

# Technical Program

## International Symposium on Optomechatronic Technologies (ISOT 2008)

17 - 19 November 2008  
San Diego Marriott Hotel & Marina  
333 West Harbor Dr  
San Diego, California, 92101 USA  
Hotel Phone: +1 619 234 1500

### Welcome!

In recent years, most engineered products, processes, and systems have been evolving towards higher functionality, flexibility, intelligence, and miniaturization. This trend is stimulated by the ongoing fusion between optical and mechatronic technologies leading not only to enhanced performance but also to the creation of new, innovative functionalities. Because of its synergistic effect, the integration of these engineering fields, labeled optomechatronic technology, is becoming a major driving force to future enabling technologies.

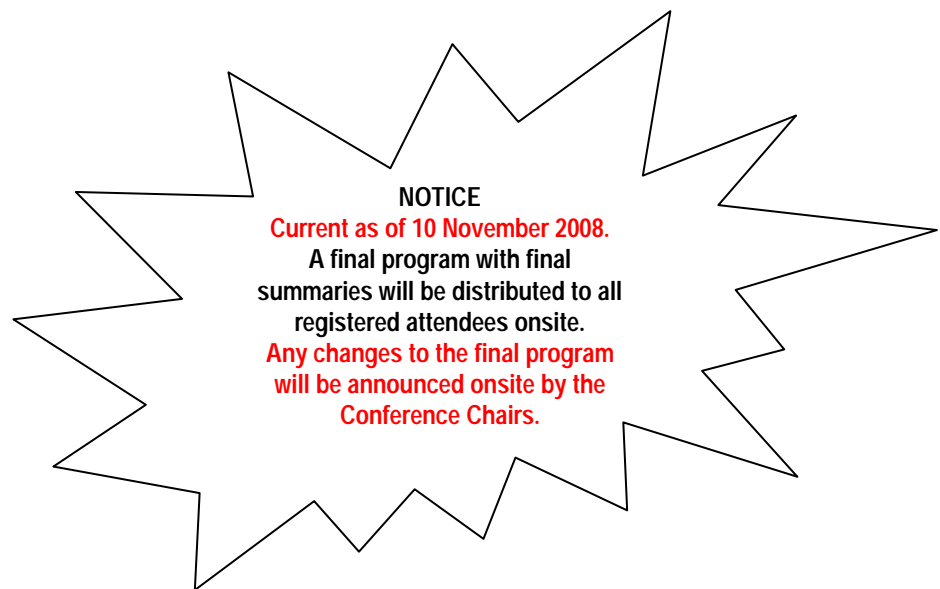
The objective of this symposium is to gather researchers and engineers working in the field of optomechatronics and to provide them with a forum for discussion for exchanging their points of view and experience and sharing their research results through high quality peer reviewed papers.

We thank you for your participation in ISOT 2008!

*Symposium Chair*

**Kee S. Moon**, San Diego State Univ. (United States)

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# Contents

Registration	p. 2
Coffee Breaks	p. 2
Banquet	p. 2
Plenary Presentations	p. 2
Conference Matrix	p. 2
ISOT Committees	p. 3
Technical Conferences	
7266A: Optomechatronic Actuators and Manipulation IV	p. 4
7266B: Optomechatronic Sensors and Instrumentation IV	p. 5
7266C: Optomechatronic Micro/Nano Devices and Components IV	p. 6
7266D: Optomechatronic Computer-Vision Systems III	p. 7
7266E: Optomechatronic Systems Control IV	p. 8

## Onsite Registration Hours

Sunday 16 November ..... 1:00 to 5:30 pm  
 Monday 17 November ..... 7:00 am to 5:30 pm  
 Tuesday 18 November ..... 7:30 am to 5:30 pm  
 Wednesday 19 November ..... 7:30 am to 5:30 pm  
 Register online by 12 November and save \$100 over onsite pricing.  
 Visit <http://spie.org/x27570.xml> for details.

## Coffee Breaks

Monday 17 November ..... 10:10 to 10:40 am, 3:30 to 4:00 pm  
 Tuesday 18 November ..... 9:50 to 10:20 am, 3:10 to 3:40 pm  
 Wednesday 19 November ..... 9:40 to 10:10 am, 4:00 to 4:30 pm  
 Coffee will be served during the morning and afternoon breaks.

