

The 10th International Symposium on
Measurement Technology and Intelligent Instruments

ISMTII 2011



June 29 - July 2, 2011
KAIST, Daejeon, Korea

Organized by
International Committee on Measurements and Instrumentation (ICMI)
Korea Advance Institute of Science and Technology (KAIST)

Cooperated with
Korea Society of Precision Engineering (KSPE)
The Japan Society for Precision Engineering (JSPE)
Korea BK21 Valufecture Institute of Mechanical Engineering at KAIST

Foundation of ISMTII

ISMTII 2013, RWTH Aachen University, Aachen, Germany

ISMTII 2011, 29 June - 2 July 2011, KAIST, Daejeon, Korea

ISMTII 2009, 29 June - 2 July 2009, St. Petersburg, Russia

ISMTII 2007, 24-27 September 2007, Sendai, Japan

ISMTII 2005, 6-8 September 2005, Huddersfield, UK

ISMTII 2003, 28 November - 1 December 2003, Hong Kong SAR, China

ISMTII 2001, 25-29 September 2001, Cairo, Egypt

ISMTII 1998, 2-4 September 1998, Miskolc-Lillafured, Hungary

ISMTII 1996, 30 September - 3 October 1996, Hayama, Kanagawa, Japan

ISMTII 1993, 29 October - 5 November 1993, Wuhan, China

ISMTII 1989, 15-17 May 1989, Wuhan, China

Organization



The International Committee on
Measurements and
Instrumentation (**ICMI**)



Korean Advanced Institute of
Science and Technology
(**KAIST**)



Korean Society for Precision
Engineering (**KSPE**)



Korea BK21 Valufecture
Institute of Mechanical
Engineering at KAIST



The Japan Society for Precision
Engineering (**JSPE**)

Conference committee

Conference Chair

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G. Varga, University of Miskolc, Hungary
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T. Watanabe, Heidenhain K.K., Japan
L. J. Zeng, Tsinghua University, China
S. L. Zhang, Tsinghua University, China
J. G. Zhou, Drexel University, USA

Symposium scope

- Applied sensor technology
- Sensors and actuators
- Bio-measurement
- Micro-sensor
- Dimensional measurement
- In-process and on-line measurement
- Micro/nano-metrology
- Precision measurement
- Optical metrology and image processing
- Surface metrology
- Intelligent measurement and instrumentation
- Machine tool metrology
- Mechanical measurement
- Metrology and characterization of materials
- Process measurement
- Signal processing
- Uncertainty, traceability and calibration
- Software for instruments
- Measurements in the humanitarian sphere

Registration fee

	Participants/ Authors	Full-time students/ Retirees	Accompanying persons
Early registration	USD 400.00	USD 200.00	USD 300.00
Regular fee	USD 470.00	USD 230.00	USD 350.00``

Keynote speech



“Sensors and Measuring Instruments for Precision Positioning”

Professor Wei Gao

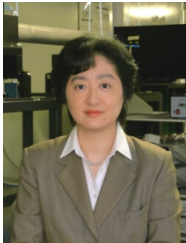
Department of Nanomechanics, Tohoku University, Japan



“Applications of Abbé Principle to Precision Machines”

Professor Kuang-Chao Fan

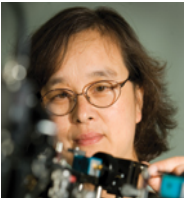
Department of Mechanical Engineering, National Taiwan University, Taiwan



“High Accuracy Length Metrology using Fiber-based Optical Frequency Combs”

Dr. Kaoru Minoshima

National Institute of Advanced Industrial Science and Technology (AIST),
National Metrology Institute of Japan (NMIJ), Japan



