

**MEMS**

**Engineer Forum (MEF)**

**2009 – 2018**

## 10 years History of MEF – 1<sup>st</sup> and 2<sup>nd</sup>



### ★The 1<sup>st</sup> MEMS Engineer Forum 2009

March 17-19, 2009 TFT Hall, Ariake, Tokyo

<b>Speakers</b>		
Theme	Speakers	Affiliation
Plenary	Kurt Petersen Albert Pisano Udo Gomez	KP-MEMS UC Berkeley Robert Bosch
Keynote	Kazuo Sato Tadatomo Suga Mitsumasa Koyanagi Oliver Gradon	Nagoya Univ. Univ. of Tokyo Tohoku Univ. Nature Photonics
Special	Yoshiyuki Nozawa Tetsuji Onuki	Sumitomo Precision Products Nikon Engineering
Application	S. Wickramanayaka Hirokazu Sanpei Takahiro Usui Yoshitsu Taira Takao Someya	EVGroup Japan Advantest Seiko Epson, Macnica Univ. of Tokyo
Simulation, Evaluation, Testing	Momoji Kubo Hiroyuki Ishida Tatsuya Ito	Tohoku Univ. SUSS Microtec Fujikura
Process and Materials Technologies	Shuji Tanaka Shuichi Shoji Seiichi Hata Katsuyuki Machida	Tohoku Univ. Waseda Univ. Tokyo Institute of Technology NTT Advanced Technology
<b>Exhibitors</b>		
Adcom Media, Advanced Technology, Chip One Stop, EVGroup Japan, E2 Publishing, Electronic Journal, e.x.press, Gijutsu Chosakai, Hiroshima Univ., Keisoku Engineering System, KOBELCO, SPC ELECTRONICS CORP, MEMS Park Consortium, MIS Technology, Nagase Techno Engineering, Nikon Engineering, Park Systems Japan, Polytec Japan, Reed Business Information Sangyo Times, Sumitomo Precision Products, SUSS Microtec, Software Cradle, Takatori, Tanner Research, Techno System		

### ★The 2<sup>nd</sup> MEMS Engineer Forum 2010

March 18-19, 2010 TFT Hall, Ariake, Tokyo

<b>Speakers</b>		
Theme	Speakers	Affiliation
Plenary	Kurt Petersen Susumu Kaminaga Masayoshi Esashi Kazuo Sato Hiroki Kuwano	KP-MEMS Sumitomo Precision Products Tohoku Univ. Nagoya Univ. Tohoku Univ.
Application	Koji Mitsubayashi  Hiroshi Yoshimura	Tokyo Medical and Dental University NTT Electronics
Simulation, Evaluation, Testing, Process and Materials Technologies	Jun Mizuno Toshihito Shiotani  Ko Kumagai Hidemi Takasu Sunil Wickramanayaka	Waseda Univ. Toppan Technical Design Center Tohoku Venture Capital ROHM EVGroup Japan
<b>Exhibitors</b>		
Electronic Journal, Elionix, EVGroup Japan, Keisoku Engineering System, Kobelco Research Institute, MIS Technology, Park Systems Japan, Sangyo Times, Sumitomo Precision Products, Takatori		

## 10 years History of MEF – 3<sup>rd</sup> & 4<sup>th</sup>



### ★The 3rd MEMS Engineer Forum 2011

March 7-8, 2011 Ota City Industrial Plaza PiO, Ota, Tokyo

<b>Speakers</b>		
Theme	Speakers	Affiliation
MEMS Asian Networks - Connection of People	Masayoshi Esashi Weileun Fang Susumu Kaminaga Hiroshi Ohki Jong-Uk Bu Shuichi Shoji Masakazu Sugiyama	Tohoku Univ. National Tsinghua Univ. Sumitomo Precision Products Hitachi High-Technologies SenPlus Waseda Univ. Univ. of Tokyo
MEMS Asian Networks - Connection of Technologies	Hiroki Kuwano Shoji Kamiya Kenichiro Suzuki Koji Izumi Tadatomo Suga Mitsumasa Koyanagi Kazuo Sato	Tohoku Univ. Nagoya Institute of Technology Ritsumeikan Univ. JAXA Univ. of Tokyo Tohoku Univ. Nagoya Univ.
<b>Exhibitors</b>		
Elionix, Hiroshima Univ., Kagawa Univ., Keisoku Engineering System, MEMS Park Consortium, Nagase Techno Engineering, Nagoya Univ., Park Systems Japan, Sumitomo Precision Products, SUSS Microtec, Tohoku Univ.-Esashi & S. Tanaka Lab., Tohoku Univ.-Kuwano & Nagasawa Lab.		