## ISOT Awards Banquet

*Harbor House Restaurant, Seaport Village*  
 Tuesday 18 November ..... 7:30 to 9:30 pm  
 One banquet ticket is included in the registration fee. Additional banquet tickets can be purchased at the registration desk for \$70. Tickets must be purchased by 5:30 pm Tuesday.

## ISOT 2008 Plenary Presentations

*San Diego Ballroom C*  
 Monday 17 November ..... 8:00 to 8:30 am  
**Integration of Micro- and Nano- Components into Practical Diagnostics Devices**, Dalibor Hodko, Nanogen, Inc. (United States)  
  
 Tuesday 18 November ..... 8:00 to 8:30 am  
**3D Microchips Fabricated by Femtosecond Laser for Biomedical Applications**, Koji Sugioka, Yasutaka Hanada, Katsumi Midorikawa, The Institute of Physical and Chemical Research (RIKEN) (Japan)

## Conference Matrix

Monday 17 November	Tuesday 18 November	Wednesday 19 November
<i>Plenary Presentation: Integration of Micro- and Nano- Components into Practical Diagnostics Devices</i> , (Hodko), 8:00 to 8:30 am	<i>Plenary Presentation: 3D Microchips Fabricated by Femtosecond Laser for Biomedical Applications</i> , (Hanada), 8:00 to 8:30 am	Conference on <b>Optomechatronic Computer-Vision Systems III</b> , 8:00 am to 4:00 pm
Conference on <b>Optomechatronic Actuators and Manipulation IV</b> , 8:30 am to 5:30 pm	Conference on <b>Optomechatronic Sensors and Instrumentation IV</b> , 8:30 am to 3:10 pm	Conference on <b>Optomechatronic Systems Control IV</b> , 4:30 to 6:30 pm
	Conference on <b>Optomechatronic Micro/Nano Devices and Components IV</b> , 3:40 to 6:40 pm	
	<b>ISOT Awards Banquet</b> , <i>Harbor House Restaurant, Seaport Village</i> , 7:30 to 9:30 pm	

## ISOT 2008 Organizing Committee

### *Symposium Chair*

**Kee S. Moon**, San Diego State Univ. (United States)

### *Publications Chair*

**Farrokh Janabi-Sharifi**, Ryerson Univ. (Canada) and Univ. of Tabriz (Iran, Islamic Republic of)

### *Symposium Cochairs*

**Hyungsuck Cho**, Korea Advanced Institute of Science and Technology (Korea, Republic of)

**Shun'ichi Kaneko**, Hokkaido Univ. (Japan)

**Farrokh Janabi-Sharifi**, Ryerson Univ. (Canada) and Univ. of Tabriz (Iran, Islamic Republic of)

**Takayuki Tanaka**, Hokkaido Univ. (Japan)

**Samuel K. Kassegne**, San Diego State Univ. (United States)

## ISOT 2008 Conference Chairs, Cochairs, and Program Committee Members

### Optomechatronic Actuators and Manipulation IV

#### *Conference Chair*

**Yukitoshi Otani**, Tokyo Univ. of Agriculture and Technology (Japan)

#### *Conference Cochair*

**Yves Bellouard**, Technische Univ. Eindhoven (Netherlands)

#### *Program Committee*

**Philippe Bado**, Translume, Inc. (United States); **Charles N. Baroud**, Ecole Polytechnique (France); **Fu-Pen Chiang**, Stony Brook Univ. (United States); **Cosme Furlong**, Worcester Polytechnic Institute (United States); **Ajay Ghosh**, Univ. of Calcutta Chapter (India); **Moustapha Hafez**, Commissariat à l'Energie Atomique (France); **Nathan A. Hagen**, Duke Univ. (United States); **Ichirou Ishimaru**, Kagawa Univ. (Japan); **George K. Knopf**, The Univ. of Western Ontario (Canada); **Hideki Okamura**, International Christian Univ. (Japan); **Dmitri A. Orlov**, Bauman Moscow State Technical Univ. (Russia); **Benjamin M. Potsaid**, Thorlabs, Inc. (United States); **Michael I. Shribak**, Marine Biological Lab. (United States); **Theo T. Tschudi**, Photonik Zentrum Hessen in Wetzlar AG (Germany); **Toru Yoshizawa**, Saitama Medical Univ. (Japan)