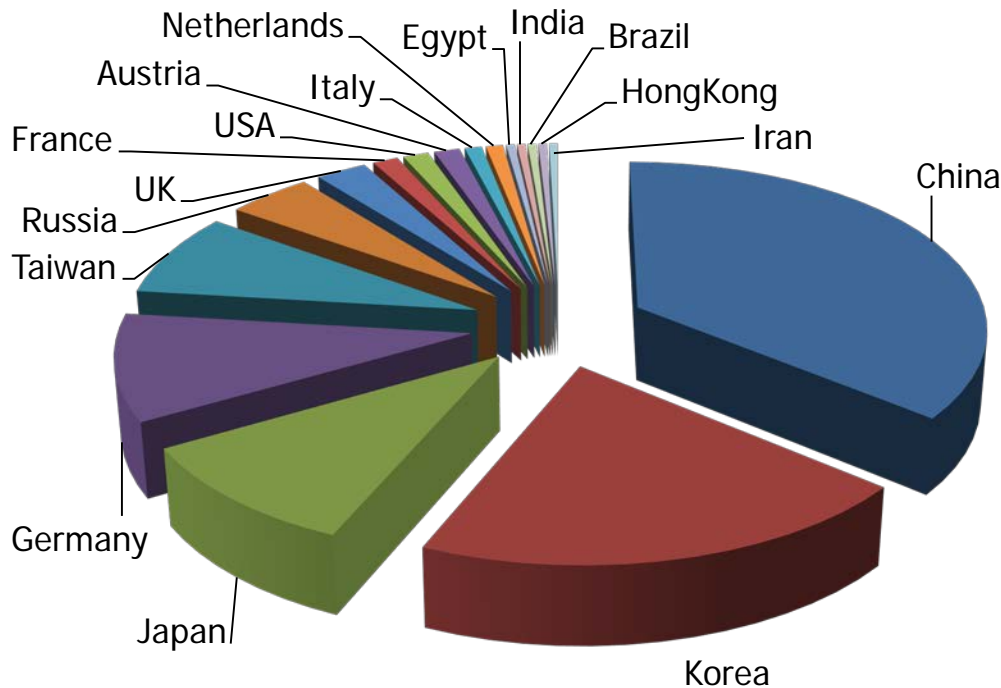
“Freeform/structured Surface Characterisation”

Professor Xiangqian (Jane) Jiang

Centre for Precision Technologies, School of Computing and Engineering,
University of Huddersfield, United Kingdom

Submission statistics (1/3)

❖ Regional distribution



Region	Submission
China	81
Korea	46
Japan	23
Germany	23
Taiwan	18
Russia	10
UK	6
France	3
USA	3
Austria	3
Italy	2
Netherlands	2
Egypt	1
India	1
Brazil	1
HongKong	1
Iran	1
Total	225

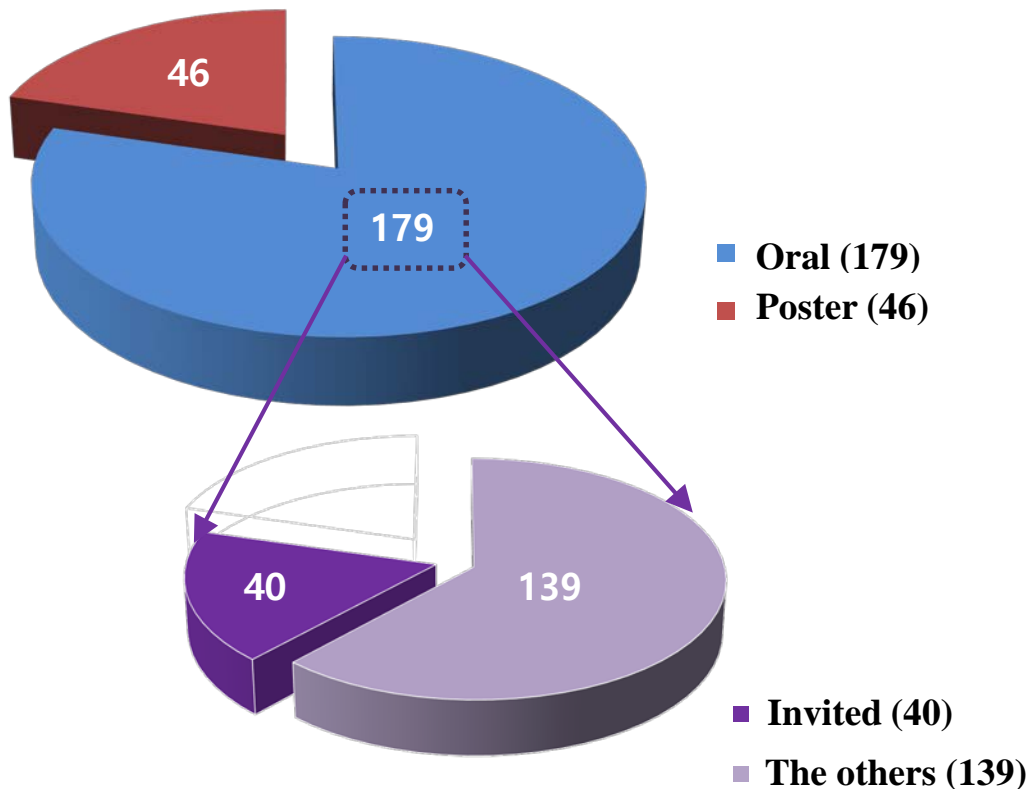
Submission statistics (2/3)

