

ISPEMI 2014

9th International Symposium on

Precision Engineering Measurements and Instrumentation

August 8-10 2014, Changsha, China

Schedule-at-a-Glance

ISPEMI 2014							
August 8, 2014		August 9, 2014		August 10, 2014		August 11-August 13	
8:00-20:00	Reception and Registration	8:30-8:50	Opening Ceremony	8:00-9:50	Session 1-4	Sightseeing tour to Zhangjiajie : Departure time, morning August 11, 2014 and return to Changsha at 6:00 pm, August 13, 2014	
		8:50-9:45	Plenary Session I				
		9:45-10:00	Coffee Break	9:50-10:25	Poster Session (Odd Poster ID)		
		10:00-11:50	Plenary Session II	10:25-12:15	Session 5-8		
		11:50-12:15	Photography				
		12:15-14:00	Lunch	12:15-13:30	Lunch		
		14:00-15:50	Plenary Session III	13:30-15:20	Session 9-12		
		15:50-16:05	Coffee Break	15:20-15:55	Poster Session (Even Poster ID)		
		16:05-17:55	Plenary Session IV	15:55-17:45	Session 13-16		
		17:55-20:00	Dinner	18:00-20:00	Closing Ceremony		

Time for presentation

Including question-and-answer period

Plenary speech	55 min
Invited talk	25 min
Ordinary presentation	15 min

Program on Aug. 9, 2014: Plenary Session

Time	Title of plenary speaking	Speaker	Organization
8:30-8:50	Opening Ceremony		
8:50-9:45	Plenary Session I (Chairman: Prof. Ahmed Abou-zeid)		
8:50-9:45	Three-dimensional imaging in optical microscopy	Prof. Tony Wilson	University of Oxford, UK
9:45-10:00	Coffee Break		
10:00-11:50	Plenary Session II (Chairman: Prof. Kuang-Chao Fan and Dr. Michael Krystek)		
10:00-10:55	Validating numerical algorithms in the field of metrology	Prof. Frank Härtig	Physikalisch-Technische Bundesanstalt (PTB), Germany
10:55-11:50	Photoacoustic Tomography: ultrasonically beating optical diffusion and diffraction	Prof. Lihong V. Wang	Washington University in St. Louis, USA
11:50-12:15	Photography		
12:15-14:00	Lunch		
14:00-15:50	Plenary Session III (Chairman: Prof. Tony Wilson and Prof. Seung-Woo Kim)		
14:00-14:55	NanoLegoTronics - a technology for the More-than-Moore era	Prof. Lars Montelius	Lund University, Sweden
14:55-15:50	Manipulating electromagnetic waves with 3D chiral metamaterials and 2D metasurfaces	Prof. Shuang Zhang	University of Birmingham, UK
15:50-16:05	Coffee Break		
16:05-17:55	Plenary Session IV (Chairman: Prof. Richard Leach and Prof. Ling Hao)		
16:05-17:00	High precision fabrication of antennas	Prof. Saulius Juodkazis	National Physical Laboratory (NPL), UK
17:00-17:55	Organic materials and semiconductor devices detected by Terahertz technology	Prof. Yiming Zhu	University of Shanghai for Science and Technology, China
17:55-20:00	Dinner		

Program on Aug. 10, 2014: Sub-session

	Room 1	Room 2	Room 3	Room 4	Room 5
	Session 1	Session 2	Session 3	Session 4	
8:00-9:50	Instrumentation Theory and Methodology (1)	Measurement for Precision and Ultra-Precision Machining	Novel Instrument and Measurement System (1)	Novel Instrument and Measurement System (2)	
Chairman	Dr. Michael Krystek	Dr. Gaoliang Dai	Prof. Kuang-Chao Fan	Prof. Konyakhin Igor	
	Prof. Jiwen Cui	Prof. Donglin Peng	Prof. Ling Hao	Prof. Qibo Feng	
9:50-10:25	Poster Session / Coffee Break (Odd Numbered Poster ID Will be Attended)				
	Session 5	Session 6	Session 7	Session 8	
10:25-12:15	Modern Optics and Instruments for Precision Measurement (1)	Sensors, Actuators and Application (1)	Micro and Nano Metrology, Macro Metrology	Laser Measurement Techniques and Instruments (1)	
Chairman	Prof. Jun Yang	Dr. Martin Booth	Prof. Ying Xu	Prof. Ahmed Abou-zeid	
	Prof. Liang-Chia Chen	Dr. Zi Xue	Prof. Xiaodong Wang	Prof. Weihu Zhou	
12:15-13:30	Lunch				Industrial exhibition
	Session 9	Session 10	Session 11	Session 12	
13:30-15:20	Instrumentation Theory and Methodology (2)	Instrument and Measurement System Calibration (1)	Signal Processing and Image Processing	Sensors, Actuators and Application (2)	
Chairman	Prof. Frank Härtig	Prof. Baoli Yao	Prof. Yongying Yang	Prof. Ming Chang	
	Prof. Zhaoyao Shi	Prof. Liandong Yu	Prof. Dengxin Hua	Prof. Yan Zhang	
15:20-15:55	Poster Session / Coffee Break (Even Numbered Poster ID Will be Attended)				
	Session 13	Session 14	Session 15	Session 16	
15:55-17:45	Laser Measurement Techniques and Instruments (2)	Novel Instrument and Measurement System (3)	Modern Optics and Instruments for Precision Measurement (2)	Instrument and Measurement System Calibration (2)	
Chairman	Prof. Seung-Woo Kim	Prof. Sitian Gao	Prof. Richard Leach	Prof. Ling Hao	
	Prof. Benyong Chen	Prof. Changcai Cui	Prof. Jian Liu	Prof. Peng Jin	
18:00- 20:00	Closing Ceremony				