### Optomechatronic Sensors and Instrumentation IV

#### *Conference Chair*

**John Ting-Yung Wen**, Rensselaer Polytechnic Institute (United States)

#### *Conference Cochair*

**Rainer Tutsch**, Technische Univ. Braunschweig (Germany)

#### *Program Committee*

**Yves Bellouard**, Technische Univ. Eindhoven (Netherlands); **Jean-Marc Breguet**, Ctr. Suisse d'Electronique et de Microtechnique SA (Switzerland); **Cong Deng**, Rensselaer Polytechnic Institute (United States); **Jason J. Gorman**, National Institute of Standards and Technology (United States); **Ichirou Ishimaru**, Kagawa Univ. (Japan); **Katsuo Kurabayashi**, Univ. of Michigan (United States); **Guoqiang Li**, College of Optical Sciences/The Univ. of Arizona (United States); **Benjamin M. Potsaid**, Thorlabs, Inc. (United States); **Gunasekaran S. Seetharaman**, Air Force Institute of Technology (United States)

### Optomechatronic Micro/Nano Devices and Components IV

#### *Conference Chair*

**Dalibor Hodko**, Nanogen, Inc. (United States)

#### *Conference Cochairs*

**Yoshitada Katagiri**, National Institute of Information and Communications Technology (Japan); **Samuel K. Kassegne**, San Diego State Univ. (United States)

#### *Program Committee*

**Debjyoti Banerjee**, Texas A&M Univ. (United States); **Chris Folk**, Microfabrica Inc. (United States); **Cengiz S. Ozkan**, Univ. of California, Riverside (United States)

### Optomechatronic Computer-Vision Systems III

#### *Conference Chair*

**Jonathan Kofman**, Univ. of Waterloo (Canada)

#### *Conference Cochairs*

**Shun'ichi Kaneko**, Hokkaido Univ. (Japan); **Claudio A. Perez**, Univ. de Chile (Chile); **Didier Coquin**, Univ. de Savoie (France)

### Optomechatronic Systems Control IV

#### *Conference Chair*

**Okyay Kaynak**, Bogaziçi Univ. (Turkey)

#### *Conference Cochairs*

**Youngjune Cho**, Korea Institute of Industrial Technology (Korea, Republic of); **Toshio Fukuda**, Nagoya Univ. (Japan); **Jingang Yi**, San Diego State Univ. (United States)

#### *Program Committee*

**George Barbastathis**, Massachusetts Institute of Technology (United States); **Stephanus Büttgenbach**, Technische Univ. Braunschweig (Germany); **Lixin Dong**, Swiss Federal Institute of Technology (Switzerland); **Li-Chen Fu**, National Taiwan Univ. (Taiwan); **Wei Gao**, Tohoku Univ. (Japan); **Klaus Janschek**, Technische Univ. Dresden (Germany); **Won-Jong Kim**, Texas A&M Univ. (United States); **Duc-Truong Pham**, Cardiff Univ. (United Kingdom); **Bruno Siciliano**, Univ. degli Studi di Napoli Federico II (Italy); **Jaehong Shim**, Korea Polytechnic Univ. (Korea, Republic of); **Jindong Tan**, Michigan Technological Univ. (United States); **Guchuan Zhu**, Ecole Polytechnique de Montréal (Canada)

# Technical Conferences

Monday-Wednesday 17-19 November 2008  
Proceedings of SPIE Vol. 7266

## Monday 17 November

### Plenary Session I

*Session Chair: Kee S. Moon*, San Diego State Univ. (United States)  
Room: San Diego Ballroom C ..... Mon. 8:00 to 8:30 am  
8:00 am: **Integration of Micro- and Nano- Components into Practical Diagnostics Devices** (*Presentation Only*), Dalibor Hodko, Nanogen, Inc. (United States) [7266A-701]