❖ Category

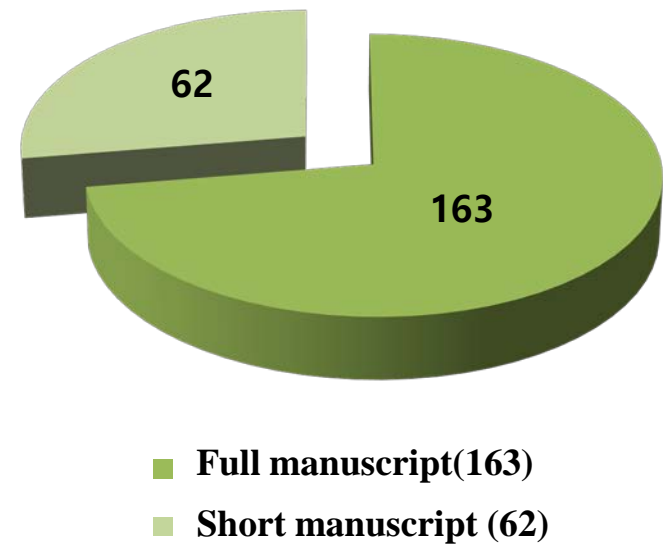
Category	Submission	Invited
Optical metrology	17	4
Online and in-process measurement	27	5
Interferometry and optical testing	30	7
Micro/nano positioning and measurement of machining errors	23	5
Surface and film thickness metrology	15	5
Image, signal processing and algorithm	13	4
Uncertainty, traceability and calibration	15	1
Advanced sensor technology	29	6
Material metrology and characterization	7	2
Measurement and metrology for the humanitarian fields	4	1
Poster session	40	0
Total	225	40

Submission statistics (3/3)

❖ Oral / Poster session



❖ Manuscript format



Participant statistics

Region	Participant	Author
China	102	76
Korea	63	36
Japan	28	22
Germany	23	19
Taiwan	18	17
Russia	5	4
France	4	3
United Kingdom	4	4
USA	4	3
Netherlands	3	2
Hong Kong	3	2

Region	Participant	Author
Thailand	3	0
Nigeria	3	0
India	2	1
Italy	2	2
Austria	2	2
Egypt	1	1
Turkey	1	1
Indonesia	1	0
Cote D'Ivoire Ivory Coast	1	1
South Africa	1	0