Oral Presentation

Time	Abstract ID	Report ID	Authors	Author affiliation	Title
Session 1 Instrumentation Theory and Methodology (1) (Chairman: Dr. Michael Krystek and Prof. Jiwen Cui)					
8:00-8:25		S1-1 (Invited talk)	Martin Booth	Department of Engineering Science, University of Oxford	Dynamic optics for microscopy and photonic engineering
8:25-8:50		S1-2 (Invited talk)	Yan Zhang	Department of Physics, Capital Normal University	Full vector optical field modulation based on metasurface
8:50-9:05	1_707	S1-3	Wei Gao, Kaiping Yu	Department of Astronautic Science and Mechanics, Harbin Institute of Technology (HIT)	A New Method for Determining the Tikhonov Regularization Parameter of Load Identification
9:05-9:20	1_515	S1-4	GUO Jian-Qiang, CAI Yi-He*, WANG Ze-Yong, GAO Xiao-Rong, JIANG Xiang_Dong, LI Xi	Institute of Optoelectronic Engineering, School of Physical Science and Technology, Southwest Jiaotong University	The Research and Experiment of Wheel Rim Defects Based on Immersion Scan of Phased Array Ultrasonic Flaw Testing
9:20-9:35	1_687	S1-5	Zili Zhang*, Weihu Zhou, Han Zhu, Xinlong Lin	Academy of opto-electronics, Chinese academy of sciences	A novel method for measuring transit tilt error in laser trackers
9:35-9:50	1_693	S1-6	CHEN Hong-fang* ^{1a} , ZHAO Yun* ^{1b} , LIN Jia-chun* ^{1c} , GUO Mian* ^{1d}	College of Mechanical Engineering and Applied Electronics Technology, Beijing University of Technology	A method based on noise signal for gear defect intelligent detection
Session 2 Measurement for Precision and Ultra-Precision Machining (Chairman: Dr. Gaoliang Dai and Prof. Donglin Peng)					
8:00-8:25	1_807	S2-1 (Invited talk)	Cui Changcai*, Yu Qing, Chen Weipeng, Ye Ruifang, Huang Fugui and Zhang Rencheng	College of Mechanical Engineering and Automation, Huaqiao University	The grinding wheel surface topography analysis using parameters Saland Str in ISO Standard 25178-2

8:25-8:50	2_772	S2-2 (Invited talk)	Yongying Yang ^{*a} , Shitong Wang ^a , Pin Cao ^a , Dong Liu ^a , Lu Li ^a , Lu Yan ^a , Chen Li ^a , Shibing Xie ^{a,b} , Yang Li ^{a,b} , Yangjie Chen ^b	^a State Key Laboratory of Modern Optical Instrumentation, Zhejiang University, China ^a Dept. of Optical Engineering, Zhejiang University, China ^b Hangzhou Zernike Optical Technology Co., Ltd. China	A high-resolution detecting system based on machine vision for defects on large aperture and super-smooth surface
8:50-9:05	2_813	S2-3	Yanling Tian ¹ , Xianping Liu ¹ , Houjun Qi ² , Jian Wang ²	¹ School of Engineering, University of Warwick, Coventry, CV4 7AL, UK ² Tianjin Key Laboratory of High Speed Cutting and Precision Machining, Tianjin University of Technology and Education	Fabrication and characterisation of stainless steel superhydrophobic surfaces machined by WEDM technique
9:05-9:20	2_551	S2-4	Zaihua Yang ^a , Laiying Tang ^a , Wangmin Yi ^a , Tao Liu ^a	^a Beijing Institute of Spacecraft Environment Engineering	The position and orientation measurement technology in the Lunar Rover movement test
9:20-9:35	2_583	S2-5	Cheng Yang, Li Dongsheng, Hu Jiacheng, Li Jiafu	College of Metrology&Measurement Engineering, China Jiliang University	Theory Research and Experimental Verification on Gas-impedance Model of Aerostatic Restrictor System
9:35-9:50	2_702	S2-6	Zhang Min ^a , Wang Wen ^{*.a} , Xiang Kui ^b , Lu Keqing ^a , Fan Zongwei ^a , Chen Zichen ^b	^a School of Mechanical Engineering, Hangzhou Dianzi University, ^b Department of Mechanical Engineering, Zhejiang University	Simulation on a Novel Cylindrical Capacitive Sensor for Five Degree-of-Freedom Motions Measurement of High Precision Spindle
Session 3 Novel Instrument and Measurement System (1) (Chairman: Prof. Kuang-Chao Fan and Prof. Ling Hao)					
8:00-8:25	3_638	S3-1 (Invited talk)	P. C. Chen ^a , M. Chang ^{*.a,b,c} , B. C. Chen ^a	^a Department of Mechanical Engineering, Chung Yuan Christian University, Chung Li, Taiwan 32023 ^b Center for Biomedical Technology, Chung Yuan Christian University, Chung Li, Taiwan 32023 ^c The State Key Laboratory of Digital Manufacturing Equipment and Technology, Huazhong University of Science and Technology, Wuhan	High resolution in-line optical inspection system for flat screen products