### 7266A: Optomechatronic Actuators and Manipulation IV

#### SESSION 1

#### **Novel Optomechatronics Actuators, Tools and Micro-Manipulation Platforms**

*Session Chair: Yves Bellouard*, Technische Univ. Eindhoven (Netherlands)  
Room: San Diego Ballroom C ..... Mon. 8:30 to 10:10 am  
8:30 am: **Light-driven micro-actuators and light-based micromanipulation tool** (*Presentation Only*), Yukitoshi Otani, Tokyo Univ. of Agriculture and Technology (Japan); Yves Bellouard, Technische Univ. Eindhoven (Netherlands) [7266A-101]  
8:50 am: **A complete manipulation platform for characterization of micro-components**, Christophe Canales, Florent Cosandier, Guillaume Boetsch, Vincent Chatagny, Jae Ha Lee, Gael Bringout, Reymond Clavel, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [7266A-102]  
9:10 am: **A planar monolithic large size resonant scanning mirror actuated by electromagnetic induction**, Luiz C. Marangoni de Oliveira, Luiz O. S. Ferreira, Univ. Estadual de Campinas (Brazil) [7266A-103]  
9:30 am: **Implementation and simulation of a cone dielectric elastomer actuator**, Huaming Wang, Jianying Zhu, Nanjing Univ. of Aeronautics and Astronautics (China) [7266A-104]  
9:50 am: **Simulation and analysis of anthropomorphic three finger micro/nano gripper using piezoelectric actuator**, Ahmad Ghanbari, Ali Rostami, M. M. Seyied Fakhrebadi, Ahmad Yaghoobi, Univ. of Tabriz (Iran, Islamic Republic of) [7266A-105]  
**Coffee Break** ..... 10:10 to 10:40 am

#### SESSION 2

#### **Light Driven Actuators**

*Session Chair: Christophe Canales*, Ecole Polytechnique Fédérale de Lausanne (Switzerland)  
Room: San Diego Ballroom C ..... Mon. 10:40 am to 12:30 pm  
10:40 am: **On the efficiency of heat engines by pulsed laser** (*Invited Paper*), Hideki Okamura, International Christian Univ. (Japan) [7266A-106]  
11:10 am: **Generation of vortex spectra based on geometric phase for optical tweezers**, Toshitaka Wakayama, Saitama Medical Univ. (Japan); Yukitoshi Otani, Tokyo Univ. of Agriculture and Technology (Japan); Toru Yoshizawa, Saitama Medical Univ. (Japan) [7266A-107]  
11:30 am: **Light-driven actuator using NiTi shape memory alloy**, Keita Yamaguchi, Ryosuke Ono, Hideki Okamura, International Christian Univ. (Japan) [7266A-108]  
11:50 am: **Light actuated piezoelectric speaker at resonant condition**, Hideki Okamura, International Christian Univ. (Japan); Taki Yamamoto, Univ. of Massachusetts (United States); Ryo Hamamura, International Christian Univ. (Japan) [7266A-109]  
12:10 pm: **Optically controlled bimorph cantilever by Poly(vinylidenedifluoride) and its application of optical actuator**, Yasuhiro Mizutani, Yukitoshi Otani, Tokyo Univ. of Agriculture and Technology (Japan) [7266A-110]  
**Lunch Break** ..... 12:30 to 2:00 pm

### SESSION 3

#### **Optomechatronics for Bio-Photonics and Micro-Fluidic**

*Session Chair:* **Yukitoshi Otani**, Tokyo Univ. of Agriculture and Technology (Japan)

Room: San Diego Ballroom C ..... Mon. 2:00 to 3:30 pm

2:00 pm: **Towards a femtosecond laser micro-machined optofluidic device for distinguishing algae species**, Vijay K. Pahilwani, Yves Bellouard, Technische Univ. Eindhoven (Netherlands); Thomas Rhorlack, Norwegian Institute for Water Research (Norway); Ali A. Said, Mark Dugan, Philippe Bado, Translume, Inc. (United States) [7266A-112]

2:20 pm: **Biophotonics: resonant cavity-based biosensors** (*Invited Paper*), Andrea M. Armani, Univ. of Southern California (United States) [7266A-113]

2:50 pm: **3-dimensional spectroscopic-tomography of biological membrane with high spatial resolution by the imaging-type 2-D Fourier spectroscopy**, Takeshi Kawajiri, Kana Yanogawa, Kazuya Yamamoto, Masahiro Kondo, Takaki Harada, Ichiro Ishimaru, Kagawa Univ. (Japan) [7266A-114]

3:10 pm: **Fabrication and characteristic evaluation of sub-micron gap liquid chromatography micro chip**, Chika Aminaka, Fumikazu Oohira, Takaki Suzuki, Kagawa Univ. (Japan); Eiji Majima, ProteNova Corp. (Japan) [7266A-115]

**Coffee Break** ..... 3:30 to 4:00 pm

### SESSION 4

#### **Invited Session on Measurement, Image Analysis and Tracking Methods**

*Session Chair:* **Ichiro Ishimaru**, Kagawa Univ. (Japan)

Room: San Diego Ballroom C ..... Mon. 4:00 to 5:30 pm

4:00 pm: **3-D measurement method based on wavelet transform by using SEM** (*Invited Paper*), Yasuhiko Arai, M. Ando, Kansai Univ. (Japan); S. Yokozeki, Jyokou Applied Optics Lab. (Japan) [7266A-116]