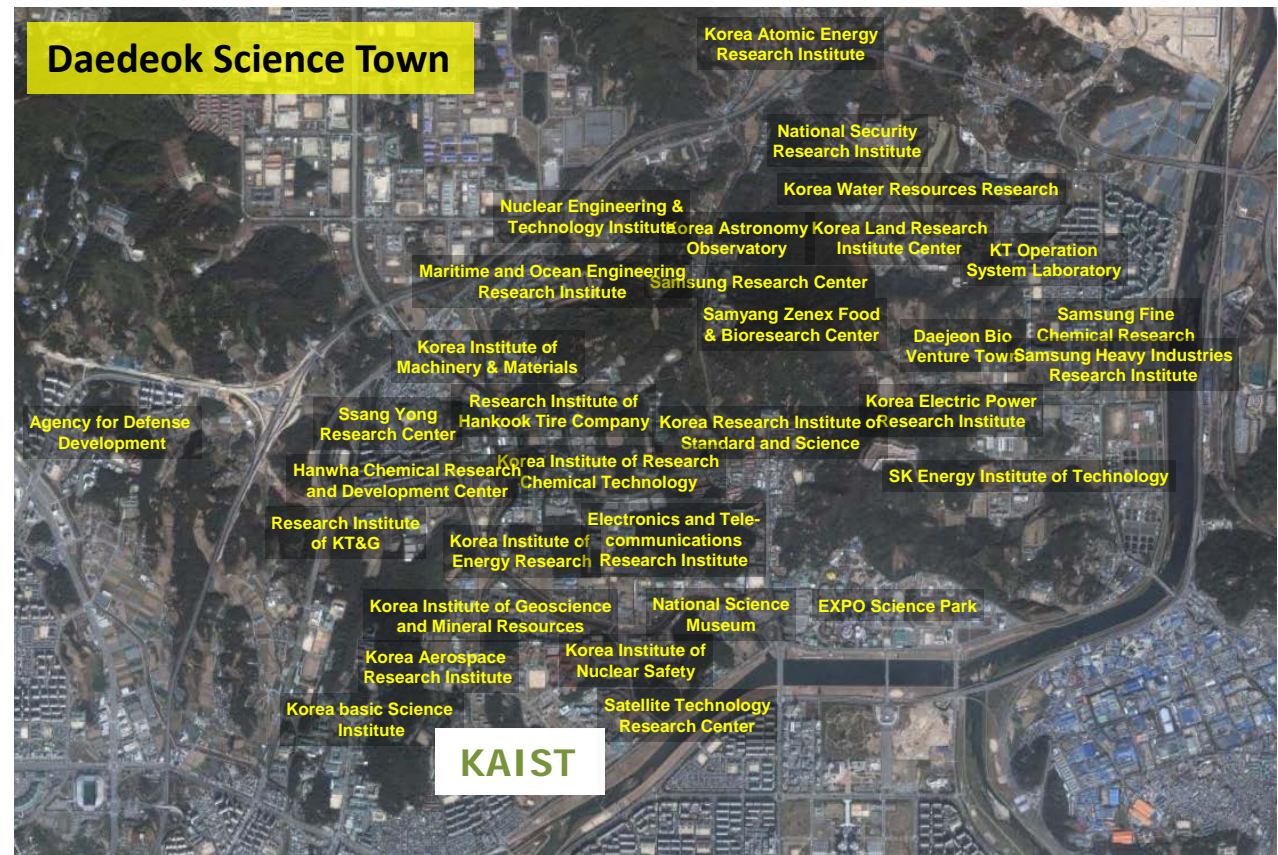
Total	274	196
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Venue (1/2)



Located center of Korea, Daejeon is the 5th largest city which is well known for the city of science and technology. It is home to Daedeok Science Town and Daedeok Valley.

Daedeok science town comprises over 60 research institutes including 3 higher educational institutes, 13 national research institutes and 20 government-funded research institutes and 25 corporate R&D centers.



Venue (2/2)

KAIST (Korea Advanced Institute of Science and Technology)

KAIST is located at Daejeon, Science Town. KAIST was established in 1971 as the nation's first graduate school specializing in science and engineering education and research. For the 2009 academic year, over 8,000 students are enrolled; 3,452 in the bachelor's, 2,197 in the master's, and 2,357 in the doctorate programs.

KAIST Institute(KI) building

The KI building embodies KAIST's commitment to presenting a new model of creative and interdisciplinary research and to becoming a globally-competitive research-oriented university. The building is located in a place that is easily accessible for researchers of all disciplines including optical science and technology, biotechnology, IT, nanotechnology, and eco-technology.