8:25-8:50	10_810	S3-2 (Invited talk)	Baoli Yao, Ming Lei, Dan Dan, Xing Zhou, Jia Qian, Yanlong Yang, Shaohui Yan, Junwei Min, Peng Gao, Tong Ye	State Key Laboratory of Transient Optics and Photonics, Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences	Structured illumination microscopy
8:50-9:05	3_482	S3-3	Fangyuan Zhou ¹ , Liping Zhou ¹ , Long Xu* ¹ , Jianghong Gan ¹ , Wenlong Lu ¹ , Xiaojun Liu ¹	¹ The State Key Laboratory of Digital Manufacturing Equipment and Technology, School of Mechanical Science and Engineering, Huazhong University of Science and Technology	A new method for generation of non-diffraction grating structured light with phase shift
9:05-9:20	3_534	S3-4	Lu Qipeng*, Gong Xuepeng, Lu Guoqing	State Key Laboratory of Applied Optics, Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences	Establishment of theoretical model and experimental equipment for researching on carbon contamination of EUV multi-layer mirror
9:20-9:35	3_570	S3-5	Wang Jintao* ^a , Liu Ziyong ^a , Tong Lin ^a	^a National Institute of Metrology	Research on Dual-Wavelength Photometric Method for Micro Liquid Volume Measurement
9:35-9:50	3_611	S3-6	Elena V. Gorbunova, Aleksandr N. Chertov, Elena A. Lastovskaya, Valery V. Korotaev and Vadim E. Norko	ITMO University	Measurement of the spectral characteristics and color parameters of flat objects

**Session 4 Novel Instrument and Measurement System (2)
(Chairman: Prof. Konyakhin Igor and Prof. Qibo Feng)**

8:00-8:25	15_031	S4-1 (invited talk)	Ying Xu	Sanying Precision Instruments Ltd	A 3D X-ray Microscopy and Its applications
8:25-8:50	15_038	S4-2 (invited talk)	Jun Yang	National University of Defense Technology	Collaborative Innovation and Practice of Space Instruments in NUDT
8:50-9:05	3_665	S4-3	Lin Fenfen ¹ , Chang Suping ^{1*} , Sun Yanling ² , Xie Tiebang ¹	¹ School of Mechanical Science and Engineering, Huazhong University of Science and Technology, ² School of Mechanical & Automotive Engineering, Hubei University of Arts and Science	Multifunction surface measurement system based on focusing optical stylus interference and confocal image

9:05-9:20	3_792	S4-4	Lou Zhifeng ¹ , Wang Xiaodong ² , You Bo ¹ , Xu Yang ¹ , Zhang Xiaozhe ¹	1.Key Laboratory for Precision & Non-traditional Machining of Ministry of Education, Dalian, Liaoning 116023, China; 2.Key Laboratory for Micro/Nano Technology and System of Liaoning Province	A Precision Press-fit Instrument for Assembling Small Parts
9:20-9:35	15_026	S4-5	Ruth Pearce ¹ , Xinran Tan ¹ , Rui Wang ^{1,2} , Trupti Patel ^{1,3} , John Gallop ¹ , Andrew Pollard ¹ , R. Yakimova ⁴ , Ling Hao ^{1,2*}	1National Physical Laboratory, Teddington, Middlesex, TW11 0LW, UK; 2Department of Materials, Imperial College London, SW7 2AZ, UK;3London Centre for Nanotechnology, University College London, WC1H 0AH, UK;4Department of Physics, Chemistry and Biology (IFM), Linkoping University, S-581 83 Linkoping, Sweden	Investigations of the effect of SiC growth face on graphene thickness uniformity and electronic properties
9:35-9:50	15_027	S4-6	Rui Wang ^{1,2} , Ruth Pearce ¹ , Trupti Patel ^{1,3} , Bo Li ^{1,4} , Xinran Tan ^{1,5} , Fang Zhou ³ , John Gallop ¹ , Andrew Pollard ¹ , Norbert Klein ² , Jian Liu ⁵ , Richard Jackman ³ , Amaia Zurutuza ⁶ , Ling Hao ^{1,2*}	¹ National Physical Laboratory, Teddington, Middlesex, TW11 0LW, UK ² Department of Materials, Imperial College London, SW7 2AZ, UK ³ London Centre for Nanotechnology, University College London, WC1H 0AH, UK ⁴ University of Surrey, Guildford, Surrey, GU2 7XH ⁵ Ultra-Precision Optoelectronic Instrument Engineering Center, Harbin Institute of Technology, No. 92, West Da-Zhi Street, Harbin 150001, Heilongjiang, China ⁶ Graphenea S.A., Tolosa Hiribidea, 76 E-20018 Donostia, San Sebastian, Spain	Characterisation of CVD graphene using combined scanning probe microscopies
Session 5 Modern Optics and Instruments for Precision Measurement (1) (Chairman: Prof. Jun Yang and Prof. Liang-Chia Chen)					
10:25-10:50	4_541	S5-1 (Invited talk)	Igor A. Konyakhin* , Fedor V. Molev, Alexey Konyakhin, Renpu Li	Dept. of Optic-electronic Devices and Systems, ITMO University	Multipurpose optic-electronic autocollimators for measuring the deformations of the axle at the millimeter wave range radiotelescope