### ★The 4th MEMS Engineer Forum 2012

MEMS がけん引するスマートシティ - 東日本大震災を乗り越えて-

March 12-13, 2012 Toshi Center Hall, Tokyo

<b>Speakers</b>		
Theme	Speakers	Affiliation
Smart City - Role of MEMS --	Hiroki Kuwano Yasuaki Onoda Narito Kurata Hiroyuki Kazama Naoto Kobayashi Tomonori Seki Kazuo Yano Susumu Kaminaga	Tohoku Univ. Tohoku Univ. Kajima NTT Data Waseda Univ. OMRON Hitachi Sumitomo Precision Products
Smart City - Driving Factor of MEMS New Technologies --	Masayoshi Esashi Kazuo Sato Yoshinobu Baba Yutaka Katano Tsuyoshi Tajiri Kazunari Kaneyasu Koei Suzuki Hiroki Kuwano	Tohoku Univ. Nagoya Univ. Nagoya Univ. YOLE DEVELOPPEMENT Autoliv Figaro Engineering Ricoh Tohoku Univ.
<b>Exhibitors</b>		
Aichi Science and Technology Foundation, Berkeley Sensor and Actuator Center, Japan Laser, KUNOH Technocraft, MEMS Park Consortium, National Institute of Advanced Industrial Science and Technology(AIST), Park Systems Japan, SPP Technologies, Tohoku Univ.-Esashi & S. Tanaka Lab.,		



# 10 years History of MEF – 5<sup>th</sup>

## ★The 5th MEMS Engineer Forum 2013

**Create the new phase of MEMS key technology for rebirth!-  
Toward reconstruction, regeneration and  
building Smart Cities -**

**MEMS を日本新生のキーテクノロジーに！**

**- 復興、再生、スマートシティ構築に向けて**

**-March 13-14, 2013 KFC Hall, Ryogoku, Tokyo**



<b>Speakers</b>		
Theme	Speakers	Affiliation
Learn Successful Model of MEMS	Masayoshi Esashi Kurt Petersen Alert Pisano Ichiro Yamashita Julien Arcamone Weileun Fang Alissa Fitzgerald Joerg Froemel	Tohoku Univ. KP-MEMS UC Berkeley Panasonic Leti National TsingHua Univ. A.m. Fitzgerald & Associates Fraunhofer ENAS
The Great MEMS Market	Susumu Kaminaga Thomas Kenny Jean-Christophe Eloy Richard Dixon Kazuyoshi Itagaki Magnus Rimskog Jo de Boeck	Sumitomo Precision Products Stanford Univ. YOLE DEVELOPPEMENT IHS iSuppli EnOcean Alliance Silex Microsystems IMEC
<b>Exhibitors</b>		
Aichi Science and Technology Foundation, AIST, CRESTEC, EnOcean Alliance, EVGroup Japan, Hakuto, Hiroshima Univ.-Miyake Lab., Japan Laser, Kyodo International, Koken, Kunoh Technocraft, Leti, MEMS Park Consortium, Moritex, Murata Manufacturing, Polytec, SK Global Advisers, SPP Technologies, Samco, SUSS Microtec, Tohoku Univ.-Kuwano Lab., Tokyo Ohka Kogyo, UC Berkeley, University of Hyogo, YOUTEC		



# 10 years History of MEF – 6<sup>th</sup>

★The 6th MEMS Engineer Forum 2014  
**Smart City – MEMS Forefront and Each Strategy**  
**-April 25, 2014 KFC Hall, Ryogoku, Tokyo**

<b>Speakers</b>		
Theme	Speakers	Affiliation
MIG Conference Japan 2014 (April 24, 2014) jointly held		
	Takeshi Ito Daido Uchida J�r�mie Bouchaud Leopold Beer Babak Taheri Liang Shi Denise Kaske Xi Wang	Sony Mobile Communications OMRON IHS Inc. BOSCH Sensortec Freescale Semiconductor SunEdison Semiconductor Fraunhofer-Gesellschaft Shanghai Institute of Microsystem and Information Technology
MEF 2014 (April 25, 2014)		
Keynote	Susumu Kaminaga Thomas Gessner	SPP Technologies/SK Global Advisers Fraunhofer ENAS
Latest Status of MEMS	Karen Lightman Janusz Bryzek Albert Pisano Jean-Christophe Eloy	MEMS Industry Group Fairchild Semiconductor UC San Diego YOLE DEVELOPPMENT
Strategy of MEMS Manufacturer	Benedetto Vigna/ Hiroshi Noguchi Hyungjae Shin Eiji Fujii Yutaka Nonomura Armin Schober	STMicroelectronics  Samsung Electronics Panasonic TOYOTA Central R&D Labs TDK-EPC
Future MEMS Business	Kentaro Totsu Kurt Huang	Tohoku Univ. UMC
R&D Status of the Leading Edge MEMS	Masayoshi Esashi	Tohoku Univ.
<b>Sponsors</b>		
Asahi Glass, Hitachi High-Technologies		
<b>Exhibitors</b>		
Advanced Technologies, Aichi Science and Technology Foundation, ALTATECH/SOITEC, Asahi Techno Solutions, Crestec, Fraunhofer ENAS, Furuya Metal, Kanto Aircraft Instrument, KST World, KUNOH Technocraft, MEMS Industry Group, Micromachine Center, OMRON, Polytec Japan, Quantum Design Japan, Ritsumeikan University, Shin-Etsu Polymer, Shuwa Industry, Silicon Sensing Systems, Soitec Japan, SPP Technologies, Tohoku University, UC San Diego, University of Hyogo, Ushio		



