-jet printing
Weldon Cox, Ting Chen, Donald Hayes, Michael Grove, [2001]

Development of advanced micromirror arrays by flip-chip assembly
M. Adrian Michalicek, Victor Bright, [2001]

Micro-Optic Technologies

Transfer of micro-optical structures into GaAs and diamond
Mikael Karlsson, Fredrik Nikolajeff, [2001]
Microlens fabrication using glass transition temperature modification by the LIGA process  

Improvement on the surface roughness of microlens array in the excimer laser machining process  
Shuh-Yi Wang, Chi-Sheng Huang, Hsau-Yu Chou, Tone-Yen Lee, Rang-Seng Chang, [2001]

Integration nanometer indicating system for reducing temperature drift of interferometer  
Jian Wu, Chunyong Yin, [2001]

Membrane mirrors for vision science adaptive optics  
Peter Kurczynski, J. Anthony Tyson, Bernard Sadoulet, David Bishop, David Williams, [2001]

Magnetically actuated microshutter arrays  
David Mott, Shahid Aslam, Kenneth Blumenstock, Rainer Fettig, David Franz, Alexander Kutyrev, Mary Li, Carlos Monroy, Samuel Moseley, David Schwinger, [2001]

PLZT-based electro-optic modules for micromachined biophotonics systems  
Yasser Abdelaziez, Chong Ahn, [2001]

High-efficiency optical MEMS by the integration of photonic lattices with surface MEMS  
James Fleming, Seethambal Mani, Shawn-Yu Lin, [2001]

Light-activated self-generation and parametric amplification for MEMS oscillators  
Maxim Zalalutdinov, Alan Zehnder, Anatoli OIkhovets, Stephen Turner, Lidija Sekaric, Bojan Illic, Dave Czapelewski, Jeevak Parpia, Harold Craighead, [2001]

Component development and integration issues for MOEMS  
James Castracane, Bai Xu, Yahong Yao, Christian Baks, Rein Lavrijsen, [2001]

Flip-chip fabrication of integrated micromirror arrays using a novel latching off-chip hinge mechanism  
M. Adrian Michalicek, Victor Bright, [2001]

MOEMS integrated optical monitoring  
Lawrence Hornak, Parviz Famouri, Jeremy Dawson, Limin Wang, Reza Ghaffarian, [2001]

Optomechanical variations and control in a MOEMS switch model  
Thomas Plowman, Robert Stoll, David Winick, Arthur Morris, [2001]

Vertical stiffening members for flatness control of surface-micromachined structures  
B. Jeffrey Lutzenberger, David Dickensheets, [2001]
Control of image-shifting coils for vibration isolation of an electron microscope
Koichi Matsuda, Yoichi Kanemitsu, Shinya Kijimoto, Suhehiro Itoh, Ryuichi Tanaka, [2001]

Micromirrors

Design and fabrication of micromirror arrays for UV lithography
Hubert Lakner, Peter Duerr, Ulrike Dauderstaedt, Wolfgang Doleschal, Joerg Amelung, [2001]

Active-matrix-addressed micromirror array for wavefront correction in adaptive optics
Andreas Gehner, Wolfgang Doleschal, Andreas Elgner, Reinhard Kauert, Detlef Kunze, Michael Wildenhain, [2001]

Silicon nitride biaxial pointing mirrors with stiffening ribs
Todd Kaiser, B. Jeffrey Lutzenberger, Robert Friholm, Phillip Himmer, David Dickensheets, [2001]

Optical performance of pivoting micromirrors
Olga Blum Spahn, Ernest Garcia, Victor Esch, Grant Grossetete, Fernando Bitsie, Sita Mani, Jerome Jakubczak, [2001]

Fabrication of five-level ultraplanar micromirror arrays by flip-chip assembly
M. Adrian Michalicek, Victor Bright, [2001]

MOEMS-Related Sensors

Development of optical MEMS carbon dioxide sensors
Nicholas Moelders, Mark McNeal, Martin Pralle, Lisa Last, William Ho, Anton Greenwald, James Daly, Edward Johnson, Thomas George, Daniel Choi, [2001]

Optical sensors with MEMS, slit masks, and micromechanical devices
Rainer Riesenber, Andreas Wuttig, [2001]

Calculating the modulation transfer function of a pyroelectric infrared sensor array
Guenther Milde, Gerald Gerlach, Joerg Drescher, Herbert Balke, [2001]

Finite element modeling of the thermo-electro-mechanical coupling in pyroelectric infrared sensor arrays
Joerg Drescher, Herbert Balke, Hans-Achim Bahr, Guenter Milde, Gerald Gerlach, [2001]

Novel optical MEMS/micromechanical devices as field selectors for imaging spectrometry
Rainer Riesenber, Andreas Wuttig, [2001]