10:50-11:15	15_025	S5-2 (Invited talk)	Ling Hao	National Physical Laboratory, Department of Materials, Imperial College London, UK	Microwave near-field methods for graphene NEMS
11:15-11:30	4_542	S5-3	Igor A. Konyakhin*, Andrew V. Petrochenko, Nina S. Tolochek	Dept. of Optic-electronics Devices and Systems, ITMO University, 49 Kronverksky Prospect, Saint Petersburg, Russia, 197101	Optic-electronic systems for measurement the position of radio-telescope components
11:30-11:45	4_580	S5-4	Valery V. Korotaev, Victoria A. Ryzhova, Anna V. Trushkina	ITMO University	Analysis of the effect anisotropic retards collimation turns on polarization and energy radiation parameters
11:45-12:00	10_517	S5-5	Junbo Yang ^{*a,b} , Suzhi Xu ^a , Jingjing Zhang ^a , Shengli Chang ^a	^a Center of Material Science, National University of Defense Technology, Changsha 410073, China; ^b State Key Laboratory on Advanced Optical Communication Systems and Networks, Peking University, Beijing 100871, China	Study on controllable LC-micro blazed grating beam deflector in free space
12:00-12:15	4_622	S5-6	Hongyi Bai, Lili Guo, Zhi Zhong, MingguangShan*, YabinZhang	College of Information and Communication Engineering, Harbin Engineering University, Harbin, Heilongjiang 150001 China	Reflective off-axis point-diffraction interferometer based on Michelson architecture
Session 6 Sensors, Actuators and Application (1) (Chairman: Dr. Martin Booth and Dr. Zi Xue)					
10:25-10:50	3_690	S6-1 (Invited talk)	Shiyuan LIU*, Xiuguo CHEN, and Chuanwei ZHANG	State Key Laboratory of Digital Manufacturing Equipment and Technology, Huazhong University of Science and Technology, Wuhan 430074, China	Development of a broadband Mueller matrix ellipsometer as a powerful tool for nanostructure metrology
10:50-11:15		S6-2 (Invited talk)	Peng Jin	Center of Ultra-precision Optoelectronic Instrument, Harbin Institute of Technology	The fabrication of MOE and its application

11:15-11:30	5_524	S6-3	Guang Li ^{a*} , Wei Xu ^{b,c} , Xuguang Huang ^c	^{a*} Guangdong Institute of Science and Technology, Jinwan District Zhuhai, Guangdong 519090,China; ^b Center of Advanced Microelectronic Devices, National University of Singapore Research Institute, Suzhou 215000, China; ^c Laboratory of Nanophotonic Functional Materials and Devices, School for Information and Optoelectronic Science and Engineering, South China Normal	A Simple Fiber-optic Humidity Sensor Based on Water-absorption Characteristic of CAB
11:30-11:45	3_650	S6-4	Rui-Jun Li ^{*a, c} , Meng Xiang ^a , Kuang-Chao Fan ^{a, b} , HaoZhou ^a , Jian Feng ^a	^a School of Instrument Science and Opto-electric Engineering, Hefei University of Technology, Hefei, China, 230009; ^b Department of Mechanical Engineering, National Taiwan University, Taipei, 106 ^c Anhui Electrical Engineering Professional Technique College, Hefei, China, 230051	Analysis and optimal design of a touch trigger probe
11:45-12:00	5_503	S6-5	Guo Jianqiang, Li Xi [*] , Gao Xiaorong, Wang Zeyong, Zhao Quanke	Nondestructive Testing Research Center, College of Physical Science and Technology, Southwest Jiaotong University, Chengdu, 610031, China	Research and Implementation on FPGA of Phased Array Ultrasonic Imaging of Total Focusing Method
12:00-12:15	1_708	S6-6	Y. Zhang ^{*a} , M. Shi ^b , K. Wang ^c , J. Sun ^a , C. Yang ^a , F. Scopesi ^c , P. Makobore ^f , C. Chin ^g , G. Serra ^e , Y.A.B.D. Wickramasinghe ^d , P. Rolfe ^{a,d,e}	^a School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China; ^b The First Affiliated Hospital of Harbin Medical University, Harbin, China; ^c School of Computer Science and Technology, Harbin Institute of Technology, Harbin, China; ^d Oxford BioHorizons Ltd, Maidstone, UK ^e Neonatal Intensive Care Unit, Istituto Gianina Gaslini, University of Genova, Genova, Italy; ^f Uganda Industrial Research Institute, Kampala, Uganda; ^g Functional NeuroRehab Centre Pte Ltd., 42 Jalan Pemimpin, Singapore	Recovering fNIRS brain signals: physiological interference suppression with independent component analysis
Session 7 Micro and Nano Metrology, Macro Metrology (Chairman: Prof. Ying Xu and Prof. Xiaodong Wang)					
10:25-10:50	15_168	S7-1 (Invited talk)	Richard Leach	National Physical Laboratory	On-line surface metrology challenges

10:50-11:15		S7-2 (Invited talk)	Sitian Gao	National Institute of Metrology	The design and performance of the long range metrological atomic force microscope
11:15-11:30	9_685	S7-3	Tien-Tung Chung ^{*a} , Wan-Jou Li ^a , Sheng-Yuan Chen ^a , Chi-Hou Hoi ^a	^a Department of Mechanical Engineering, National Taiwan University, Taiwan	Measurement of manufacturing resolution for Two Photon Polymerization structures with different manufacturing parameters
11:30-11:45	9_811	S7-4	Bin Xu ^{*a} , Wei Chen ^a , Yubo Huang ^a , Shiping Zhao ^a	^a School of Manufacturing Science and Engineering, Sichuan University, Chengdu, China	Surface profile measurement of microstructures with steep slopes based on a sample-tilting strategy
11:45-12:00	15_010	S7-5	LI Qian, LIU Xiaojun, LEI Zili, ZHENG Yi, CHEN Liangzhou [*] , LU Wenlong	School of Mech. Sci. &Eng, Huazhong Univ. of Sci. and Tech., Wuhan, China, 430074	A vertical scanning positioning system with large range and nanometer resolution for optical profiler
12:00-12:15	6_605	S7-6	Linfu Li ^{a,b} , Xiangchao Zhang ^a , Hao Zhang ^a , Min Xu ^a	^a Shanghai Engineering Research Center of Ultra-Precision Optical Manufacturing, Fudan University, Shanghai, 200438, PR China ^b School of Information Engineering, Guizhou Minzu University, Guiyang, 550025, PR China	Multiscale Analysis of Surface Morphologies by Curvelet and Contourlet Transforms
Session 8 Laser Measurement Techniques and Instruments (1) (Chairman: Prof. Ahmed Abou-zeid and Prof. Weihu Zhou)					
10:25-10:50	7_635	S8-1 (Invited talk)	Seung-Woo Kim ^{*a} , Young-Jin Kim ^a , Sangwon Hyun ^a , Byung Jae Chun ^a , Yoon-Soo Jang ^a	^a Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology, Science Town, Daejeon, South Korea 305-701.	Recent advances in absolute distance measurements using femtosecond light pulses
10:50-11:15	15_037	S8-2 (Invited talk)	Prof. Benyong Chen	Zhejiang Sci-Tech University (China)	Laser synthetic wavelength interferometer and its application