## 10 years History of MEF -7<sup>th</sup>

★The 7th MEMS Engineer Forum 2015  
**Smart City – MEMS Forefront and Each Strategy**  
**-April 20-21, 2015 KFC Hall, Ryogoku, Tokyo**

<b>Speakers</b>		
Theme	Speakers	Affiliation
Keynote	Kazuo Kyuma Junichi Kishigami	Cabinet Office, Japan Muroran Institute of Technology
MEMS Trends Overview	Yoshio Sekiguchi Guillaume Girardin Tetsuya Wadaki	MEMS Industry Group YOLE DEVELOPPMENT Nomura Securities
MEMS Trends Worldwide	Julien Arcamone Ryutaro Maeda Weileun Fang Aarne Oja Hiroya Tanaka Masayoshi Esashi	CEA-LETI AIST National TsingHua University VTT Keio University Tohoku Univ.
MEMS Sensor Systems and Applications	Udo-Martin Gomez Hiroyuki Morikawa Yutaka Nonomura Markus Lutz Takeshi Kunimi Shuji Tanaka Takao Someya Satoshi Koike Yang Ishigaki Kohei Higuchi Paul Werbaneth Shintaro Watanabe	Bosch Sensortech Univ. of Tokyo TOYOTA Central R&D Labs. SiTime Akebono Brake Ind. Tohoku Univ. Univ. of Tokyo Vegetalia Yaguchi Electric/Radiation Watch.org Affordsense 3D InCites NTT Data
MEMS Sensor Systems and IoT	Mai Ota Susumu Kaminaga	Development Bank of Japan SPP Technoloies
<b>Sponsors</b>		
Asahi Glass, Hitachi High-Technologies, Keyence		
<b>Exhibitors</b>		
Advanced Technologies, AffordSENS, ALPS Electric, Asahi Glass, Ayumi Industry, BumpRecorder, Central Glass, Crestec, Elionix, Fine Material System, Fraunhofer@Tohoku Univ., Gluon, IEEJ Sensors and Micromachines, Intertek, Japan Society of Next Generation Sensor Technology, Japan Laser, K&P/PA Metrology & Plasma Solutions, Keyence, Koken, Kunoh Technocraft, Kyodo International, Marubeni Information Systems, MEMS CORE, MEMS Industry Group, MEMS Park Consortium, Micronics Japan, Nano System Solutions, NGK Spark Plug, Oga, OMRON, Plan Optik, Rohm, SHUTECH, Silicon Sensing Systems Japan, SK Global Advisers, SPP Technologies, StayShift, SUSS MicrTec, TDC, Toppan Printing, Tosetsu, Univ. of Tokyo-Miyake Lab., Tohoku Univ.-Kuwano Lab., Tohoku Univ.-Yamanaka Lab., Tohoku Univ.-Tanaka Lab., Tohoku Univ.-Hands-on-access fab., Tosetz, Ushio,		



# 10 years History of MEF -8<sup>th</sup>

★The 8th MEMS Engineer Forum 2016  
**Internet of Things for Smart City**  
**-May 11-12, 2016 KFC Hall, Ryogoku, Tokyo**