4:30 pm: **Modified illumination method for separation of transmitted and scattered light component by the imaging-type 2-dimensional Fourier spectroscopy** (*Invited Paper*), Kana Yanogawa, Yasutoshi Takakura, Takeshi Kawajiri, Kazuya Yamamoto, Takaki Harada, Ichiro Ishimaru, Kagawa Univ. (Japan) [7266A-117]

5:00 pm: **Tracking method to random walk model based on orientation code matching** (*Invited Paper*), Kazuhiro Kagoike, Satoru Takahashi, Kagawa Univ. (Japan); Hidenori Takauji, Shunichi Kaneko, Hokkaido Univ. (Japan) [7266A-118]

## Tuesday 18 November

### Plenary Session II

*Session Chair:* **Kee S. Moon**, San Diego State Univ. (United States)

Room: San Diego Ballroom C ..... Tues. 8:00 to 8:30 am

8:00 am: **3D Microchips Fabricated by Femtosecond Laser for Biomedical Applications**, Koji Sugioka, Yasutaka Hanada, Katsumi Midorikawa, The Institute of Physical and Chemical Research (RIKEN) (Japan) [7266A-111]

### 7266B: Optomechatronic Sensors and Instrumentation IV

#### SESSION 5

#### **Optomechatronics Sensor Design**

*Session Chair:* **Kee S. Moon**, San Diego State Univ. (United States)

Room: San Diego Ballroom C ..... Tues. 8:30 to 9:50 am

8:30 am: **Nanotechnology and high-precision optical displacement sensor design for optomechatronic systems**, Ali Rostami, R. Yadipour, K. Abbasian, Z. D. Koozehkanani, Ahmad Ghanbari, Univ. of Tabriz (Iran, Islamic Republic of); Farokh Janabi-Sharifi, Ryerson Univ. (Canada) [7266B-201]

8:50 am: **A heterodyne interferometer for high-performance industrial metrology**, Thilo Schuldt, Hochschule Konstanz (Germany) and Humboldt-Univ. zu Berlin (Germany); Martin Gohlke, Humboldt-Univ. zu Berlin (Germany) and EADS Astrium GmbH (Germany); Dennis Weise, Ulrich Johann, EADS Astrium GmbH (Germany); Achim Peters, Humboldt-Univ. zu Berlin (Germany); Claus Braxmaier, Hochschule Konstanz (Germany) and EADS Astrium GmbH (Germany) [7266B-202]

9:10 am: **A multiple phase demodulation method for high resolution of the laser range finder**, Heesun Yoon, Jinpyo Hong, Seonggu Kang, Kyihwan Park, Gwangju Institute of Science and Technology (Korea, Republic of) [7266B-203]

9:30 am: **Micromachined tunable vertical-cavity surface-emitting lasers with narrow linewidth for near infrared gas detection**, Benjamin W. Koegel, Karolina Zogal, Sandro Jatta, Technische Univ. Darmstadt (Germany); Christian Grasse, Markus-Christian Amann, Technische Univ. München (Germany); Garrett D. Cole, Lawrence Livermore National Lab. (United States); Maximilian Lackner, Michael Schwarzott, Franz Winter, Technische Univ. Wien (Austria); Peter Meissner, Technische Univ. Darmstadt (Germany) [7266B-204]

**Coffee Break** ..... 9:50 to 10:20 am

## SESSION 6

### Application of Optomechanics Sensor Systems

*Session Chair:* **Byoung Hun Kang**, Korea Polytechnic Univ. (Korea, Republic of)

Room: San Diego Ballroom C ..... Tues. 10:20 to 11:40 am

10:20 am: **Super-Gaussian laser beam shaping using deformable mirrors and intrinsic beam quality metrics**, Saverio Avino, Benjamin M. Potsaid, John T. Wen, Rensselaer Polytechnic Institute (United States) [7266B-205]

10:40 am: **A fast and high resolution x-ray imaging sensor for tape substrate inspection**, Jung-Yeol Yeom, Young-Jun Roh, Chang-Ook Jung, Dae Hwa Jeong, LG Electronics Inc. (Korea, Republic of) [7266B-206]

11:00 am: **3D shape measurement in occluded environments based on stereo PMP algorithm**, Hyunki Lee, Deokhwa Hong, Hyungsuck Cho, Korea Advanced Institute of Science and Technology (Korea, Republic of) [7266B-207]