11:15-11:30	3_532	S8-3	Yongbo Li* ^a , Satoshi Honda ^a , Kentaro Iwami ^a , Yoshihiro Ohta ^b , and Norihiro Umeda* ^a	^a Department of Mechanical Systems Engineering, Tokyo University of Agriculture and Technology, Tokyo, Japan, 184-8588; ^b Department of Biotechnology and Life Science, Tokyo University of Agriculture and Technology, Tokyo, Japan, 184-8588	Analysis of mitochondrial mechanical dynamics using a confocal laser scanning microscope with a bent optical fiber
11:30-11:45	4_626	S8-4	Xiangsong Meng, Fumin Zhang*, Xinghua Qu	State Key Laboratory of Precision Measurement Technology and Instrument, Tianjin University, Tianjin 300072, China	A method to optimize the signal processing of frequency modulated continuous wave laser ranging system
11:45-12:00	7_571	S8-5	Haitao Wang ^a Wei Zeng ^a Xianming Yang ^c GuiYun Tian ^{a,b} Ruipeng Guo ^a Guoxing Hu ^a Min Wan ^a	^a College of Automation Engineering, Nanjing university of Aeronautics and Astronautics, Nanjing210016, China; ^b School of Automation Engineering, University of Electronic Science and Technology of China, Chengdu, Sichuan, 611731, China; ^c Yantai Furun Industrial Company with Limited Liability, Yantai, 264670 China	Study on laser ultrasonic defect signal detection technology based on spectral analysis
12:00-12:15	7_642	S8-6	Mingzhao He*, Jianshuang Li, Dongjing Miao	National Institute of Metrology, No. 18, North 3 rd Ring Road East, Beijing,100029,P. R. China	Equivalent common path method in large-scale laser Comparator
Session 9 Instrumentation Theory and Methodology (2) (Chairman: Prof. Frank Härtig and Prof. Zhaoyao Shi)					
13:30-13:55		S9-1 (Invited talk)	Michael Krystek	Physikalisch-Technische Bundesanstalt (PTB)	The Global Importance of Metrological Traceability
13:55-14:10	3_620	S9-2	Lei Du, Qiao Sun, Yin Bai, Jie Bai, Changqing Cai, Yue Zhang	Division of Mechanics and Acoustics, National Institute of Metrology, Beijing 100013, China	Uncertainty evaluation of standard equipment for field tests of vehicle speed-measuring devices based on actual traffic

14:10-14:25	11_537	S9-3	Kaiping Yu ^a , Ying Wu ^{*a}	^a Department of Astronautic Science and Mechanics, Harbin Institute of Technology, 92 West Dazhi Street, Nangang District, Harbin, China	Active Micro-vibration Control of a Six-DOF Manipulator with Parameter Uncertainties via μ -Synthesis
14:25-14:40	11_564	S9-4	LI Dan, WANG Zhongyu	School of Instrumentation Science and Opto-Electronics Engineering, Beijing University of Aeronautics and Astronautics, Beijing 100191, China	Small sample analysis of vision measurement error
14:40-14:55	11_808	S9-5	Pei Liu ^{*a, b} , Otto Jusko ^a , Rainer Tutsch ^b	^a Physikalisch-Technische Bundesanstalt, Bundesallee 100, 38116 Braunschweig, Germany ^b Technische Universität Braunschweig, Institute für Produktionsmesstechnik, Schleinitzstraße 20, D-38106 Braunschweig, Germany	Application of data fusion and uncertainty evaluation for the 3D cylindrical form data
14:55-15:10		S9-6	Hu LIN ^a , Zi XUE ^{*a} , Guoliang YANG ^a , Yao HUANG ^a , Heyan WANG ^a	^a National institute of metrology, No.18, bei san huan dong lu, Chaoyang dist, Beijing, China, 100013	Key technologies for accuracy enhancement of a gear measuring machine

Session 10 Instrument and Measurement System Calibration (1)
(Chairman: Prof. Baoli Yao and Prof. Liandong Yu)