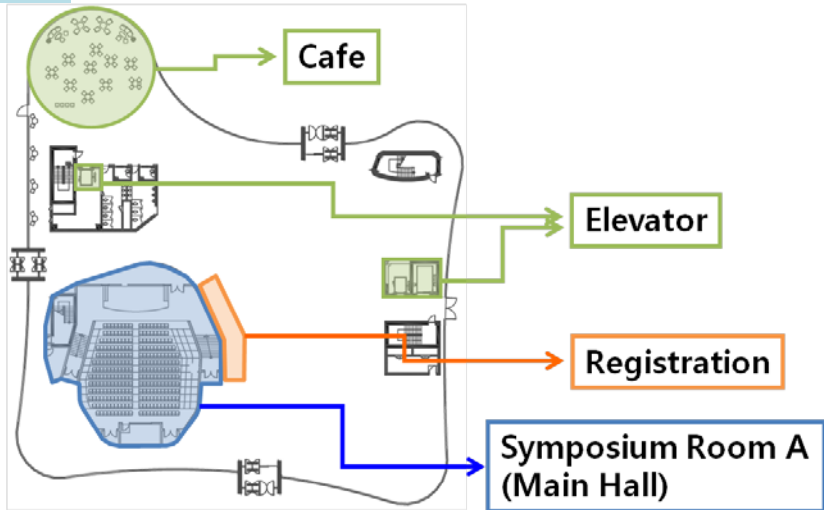


Schedule at a glance

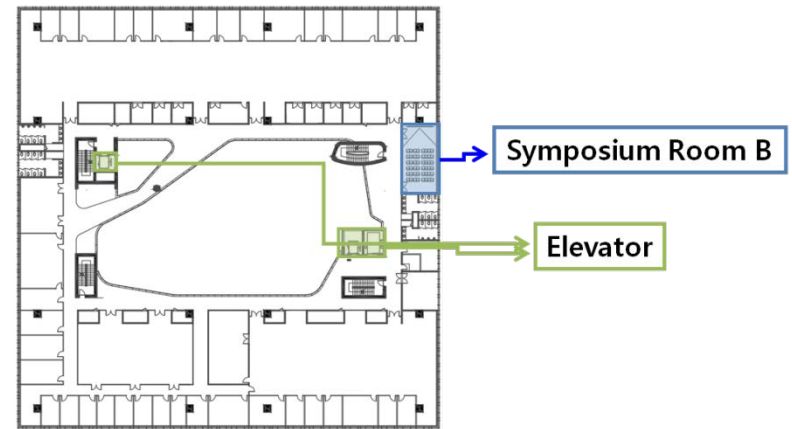
29th June (Wed)		30th June (Thu)		1st July (Fri)		2nd July (Sat)				
	08:30-10:30	Registration		08:30-10:30	Registration		08:00-11:00	Technical Tour		
	08:30-09:00	Opening Ceremony								
	09:00-10:30	Keynote Speech		09:00-10:30	Keynote Speech					
	10:30-10:45	Coffee Break		10:30-10:45	Coffee Break					
	10:45-12:15	Ordinary Sessions I		10:45-12:15	Ordinary Sessions IV					
	12:15-13:30	Lunch Break		12:15-13:30	Lunch Break		11:00-17:00	Seoul Tour		
	13:30-15:00	Ordinary Sessions II		13:30-15:00	Ordinary Sessions V					
	15:00-15:15	Coffee Break		15:00-15:15	Coffee Break					
	15:15-16:45	Poster Session		15:15-16:45	Ordinary Sessions VI					
	16:45-17:00	Coffee Break		16:45-17:00	Coffee Break					
16:30-18:30	Registration		17:00-18:30	Ordinary Sessions III		17:00-18:30			Ordinary Sessions VII	
18:30-20:00	Welcoming Reception		18:30-20:30	Dinner		18:30-20:30			Banquet	
	ICMI member meeting									

ISMTII2011 Symposium Floor Plan

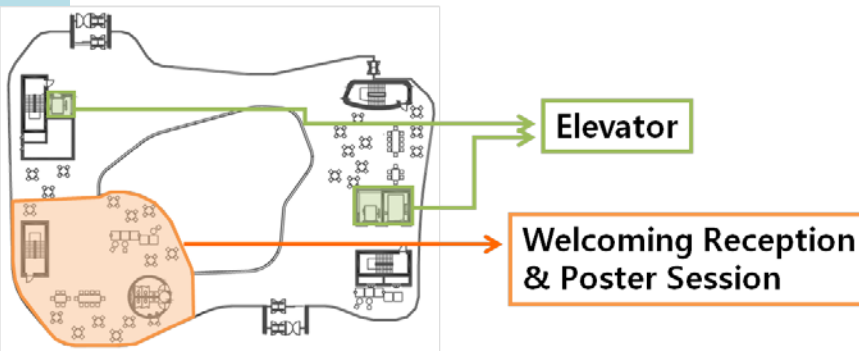
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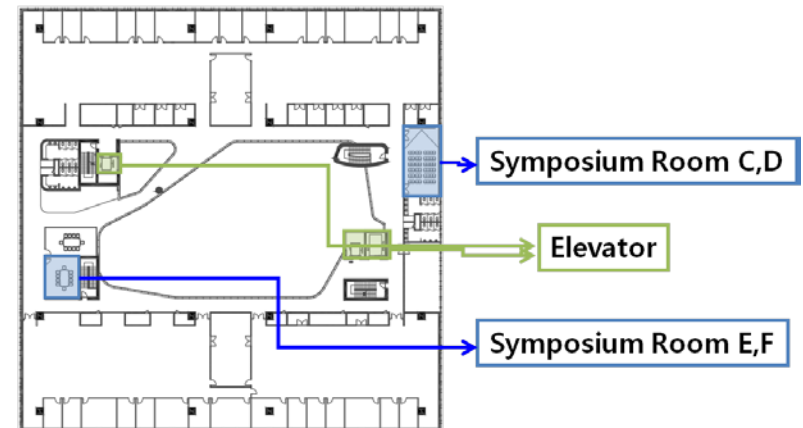
3F