11:20 am: **Realization of a fiber-optic force-torque sensor with six degrees of freedom**, Mathias S. Müller, Lars Hoffmann, Thorbjörn C. Buck, Alexander W. Koch, Technische Univ. München (Germany) [7266B-208]

**Lunch Break** ..... 11:40 am to 1:10 pm

## SESSION 7

### Optomechanical System

*Session Chair:* **John Ting-Yung Wen**, Rensselaer Polytechnic Institute (United States)

Room: San Diego Ballroom C ..... Tues. 1:10 to 3:10 pm

1:10 pm: **Quad beam polymeric optomechanical systems**, Víctor J. Cadarso Busto, Ctr. Nacional de Microelectrónica (Spain); Andreu Llobera, Ctr. Nacional de Microelectrónica (Spain) and Institut für Mikrotechnik (Germany); Guillermo Villanueva, Ctr. Nacional de Microelectrónica (Spain); Volker Seidemann, Stephanus Büttgenbach, Technische Univ. Braunschweig (Germany); Jose Antonio Plaza, Ctr. Nacional de Microelectrónica (Spain) [7266B-209]

1:30 pm: **PMN-PT single crystal resonators for sensing acetone vapors**, Michael B. Frank, Tricia T. Nguyen, Fredrick M. Makau, Kee S. Moon, Samuel K. Kassegne, San Diego State Univ. (United States) [7266B-210]

1:50 pm: **Development of a PMN-PT/PDMS vibrational energy harvester**, Kee S. Moon, Alex Mathers, Jingang Yi, San Diego State Univ. (United States) [7266B-211]

2:10 pm: **Experiment of solidifying photo sensitive polymer by using UV LED**, Byoung Hun Kang, Sung Yeol Shin, Korea Polytechnic Univ. (Korea, Republic of) [7266B-212]

2:30 pm: **Flexible visual feedback for automated nanohandling inside an SEM**, Sergej Fatikow, Daniel Jasper, Christoph Edeler, Christian Dahmen, Carl von Ossietzky Univ. Oldenburg (Germany) [7266B-213]

2:50 pm: **Off-axis aberration correction for a wide field scanning telescope**, Charles P. Scott, Rensselaer Polytechnic Institute (United States); Benjamin M. Potsaid, Thorlabs, Inc. (United States); John T. Wen, Rensselaer Polytechnic Institute (United States) [7266B-214]

**Coffee Break** ..... 3:10 to 3:40 pm

## 7266C: Optomechatronic Micro/Nano Devices and Components IV

### SESSION 8

#### Simulation/Modeling Devices

*Session Chair:* **Dalibor Hodko**, Nanogen, Inc. (United States)  
Room: San Diego Ballroom C ..... Tues. 3:40 to 5:20 pm

3:40 pm: **Terahertz asymmetric quantum well infrared photodetector design based on electromagnetically induced transparency**, Ali Rostami, Univ. of Tabriz (Iran, Islamic Republic of); M. Zyaei, Islamic Azad Univ. (United States); H. Rasooli Saghai, Univ. of Tabriz (Iran, Islamic Republic of) and Islamic Azad Univ. of Tabriz (Iran, Islamic Republic of); Farrokh Janabi-Sharifi, Ryerson Univ. (Canada) [7266C-301]

4:00 pm: **Simulated nonlinear dynamics of laterally interactive arrayed neurons**, Yoshitada Katagiri, National Institute of Information and Communications Technology (Japan); Kazuo Aida, Shizuoka Univ. (Japan) [7266C-302]

4:20 pm: **Centi-pixel accurate real-time inverse distortion correction**, Jason P. de Villiers, Council for Scientific and Industrial Research (South Africa) and Univ. of Pretoria (South Africa); Friedrich W. Leuschner, Univ. of Pretoria (South Africa); Ronelle Geldenhuys, Univ. of New South Wales (United States) [7266C-303]

4:40 pm: **Surface plasmon polariton propagations in bent metal wires on a dielectric substrate**, Hiroyuki Shinojima, Yoshitada Katagiri, Nippon Telegraph and Telephone Corp. (Japan); Foo Cheong Yit, Ikutaro Kobayashi, Yoshiaki Nakano, The Univ. of Tokyo (Japan) [7266C-304]

5:00 pm: **All-optical tunable mirror of VCSEL using electromagnetically induced transparency**, Ali Rostami, K. Abbasian, P. S. Khodashenas, Univ. of Tabriz (Iran, Islamic Republic of); Farrokh Janabi-Sharifi, Ryerson Univ. (Canada) [7266C-305]