13:30-13:55		S10-1 (Invited talk)	Zi Xue	National Institute of Metrology	Two-dimensional measuring instrument with the laser system for the calibration of high accurate grid plates
13:55-14:10	8_464	S10-2	SUN Qiao ^{*a, b} , WANG Jian-lin ^a , HU Hong-bo ^b	^a Beijing University of Chemical Technology, 15 BeiSanHuanDongLu, Beijing, China 100029; ^b National Institute of Metrology, 18 BeiSanHuanDongLu, Beijing, China 100013	Research and implementation of a primary low-g shock standard by laser interferometry
14:10-14:25	8_545	S10-3	GAN Xiaochuan ^{*a} , SUN Anbin ^a , YE Xin ^b , MA Liqun ^a	^a Changcheng Institute of Metrology & Measurement, 1066 Post Box, Beijing, P.R.China 10095; ^b Zhejiang Institute of Metrology, 300 Xiasha Road, Hangzhou, Zhejiang Province, P.R.China 310018	A Non-contact Rotation Angle Measurement Method with Solo Camera

14:25-14:40	8_630	S10-4	Yao Huang ^{*a} , Zi Xue ^a , He Yan Wang ^a	^a National Institute of Metrology, China, No.18, Bei San Huan Dong Lu, Beijing, P.R.China 100013	A Comparison between Angle Interferometer and Angle Encoder in Calibration of Autocollimator
14:40-14:55	8_490	S10-5	WANG Daodang ^{a, c} , CHEN Xixi ^a , WANG Fumin ^a , SHI Yushu ^{b, c} , KONG Ming ^{a*} , ZHAO Jun ^a	^a College of Metrology and Measurement Engineering, China Jiliang University, Hangzhou, 310018, China; ^b National Institute of Metrology, Beijing 100013, China; ^c State Key Laboratory of Precision Measuring Technology and Instrumentation, Tianjing University, Tianjing, 300072, China	Calibration of Size Error in Industrial CT System with Calotte Cube
14:55-15:10	7_649	S10-6	Lei Liao and Guanhao Wu [*]	State Key Laboratory of Precision Measurement Technology and Instruments, Department of Precision Instruments, Tsinghua University, Beijing 100084, China	Absolute distance measurement by two-color heterodyne pulse-topulse interferometry of optical frequency combs
Session 11 Signal Processing and Image Processing (Chairman: Prof. Yongying Yang and Prof. Dengxin Hua)					
13:30-13:55	4_829	S11-1 (Invited talk)	Zhengjun Liu ^{a,b,*} , ChengGuo ^a , Junning Cui ^a and Qun Wu ^b	^a Department of Automatic test and Control, Harbin Institute of Technology, Harbin 150001, China; ^b Post-doctoral Mobile Station of Electronic Science and technology, Harbin Institute of Technology, Harbin 150001, China	Super-resolution imaging based on virtual Airy spot
13:55-14:20	8_749	S11-2 (Invited talk)	Ping Yang ^{*a} , Guangzhen Xing ^b	^a Division of Mechanics and Acoustics, National Institute of Metrology, Beijing, 100029, China; ^b Institute of Ultra-precision Optoelectronic Instrument Engineering, Harbin Institute of Technology, Harbin 150080, China	Working-point control technique for the homodyne interferometry inhydrophone calibration

14:20-14:35	11_728	S11-3	Bai Yan ^{a,b,c} , Lu XiaoChun ^{a,b} , Han Tao ^{a,b,c} , WangJin ^{a,b,c}	^a National Time Service Center, Chinese Academy of Sciences, Xi'an, China; ^b Key Laboratory for Precise Navigation and Timing Technology, National Time Service Center, Chinese Academy of Sciences, Xi'an, China; ^c Universisty of Chinese Academy of Sciences, Beijing, China	A New Wideband Interference Suppression Method for GNSSSystem
14:35-14:50	4_675	S11-4	Dongzhao Huang ^{a*} , Qiancheng Zhao ^b , Tianlong Yang ^a	^a Hunan Provincial Key Laboratory of Health Maintenance for Mechanical Equipment, Hunan University of Science and Technology, Xiangtan City, Hunan Province, China ^b College of Electromechanical Engineering, Hunan University of Science and Technology, Xiangtan City, Hunan Province, China	Study on Calibration Method for Four-wheel Alignment Parameters Based on Computer Vision
14:50-15:05	15_022	S11-5	Peng Zhang, Jin Zhang*, Huaxia Deng*, Liandong Yu	School of Instrument Science and Optoelectronics Engineering, Hefei University of Technology, Hefei, Anhui, China. 230009	3D Reconstruction for Sinusoidal Motion Based on Different Feature Detection Algorithms
15:05-15:20	4_818	S11-6	Qiancheng Zhao*, Zhongzhu Chen, Tianlong Yang, Yafeng Zhao	College of Mechanical and Electrical Engineering, Hunan University of Science and Technology, Xiangtan, Hunan, China 411201	An algorithm for detecting sub-pixel corners of chessboard image based on gray symmetry factor
Session 12 Sensors, Actuators and Application (2) (Chairman: Prof. Ming Chang and Prof. Yan Zhang)					
13:30-13:55	15_035	S12-1 (Invited talk)	Chii-Ruey Lin ^{*a} , Da-Hua Wei ^a , Minh-Khoa BenDao ^{a,b,c} , Shih-Jie Liao ^b	^a Department of Mechanical Engineering and Institute of Manufacturing Technology, National Taipei University of Technology, Taipei, 106, Taiwan; ^b Institute of Mechatronic Engineering, National Taipei University of Technology, Taipei, 106, Taiwan	Preparation of diamond-like carbon films at room temperature for ultraviolet detecting application