2F



4 / 5F



Technical Tour

- Date and Time : **July 02(Sat.), AM 08:00~11:00**



Dept. of Mechanical Engineering at KAIST



Korea Research Institute of Standards and Science



Korea Institute of Machinery and Materials

Excursion (Seoul tour)

- **July 2, 2011 (11:00~17:00):**

Daejeon → Seoul: Guide Meeting → Lunch → 63 City → Han River Cruise → Uljiro CO-OP Residence

- **July 3, 2011 (09:00~17:00):**

Uljiro CO-OP Residence → Digital Pavilion → Gyeongbokgung Royal guard Ceremony → Gyeongbokgung Royal Palace → The National Folk Museum of Korea → Via Blue House → Lunch (Insadong) → Insadong → Yongsan Electric Market → Incheon Int'l Airport



No show list; 1

Code	Class	Authors	Title
A1-2	Oral	Zhenjiang Hu, Yongda Yan, Bowen Zhang, Xuesen Zhao, Jiucun Yan and Shen Dong, Harbin Inst. of Technology, China,	Study on artificial strain induced by AFM scanning parameters using digital image correlation analysis
A1-4	Oral	Chang Haitao, Ye Xiaoyou, Gao Hongtang and WANG Zhongyu, Beihang Univ., China,	A novel electronic subdivision method of automatic interference comparator
A2-5	Oral	Yu.N. Kulchin, O.B. Vitrik and A.A. Kuchmizhak, IACP FEB RAS, Russia,	Fabri-perot scanning probe for near-field optical microscopy
B1-5	Oral	Wonhak Cho, Jong-Kwan Lee, Sung-Ho Hwang and Hyeonki Choi, Sungkyunkwan Univ., Rep. of Korea,	An investigation of the influences of pure-tone noise on multi-variable bio-signals for product design with human sensibility engineering
B3-3	Oral	Zheng Yong, Liu xiaokang, Chen Ziran, Peng Donglin, Chen Xihou and Zheng Fangyan, Chongqing Univ. of Technology, China,	Research on dynamic measurement system of sensor's transmission error based on time series prediction method
B3-5	Oral	Chul-Ju Kim, Wonhak Cho, Seong-Ryool Ryoo and Hyeonki Choi, Sungkyunkwan Univ., Rep. of Korea,	The relationship between EMG activity and human sensibility during cold air exposure of different temperatures
B5-3	Oral	Sang-Ki Park, Yeon-Shik Ahn and Doo-Song Gil, KEPCO Res. Inst., Rep. of Korea,	The study on evaluation for digital radiography image of weldments
C6-2	Oral	M. Heyne, H. Mehner, T. Erbe and R. Theska, Ilmenau Univ. of Technology, Germany,	Initial investigations of rolling friction characteristics in planar ball guides with a novel measurement set-up
D2-2	Oral	Yi-Hua Fan, Yi-Lin Liao and Ying-Tsun Lee, Chung Yuan Univ., Taiwan.,	Development of an increment high-resolution optical displacement encoder
D4-2	Oral	Chul-Ju Kim, Wonhak Cho, Seong-Ryool Ryoo and Hyeonki Choi, Sungkyunkwan Univ., Rep. of Korea,	The variation of surface electromyography due to different metabolism and skin temperature during exposure to cold air
D7-1	Invited	Vladimir M. Petrov, Lidia A. Mazhul, State Inst. for Art Studies, Russia,	Weak influences in socio-cultural sphere: Method to measure consequences of contacts with art
D7-2	Oral	Lidia A. Mazhul, Vladimir M. Petrov, State Inst. for Art Studies, Russia,	Genius artists: identification by means of measuring stylistic parameters
D7-3	Oral	Valeria Biasi, Fabiana Borsellino, Julia Sciuto and Paolo Bonaiuto, Third Univ. of Rome, Italy,	Measurement of incongruity intolerance and symbol perception
D7-4	Oral	Paolo Bonaiuto, Sara Longo, Valeria Biasi, Fabiana Borsellino and Daria D'Aloise, First Univ. of Rome, Italy,	Colour family drawings produced by children of asian cultures. Measures and peculiarities
E1-3	Oral	Fei Zhigen, Guo Junjie, Ma Xiaojun, Gao Dangzhong, Zhengzhou Univ. of Light Industry, China,	The self-calibration method of geometrical parameters for non-contact five-coordinate measuring machine
E2-1	Oral	V.V. Grigoriev, V.Ye. Kravtsov, A.K. Mityurev, A.B. Pnev and S.V. Tikhomirov, All-Russian Sci. Res. Inst. for Optical and Physical Measurements, Russia,	Standards and traceability for measurements of chromatic and polarization mode dispersion in optical fiber