<b>Speakers</b>		
Theme	Speakers	Affiliation
Keynote/Special Talks	Kyuuichirou Sano  Andrei M. Shkel Masayoshi Esashi/Kentaro Totsu Ryutaro Kawamura Susumu Kaminaga Akira Matsuzawa	Ministry of Economy, Trade, and Industry (METI) UC Irvine Tohoku Univ. NTT SPP Technologies Tokyo Institute of Technology
Program Overview	Naoto Kobayashi	Waseda Univ.
MEMS Trends Worldwide	Claire Troadec Karen Lightman Julien Arcamone Aarne Oja Joerg Froemel/Thomas Gessner  Xinxin Li	YOLE DEVELOPPMENT MEMS & Sensors Industry Group CEA-LETI VTT Fraunhofer Project Center for MEMS/NEMS devices and manufacturing technologies Chinese Academy of Sciences
MEMS Sensor Systems and IoT	Hiroshi Funakubo Weileun Fang Takayuki Ezaki Mark Wood Peter Zalar	Tokyo Institute of Technology National TsingHua Univ. Sony Semiconductor Solutions InvenSense Univ. of Tokyo
MEMS Sensor Systems and Application	Nobuaki Kawahara Georg Bischofink Takahiro Nakayama Yasumitsu Orii Naoki Nakashima Sadaharu Takimoto	DENSO Robert Bosch TOYOTA Motor IBM Research Tokyo Kyushu Univ. Hospital Hamamtsu Photonics
IoT and Society	Taizo Kinoshita Yang Ishigaki Masamitsu Kawasumi Hidehito Yamazaki Satoshi Takahashi	Hitachi Yaguchi Electric Development Bank of Japan Cloud Security Alliance Salesforce.com
<b>Sponsors</b>		
SUSS MicroTec, ELIONIX, Hitachi High-Technologies, KEYENCE, Philtech		
<b>Exhibitors</b>		
ADVANCED TECHNOLOGIES, ALPS Electric, ASAHI KASEI, Asahi Techno Solutions, Coventor, CRESTEC, DENSO, KOKEN, Lasertec. MEMS CORE, MEMS Park Consortium. NAGASE, NGK SPARK PLUG, OMRON, Plan Optik, ROHM, SHIBAURA MECHATRONICS, Silicon Sensing Systems Japan, SK Global Advisers, SPP Technologies, TDC, TOPPAN PRINTING, USHIO, YAMAMOTO-MS, Yokogawa Electric, 4-University Nano/Micro Fabrication Consortium, CEA-Leti, Fraunhofer Institute for Electronic Nano Systems ENAS, Hand-on-access fab., Tohoku University, IEEJ Sensors and Micromachines, Japan Society of Next Generation Sensor Technology (JASST), Tohoku University- Kuwano Lab., MEMS & Sensors Industry Group, Tohoku University- Tanaka Lab., Technology Research Association for Inertia Sensors and their Applications, Tohoku Univ.-Micro System Integration Center ( $\mu$ SIC), The University of Tokyo - Miyake Lab., Oga, SHUTECH		



# 10 years History of MEF -9<sup>th</sup>

## ★The 9th MEMS Engineer Forum 2017

### MEMS and IoT for Smart City

-April 26-27, 2017 KFC Hall, Ryogoku, Tokyo

<b>Speakers</b>		
Theme	Speakers	Affiliation
Keynote/Special Talks	Hideo Shindo Thomas Kenny Hidetoshi Katori Kurt Petersen Masayoshi Esashi	Cabinet Office, Japan Stanford Univ. Univ. of Tokyo Silicon Valley Band of Angels Tohoku Univ.
Program Overview	Naoto Kobayashi	Waseda Univ.
MEMS Trends Worldwide	Karen Lightman  Frederic Breussin Raji Baskaran Julien Arcamone Hiroki Kuwano	MEMS & Sensors Industry Group, SEMI YOLE DEVELOPPMENT Intel CEA-LETI Tohoku Univ.
MEMS Sensor Systems and IoT	Igor Paprotny Koji Mitsubayashi Yoshinori Matsumoto David Horsley Aarne Oja Shinji Nishimura Shoji Kawahito Takaya Nagahata Tatsuo Torii Yuji Ohgi Keigo Saeki Susumu Kaminaga Osamu Koyanagi Sheng-Shian Li Jari Honkanen Vesa-Pekka Lempinen Sheng Xu Thomas Otto Hiroshi Noguchi	Univ. of Illinois Tokyo Medical and Dental Univ. Keio Univ. UC Davis Tikitin Hitachi Shizuoka Univ. ROHM Japan Atomic Energy Agency Keio Univ. Nara Medical Univ. SPP Technologies Development of Bank National TsingHua Univ. MicroVision Okmetic Oyj UC San Diego Fraunhofer Institute ENAS STMicroelectronics
<b>Sponsors</b>		
Okmetic, AYUMI INDUSTRY, Ebara, Goertek, Hitachi High-Technologies, OMRON		
<b>Exhibitors</b>		
4-University Nano/Micro Fabrication Consortium, ADVANCED TECHNOLOGIES, ARS, CEA LETI, Coventor, Dai Nippon Printing, DENSO, EVGroup Japan, Fraunhofer Institute for Electronic Nano Systems ENAS, Fuji Electric, Tohoku University- Hands-on-access fab., HiSOL, IEEJ Sensors and Micromachines, Japan Society of Next Generation Sensor Technology (JASST), Jedat, KANOMAX, KOKEN, Tohoku University- Kuwano Lab., MEMS & Sensors Industry Group, MEMS CORE, MEMS Park Consortium, Micromachine Center, The University of Tokyo- Miyake Lab., NAGANOKEIKI, NAGASE, New Japan Radio, NTK CERAMIC, Oga, PLAN OPTIK, Research Laboratories of Saigon High-Tech-Park, ROHM, Tohoku University- Shuji Tanaka Lab., Silicon Sensing Systems Japan, SK Global Advisers, SPP Technologies, SUSS MicroTec/Kanematsu PWS, Tanaka Kikinzoku Kogyo/Electroplating Engineers of Japan, TDC, TOKYO OHKA KOGYO, TOPPAN PRINTING, USHIO, YOKOGAWA ELECTRIC		