13:55-14:20		S12-2 (Invited talk)	Donglin Peng	Chongqing University of Technology	Sensing Principle and Application of Time Grating
14:20-14:35	5_575	S12-3	Xiao-dong Wang ^a , Yong-jian Qin ^a , Yi Luo ^{a*}	^a Key Laboratory for Micro/Nano Technology and System of Liaoning Province, Dalian University of Technology, Dalian, Liaoning, China 116024	On Chip Micro Stress Test Circuit for Miniature Component
14:35-14:50	5_604	S12-4	Lu Shi, Yue Zhang, Weijie Dong	School of Electronic Science and Technology, Dalian University of Technology, Dalian 116023, China	Research on the Relationship Between the Curvature and the Sensitivity of Curved PVDF sensor
14:50-15:05	5_753	S12-5	Mi Qiushi, Gao Xiaorong, Zhu Hongna*, Guo Jianqiang, Wang Zeyong, Zhao Quanke	Southwest Jiaotong University, Photoelectric Engineering Institute, Chengdu, 610031, China	Wheel flats detection based on Fiber Optic Bragg Grating Array
15:05-15:20	5_582	S12-6	Ding Guoping ^a , Liu Jiayi ^b , Gao Bin ^a , Zhang Biyun ^a	^a School of Electromechanical Engineering, Wuhan University of Technology, Wuhan 430070, China ^b School of Information Engineering, Wuhan University of Technology, Wuhan 430070, China	Static and dynamic property experiments of Giant Magnetostrictive Material-fiber Bragg grating magnetic field sensors
Session 13 Laser Measurement Techniques and Instruments (2) (Chairman: Prof. Seung-Woo Kim and Prof. Benyong Chen)					
15:55-16:20	15_034	S13-1 (Invited talk)	Weihu Zhou^a	^aAcademy of opto-electronics, Chinese academy of sciences, 9 Dengzhuangnan Road, Beijing, China 100094	Research progress in laser tracking measurement system based on optical frequency comb
16:20-16:45	15_006	S13-2 (Invited talk)	A. Abou-Zeid	Physikalisch-Technische Bundesanstalt (PTB) Braunschweig, Germany	Refractive Index of Air for Interferometric Length Measurements
16:45-17:00	7_508	S13-3	Zhaoyong Wu, Liangliang Li, Zhengchun Du ¹	School of Mechanical Engineering, Shanghai Jiao Tong University, Dongchuan Road 800# , Shanghai (200240), PR China	Indirect Measurement of Machine Tool Motion Axis Error Based on Single Laser Tracker

16:00-17:15	7_637	S13-4	Miao Dong-jing ^a , Li Jian-shuan ^{*a} , He Ming-zhao ^a , Deng Xiang-rui ^a , Li Lian-fu ^a	^a National Institute of Metrology of China, Room 2022, Building 5, 18 North Third Ring Road East, Chao Yang District, Beijing China, 100013	Design and Research of 80 Meters Large-scale Laser Interferometric Measurement Standard Device
17:15-17:30	7_481	S13-5	Su Juan ^{a,b} , JiaoMingxing ^{*a} , Xing Junhong ^a , LiZhe ^a	^a Department of Precision Instruments, School of Mechanical and Instrumental Engineering, Xi'an University of Technology, Xi'an, Shaanxi 710048, People's Republic of China. ^b Key Laboratory of Photoelectric Logging and Detecting of Oil and Gas, Ministry of Education, Xi'an Shiyou University, Xi'an 710065, People's Republic of China	Design of Pound-Drever-Hall Laser Frequency Stabilization System without Phase Shifter
17:30-17:45	7_653	S13-6	Sun Shuanghua [*] , Xue Zi, Wang Heyan	National Institute of Metrology, No.18 Bei San Huan Dong Lu, Beijing, P.R.China 100029	Experiment Study on the Characteristics of Two-dimensional Line Scale Working Standard
Session 14 Novel Instrument and Measurement System (3) (Chairman: Prof. Sitian Gao and Prof. Changcai Cui)					
15:55-16:20	9_787	S14-1 (Invited talk)	WANG Xiaodong^{*a,b}, ZHANG Lanfang^b, XIN Mingzhe^b, LUO Yi^{a,b}, MA Tianming^c, CHEN Liang^c	^a Key Laboratory for Micro/Nano Technology and System of Liaoning Province, Dalian University of Technology, Dalian, 116024 ^b Key Laboratory for Precision and Non-traditional Machining Technology of Ministry of Education Dalian University of Technology, Dalian, 116024 ^c Flight Automation Control Research Institute, Aviation Industry Corporation of China, Xi'an, 710065, China	The precision measurement and assembly for miniature parts based on double machine vision systems
16:20-16:45		S14-2 (Invited talk)	LianDong YU	School of Instrumentation, Hefei University	Development of articulated coordinate measurement machines

16:45-17:00	3_511	S14-3	Yufu Qu*, Haijuan Yang	School of Instrument Science and Opto-Electronics Engineering, Beihang University, Key Laboratory of Precision Opto-Mechatronics Technology of Education Ministry, Beihang University	Research on high-speed nozzle swing angle measurement system of rocket engine based on monocular vision
17:00-17:15	3_646	S14-4	Qing Yu*, Chang-cai Cui, Wei Fan and Fu-gui Huang	Huaqiao University, College of Mechanical Engineering and Automation	Research on measurement of lateral dimension based on Digital Micromirror Device
17:15-17:30	3_786	S14-5	Zhi-Wei Xing ^{ab} , Miao Yu ^{ab} , Jie Fu ^{ab} , Lu-Jie Zhao ^a	^a College of Optoelectronic Engineering, Chongqing University, Chongqing, China 400044; ^b Key Laboratory for Optoelectronic Technology and Systems of Ministry of Education, Chongqing University	Development and experimental validation of a lateral MREs isolator
17:30-17:45	5_639	S14-6	Wei Liu ^{*a} , Xin Ma ^a , Zhiliang Shang ^a , Xiao Li ^a , Yang Zhang ^a , Xiaodong Li ^a , Zhenyuan Jia ^a	^a Key Laboratory for Precision and Non-traditional Machining Technology of the Ministry of Education, Dalian University of Technology, Dalian 116024,	High-precision position and attitude measurement method for high-speed rolling target in wind tunnel