No show list; 2

E3-5	Oral	Zhang FuMin, Qu XingHua and Shi Guang, Tianjin University, China,	Assessment of uncertainty in laser tracker
F1-1	Invited	Hubing Du, Hong Zhao, Bing Li, Zhengwei Li, Liang Zheng and Leilei	General method for phase shifting shadow moiré by iterative least-squares fitting
F1-3	Oral	Hongtao Wang, Weishi Li, Dajun Gao and Yetai Fei, Hefei Univ. of Technology, China,	Automatic feature recognition in coordinate metrology
F3-2	Oral	Baoping Tang, Shaojiang Dong, Tao Song, Chongqing Univ., China,	Morphological filter optimized by particle swarm optimization for noise removal
F5-1	Invited	Yuriy N. Kulchin, Oleg B. Vitrik and Nataliya P. Kraeva, Far Eastern Br.	Distance optical method for monitoring the parameters of hydroacoustic vibrations
F5-3	Oral	Xing Fu, Yunqiang Liu, Mingyan Liu, Yong Wu, Xiaotang Hu, Tianjin Univ., China,	Measuring and fabricating of micro-lens on photosensitive glass with UV nanosecond laser pulse
P-01	Poster	Yufen DENG , Junjie GUO , Jindong WANG, Xi'an Jiaotong Univ., China,	The research of a fast measurement method for large horizontal lathe geometric precision detection based on laser tracker
P-02	Poster	Dongmei Guo, Nanjing Normal Univ., China,	A new quadrature demodulation technique for self-mixing interference signal analysis
P-05	Poster	Qu Xinghua, Chen Yong, Yang Xiaojun, Ding Beisheng, Ouyang Jianfei, Tianjin Univ.,China,	Research on an automatic measuring technique for mechanical characteristic in industrial circuit breaker
P-06	Poster	Li Hongli, Chen Xiaohuai, Wang Hongtao and Cao Xuemei, Hefei Univ. of Technology, China,	Uncertainty evaluation in geometric length measurement by CMM based on Monte Carlo Method
P-08	Poster	Wang Lei, Tan Jiubin, Liu Pei, Wang Long and Yang Wenguo, Harbin Inst. of Technology, China,	A method of identifying and correcting the bias error of sensor using elliptic standard in the roundness measurement
P-11	Poster	Carl Martin Wehmer, Mauricio Nogueira Frota, Pontifical Catholic Univ. of Rio de Janeiro, Brazil,	Measurement technology: an effective strategy for international trade
P-12	Poster	Yu.N. Kulchin, O.B. Vitrik and S.O. Gurbatov, IACP FEB RAS, Russia,	Optical fiber accelerometer based on the single-mode fiber waveguide with low normalized frequency
P-21	Poster	Mohammad Taleghani, Islamic Azad University, Iran,	Executive information systems development life cycle

Journal publication list

Publication on SCI journals

1. Measurement Science and Technology

- Published on the special section for ISMTII 2011 (Vol. 23, No. 5, May 2012)
- Recommended/published articles : 30/11