# 10 years History of MEF -10<sup>th</sup>

## ★The 10th MEMS Engineer Forum 2018

### Smart Society Driven by MEMS

-April 25-26, 2017 KFC Hall, Ryogoku, Tokyo

<b>Speakers</b>		
Theme	Speakers	Affiliation
Keynote/Special Talks	Tomoji Kawai Albert Pisano Masayoshi Esashi Frank Niklaus  Kurt Petersen Susumu Kaminaga Thomas Kenny	NEDO UC San Diego Tohoku Univ. KTH Royal Institute of Technology in Stockholm, Sweden Silicon Valley Band of Angels SPP Technologies Stanford Univ.
Program Overview	Naoto Kobayashi	Waseda Univ.
MEMS Explore a New World	Jean-Philippe Polizzi Sadaharu Takimoto Christiane Kaden Sitaram Arkalgud	CEA-Leti Hamamatsu Photonics Fraunhofer IPMS Xperi-Invensas
MEMS & Smart City	Peter Zalar Mitsugu Ogiura Hiroki Kuwano	HOLST Centre Murata Electronics Oy Tohoku Univ.
Business Strategies for MEMS	Evangelos A. Angelopoulos Magnus Rimskog/Kenji Kato  Jerry Liu  Chun-Wen Cheng	Infineon Technologies Silex Microsystems/ Kyodo International Semiconductor Manufacturing Electronics (Shaoxing) Corp. tsmc
MEMS for the Next Decade	Jean-Christophe Eloy Atsuhiko Nakagawa Daisuke Eto Hiromi Yatsuda Udo-Martin Gomez	ROLE Developpement Tohoku Univ. FUJIFILM Wako Pure Chemical Japan Radio Robert Bosch
<b>Sponsors</b>		
ALPS ELECTRIC, AYUMI INDUSTRY, Bosch, Ebara, EV Group Japan, Goertek Technology Japan, Hitachi High-Technologies, Huawei Technologies Japan, KANOMAX, Okmetic, OMRON, Samco, TDK, Yole Développement		
<b>Exhibitors</b>		
4-University Nano/Micro Fabrication Consortium, ADVANCED TECHNOLOGIES, Asahi KASEI, Ball Wave, CEA LETI, Coventor Japan, DENSO, HEIDELBERG INSTRUMENTS, HiSOL, IEEJ Sensors and Micromachines, Infineon Technologies, INNOVATEST JAPAN, ITOCHU Aviation/ACUTRONIC, Japan Society of Next Generation Sensor Technology, Jedat KOKEN, Kyodo International/Silex Microsystems, Leave a Nest, M.T.C., MEMS CORE, MEMS Park Consortium, Micromachine Center, NAGANOKEIKI, New Japan Radio/Japan Radio, NTK Ceramic, Oga PLAN OPTIK, ROHM, ROKKO ELECTRONICS, Silicon Sensing Systems Japan, SK Global Advisers, SPP Technologies, SUSS MicroTec/Kanematsu PWS, TDC, Technology Research Association for Inertia Sensors Applications, TECNISCO, The University of Tokyo - Miyake Lab, Tohoku University - Hands-on-access fab., Tohoku University - Kuwano Labo., Tohoku University - S. Tanaka Laboratory for Smart System Integration, TOKYO OHKA KOGYO, Touchence, UC San Diego Jacobs School of Engineering, USHIO/Picosun Japan, Xperi - Invensas, Yokogawa Electric, ZEISS		