## SESSION 9

### Devices/MEMS/Actuators/Sensors

*Session Chair: Dalibor Hodko*, Nanogen, Inc. (United States)  
Room: San Diego Ballroom C ..... Tues. 5:20 to 6:40 pm

5:20 pm: **Application of asymmetric surface fabricated by femtosecond laser process for microparts feeding**, Atsushi Mitani, Sapporo City Univ. (Japan); Shinichi Hirai, Ritsumeikan Univ. (Japan) [7266C-306]

5:40 pm: **High-efficiency microarray of 3-D carbon mems electrodes for pathogen detection systems**, Sam K. Kassegne, Berhanu Wondimu, Mohammad Majzoub, Jiae Shin, San Diego State Univ. (United States) [7266C-307]

6:00 pm: **Adaptive optics actuation by means of van der Waals forces: a novel nanotechnology strategy to steer light by light**, Fabrizio Pinto, InterStellar Technologies Corp. (United States) [7266C-308]

6:20 pm: **Microwave lens design using two-dimensional 12-folded quasi-photonic crystals**, Ali Rostami, H. Alipour Banaei, A. Haddadpour, Univ. of Tabriz (Iran, Islamic Republic of); Farrokh Janabi-Sharifi, Ryerson Univ. (Canada) [7266C-309]

### ISOT Awards Banquet

*Harbor House Restaurant, Seaport Village*

Tuesday 18 November ..... 7:30 to 9:30 pm

## Wednesday 19 November

### 7266D: Optomechatronic Computer-Vision

#### Systems III

#### SESSION 10

##### Detection, Recognition, and Tracking Methods

*Session Chair: Didier Coquin*, Univ. de Savoie (France)  
Room: San Diego Ballroom C ..... Wed. 8:00 to 9:40 am

8:00 am: **A blowing-based method of detecting trunk and estimating root position for weeding mobile robots**, Fan Zhang, Akihiko Matsushita, Shun'ichi Kaneko, Takayuki Tanaka, Hokkaido Univ. (Japan) [7266D-401]

8:20 am: **Object recognition based on relationship between camera vibration and measurement error on stereo measurement**, Shin'ya Okazaki, Takayuki Tanaka, Shun'ichi Kaneko, Hidenori Takauji, Hokkaido Univ. (Japan) [7266D-402]

8:40 am: **A novel approach to object recognition and localization in automation and handling engineering**, Jens U. Kuehne, Martin Stotz, Alexander Verl, Fraunhofer-Institut für Produktionstechnik und Automatisierung (Germany) [7266D-403]

9:00 am: **Genetic improvements in illumination compensation by the discrete cosine transform and local normalization for face recognition**, Claudio A. Perez, Luis E. Castillo, Univ. de Chile (Chile) [7266D-404]

9:20 am: **Multi-worm tracking using superposition of merit functions**, Linda I. Rivera, John T. Wen, Benjamin M. Potsaid, Rensselaer Polytechnic Institute (United States) [7266D-405]

Coffee Break ..... 9:40 to 10:10 am

#### SESSION 11

##### Shape, Color, Segmentation, and Enhancement Techniques

*Session Chair: Shun'ichi Kaneko*, Hokkaido Univ. (Japan)  
Room: San Diego Ballroom C ..... Wed. 10:10 am to 12:10 pm

10:10 am: **Shape metamorphosis using deformable spherical maps**, Archana P. Sangole, Ecole Polytechnique (Canada) and Univ. of Montreal (Canada); George K. Knopf, The Univ. of Western Ontario (Canada) [7266D-406]

10:30 am: **New approach to color calibration of high fidelity color digital camera by using unique wide gamut color generator based on LED diodes**, Maciej Kretkowski, Shizuoka Univ. (Japan) and Warsaw Univ. of Technology (Poland); Yoshifumi Shimodaira, Shizuoka Univ. (Japan); Ryszard Jablonski, Warsaw Univ. of Technology (Poland) [7266D-407]

10:50 am: **Componential distribution analysis of food by using of near infrared ray image**, Hiroki Yamauchi, Kunihito Kato, Kazuhiko Yamamoto, Gifu Univ. (Japan); Noriko Ogawa, Kimie Ohba, Gifu Women's Univ. (Japan) [7266D-408]

11:10 am: **Quantitative evaluation of color image segmentation results using fuzzy neural network**, Didier Coquin, Univ. de Savoie (France) [7266D-409]