Authors	Title	Organization	Country
Christian Schrader and Rainer Tutsch	Calibration of a microprobe array	Technische Universität Braunschweig	Germany
Fangfang Liu, Yetai Fei, Haojie Xia and Lijuan Chen	A new micro/nano displacement measurement method based on a double-fiber Bragg grating (FBG) sensing structure	Hefei Univ. of Technology	China
Narin Chanthawong, Satoru Takahashi, Kiyoshi Takamasu, Hirokazu Matsumoto	High accuracy gauge block measurement using 2-GHz repetitions mode of a mode-locked fiber laser	Univ. of Tokyo	Japan
Liu Weiwen, Zhao Hui, Tao Wei, Lv Chunfeng and Qi Hongli	Technology requirement analysis and self-modification method for combinatorial code grating Eddy current absolute-position sensor	Shanghai Jiaotong Univ.	China
C.F. Cheung, M.J. Ren and L.B. Kong	A study of task specific uncertainty for least square based form haracterization of ultra-precision freeform surfaces	The Hong Kong Polytechnic Univ.	China
Otto Jusko, Harald Bosse, David Flack, Bjorn Hemming, Marco Pisani, and Ruedi Thalmann	A comparison of sensitivity standards in form metrology - final results of the EURAMET project 649	PTB	Germany
Ryota Kudo, Shin Usuki, Satoru Takahashi and Kiyoshi Takamasu	Experimental analysis of influence of error on super-resolution optical inspection using standing wave illumination	Univ. of Tokyo	Japan
Thilo Schuldt, Martin Gohlke, Harald Kögel, Ruven Spannagel, Achim Peters, Ulrich Johann, Dennis Weise, and Claus Braxmaier	Picometer interferometry and its application in dilatometry and surface metrology	HTWG	Germany
Wolfram Lyda, Marc Gronle, David Fleischle, Florian Mauch and Wolfgang Osten	Advantages of chromatic-confocal spectral interferometry in comparison to chromatic confocal microscopy	Univ. Stuttgart	Germany
J. Song, W. Chu, T.V. Vorburger, R. Thompson, T.B. Renegar, A. Zheng, J. Yen, R. Silver and M. Ols	Development of Ballistics Identification – From Image Comparison to Topography Measurement in Surface Metrology	NIST	USA
Yuanfeng He, Yanlong Cao and Jiangxin Yang	Mass estimation of loose part in nuclear power plant based on multiple regression	Zhejiang Univ.	China

Journal publication list

Publication on SCI journals

2. International Journal of Precision Engineering and Manufacturing

- Published after the process of peer-review
- Recommended/submitted/published articles : 26/16/8

Authors	Title	Organization	Country	Vol.(Issue)
Chao-Ching Ho and Ming-Chen Chen	Nighttime Fire Smoke Detection System Based on Machine Vision	Nat'l. Yumin Univ. of Sci. and Technology	Taiwan	12(8)
Chen Yuxue, He Zhenzhi and Yang Shunian	Research on on-line automatic diagnostic technology for scratch defect of rolling element bearings	Huazhong Univ. of Science and Technology	China	13(3)
Wolfram Lyda, Avinash Burla, Tobias Haist, Marc Gronle and Wolfgang Osten	Implementation and analysis of an automated multiscale measurement strategy for waver scale inspection of micro electromechanical systems	Stuttgart Univ.	Germany	13(4)
Masato Hayashi and Makoto Fukuda	Generation of nanometer displacement using reduction mechanism consisting of torsional leaf spring hinges	Hirosaki Univ.	Japan	13(5)
Li Guo, Weiping Yan, Yinghua Xu, Yiru Chen	Valveless piezoelectric micropump of parallel double chambers	Dalian Univ. of Technology	China	13(5)
JungChul Lee, Wei Gao, Yuki Shimizu, Jooho Hwang, Jeong Seok Oh and Chun Hong Park	Spindle error motion measurement of a large precision roll lathe	Tohoku Univ.	Japan	13(6)
Takashi Harada, Ke Dong and Tomoyuki Itoigawa	Optimum design of active scanning probe using parallel link mechanism	Kinki University	Japan	13(8)
S.J. Zhang, S. To, C.F. Cheung and J.J.Du	3D measurement of tool wear with the in-process image based on a new auto-regressive calibration algorithm in ultra-precision raster milling	Hong Kong Polytech. Univ.	China	13(9)

3. Online proceedings

- Visit the webpage : <http://www.ismtii2011.org/>
- All the related documents and proceedings of ISMTII 2011

Welcome !

Wish all of you have memorable days at ISMTII 2011.