11:30 am: **Denight: nighttime image enhancement using daytime image**, Akito Yamasaki, Hidenori Takauji, Shun'ichi Kaneko, Hokkaido Univ. (Japan); Takeo Kanade, Carnegie Mellon Univ. (United States); Hidehiro Ohki, Oita Univ. (Japan) [7266D-410]

11:50 am: **Improvement of building extraction using decision fusion of locally and globally enhanced IKONOS images**, Seyed Mostafa Mirhassani, Bardia Yousefi, Shahrood Univ. of Technology (Iran, Islamic Republic of); Mitra Bahadorian, Kungliga Tekniska Högskolan (Sweden); Heydar Toossian Shandiz, Shahrood Univ. of Technology (Iran, Islamic Republic of) [7266D-411]

Lunch Break ..... 12:10 to 2:00 pm

## SESSION 12

### Optical Imaging Systems

*Session Chair:* **George K. Knopf**, The Univ. of Western Ontario (Canada)

Room: San Diego Ballroom C ..... Wed. 2:00 to 3:00 pm

2:00 pm: **Neural-network calibration of a multiple-line laser-camera range sensor for 3D surface-geometry measurement**, Chris Yu-Liang Liu, Jonathan Kofman, Univ. of Waterloo (Canada) [7266D-412]

2:20 pm: **An analysis of un-dissolved powders of instant powdered soup by using ultrasonographic image**, Yukinori Kawaai, Kunihiro Kato, Kazuhiko Yamamoto, Gifu Univ. (Japan); Chinatsu Kasamatsu, Ajinomoto Co., Inc. (Japan) [7266D-413]

2:40 pm: **A two dimensional phase-shifting method for deflectometry**, Heechan Park, Deokhwa Hong, Hyungsuck Cho, Korea Advanced Institute of Science and Technology (Korea, Republic of) [7266D-414]

## SESSION 13

### Focus-Based Optical Approaches

*Session Chair:* **Claudio A. Perez**, Univ. de Chile (Chile)

Room: San Diego Ballroom C ..... Wed. 3:00 to 4:00 pm

3:00 pm: **Extending depth of field scheme combined with focal plane shift**, Deokhwa Hong, Hyungsuck Cho, Korea Advanced Institute of Science and Technology (Korea, Republic of) [7266D-416]

3:20 pm: **Focus-based depth estimation in the SEM**, Christian Dahmen, Carl von Ossietzky Univ. Oldenburg (Germany) [7266D-417]

3:40 pm: **Robust self-matching based focus measure**, Yuan Li, Hidenori Takauji, Shun'ichi Kaneko, Takayuki Tanaka, Hokkaido Univ. (Japan); Isao Ohmura, Hokkaido Industrial Research Institute (Japan) [7266D-418]

**Coffee Break** ..... 4:00 to 4:30 pm

## 7266E: Optomechatronic Systems Control IV

### SESSION 14

### Optomechatronic Systems Control

*Session Chair:* **Kee S. Moon**, San Diego State Univ. (United States)

Room: San Diego Ballroom C ..... Wed. 4:30 to 6:10 pm

4:30 pm: **Neural network approach to modeling hot intrusion process for micromold fabrication**, Pun Pang Shiu, George K. Knopf, The Univ. of Western Ontario (Canada); Mile Ostojic, Suwas K. Nikumb, National Research Council Canada (Canada) [7266E-506]

4:50 pm: **A radio over fiber network architecture for road vehicle communication systems using 2-D photonic quasi-crystals**, Ahmad Ghanbari, Ali Rostami, A. Haddadpour, H. Alipour Banaei, Univ. of Tabriz (Iran, Islamic Republic of); Farrokh Janabi-Sharifi, Ryerson Univ. (Canada) [7266E-501]

5:10 pm: **Improving performance of task space controllers using an inner pd joint controller: an application to visual servoing**, Rubén A. Garrido, Edgar A. Canul, Alberto Soria, Ctr. de Investigación y de Estudios Avanzados (Mexico) [7266E-502]

5:30 pm: **Stable visual PID control of a planar parallel robot**, Alberto Soria, Ruben Garrido, Miguel Trujano, Ctr. de Investigación y de Estudios Avanzados (Mexico) [7266E-503]

5:50 pm: **Variable view imaging system with decoupling design**, Xiaodong Tao, Deokhwa Hong, Hyungsuck Cho, Korea Advanced Institute of Science and Technology (Korea, Republic of) [7266E-505]