Session 15 Modern Optics and Instruments for Precision Measurement (2)
(Chairman: Prof. Richard Leach and Prof. Jian Liu)

15:55-16:20	4_679	S15-1 (Invited talk)	Liang-Chia Chen*, Allan Shieh	Department of Mechanical Engineering, National Taiwan University	New One-shot Full-field Surface Profilometry Using Simultaneous Random-Speckle and Structured-Fringe Projection (SRSP)
16:20-16:45	15_040	S15-2 (Invited talk)	Hua Dengxin, Wang Yufeng, Gao Fei, Yan Qin, He Tingyao, Xin Wenhui	School of Mechanical and Precision Instrument Engineering, Xi'an University of Technology, Xi'an 710048, China	Combined Raman Lidar for Profiling of Atmospheric Water Vapor, Temperature, Aerosol and Clouds up to Height of 30 km
16:45-17:00	10_606	S15-3	Yu-Lin Gana, Li Wang ^{*a} , Rong-Ping Wang ^b	^a College of Applied Sciences, Beijing University of Technology, Beijing100124, China ^b Centre for Ultrahigh Bandwidth Devices for Optical Systems (CUDOS), Laser Physics Centre, Research School of Physics and Engineering, Australian National University, Canberra ACT 0200, Australia	Analysis of Raman spectra of GeAsSe glass using different Peak-fitting methods

17:00-17:15	4_584	S15-4	Yong Jiang ¹ , Quanyang Wang ^{1,2} , Zhi Zhong ^{2*}	¹ Space star technology co., LTD, Beijing, 100086 China, ² College of Information and Communication Engineering, Harbin Engineering University, Harbin, Heilongjiang 150001 China	Effect of reflector angle on the performance of an fiber bundle distance sensor with single mode illumination
17:15-17:30	4_539	S15-5	Yan Gao ¹ , Sijin Wu ^{1,*} , Lianqing Zhu ¹ , Lianxiang Yang ²	¹ School of Instrument Science and Opto-electronics Engineering, Beijing Information Science & Technology University, Beijing 100192, China ² Department of Mechanical Engineering, Oakland University, Rochester, MI. 48326, USA	Phase-shifting endoscopic digital speckle pattern interferometry for investigation of hidden diffuse surfaces
17:30:17:45	4_773	S15-6	Tu Shi ^a , Yongying Yang ^{*a} , Lei Zhang ^a , Dong Liu ^a and Yangjie Chen ^b	^a State Key Laboratory of Modern Optical Instrumentation, Zhejiang University ^a Dept. of Optical Engineering, Zhejiang University ^b Hangzhou Zernike Optical Technology CO., Ltd.	Alignment methods for partial compensation lens of aspheric testing in a non-null interferometer
Session 16 Instrument and Measurement System Calibration (2) (Chairman: Prof. Ling Hao and Prof. Peng Jin)					
15:55-16:20		S16-1 (Invited talk)	G. Dai, K. Hahm, J Fluegge, H Bosse	Physikalisch-Technische Bundesanstalt (PTB), 38116 Braunschweig, Germany	Reference nano dimensional metrology for supporting the next generation lithography
16:20-16:35	8_640	S16-2	LI Jianshuang ^{ab} , Zhang Manshan ^c HE Mingzhao ^a , MIAO Dongjing ^a , DENG Xiangrui ^a , and LI Lianfu ^a	^a National Institute of Metrology, No. 18, North 3rd Ring East Road, Beijing, 100029, China ^b School of Precision Instrument and Optoelectronics, Tianjin University, Tianjin, 300072, China ^c Beijing Institute of Metrology, No.12 AnYuan Dong Li Chaoyang Beijing, China	Study of Abbe Error Elimination Method in Large-scale Laser Comparator
16:35-16:50	7_794	S16-3	Wei Tao, Kai Jiang, Hui Zhao*	Department of Instrument Science and Engineering, Shanghai Jiaotong University, 800 Dongchuan Rd., Shanghai, China, 200240	Real time Measurement for Deformation of Large Expansion Frame Based on Retro-reflective Technique and Vision Method

16:50-17:05	8_574	S16-4	Yushu Shi ^{a,b} , Shi Li ^b , Xu Song ^c , Wei Li ^b , Qi Li ^b , Siwen Chen ^a , Xiaoping Song ^b , Sitian Gao ^{*b}	^a State Key Laboratory of Precision Measuring Technology and Instruments, Tianjin University, Tianjin 300072, China ^b National Institute of Metrology, Beijing 100029,China; ^c College of Metrological Technology and Engineering,China Jiliang University, Hangzhou 310018, China	Calibration Method for Length Measurement Error of Industrial CT Based on Forest-Balls
17:05-17:20	8_694	S16-5	Wang heyang*, Xue zi, Shen ni, Huang yao	^a National Institute of metrology, No.18 bei san huan dong lu , Beijing, CHINA 100029	High precision rotary table calibration method
17:20-17:35	10_660	S16-6	Jianfang He and Xinping Zhang	Institute of Information Photonics Technology and College of Applied Sciences, Beijing University of Technology, Beijing 100124, P. R. China	Flexible interference lithography using optical fibers for laser beam delivery

9:50-10:25, Aug. 10, 2014, Poster Presentation (Odd Numbered Poster ID Will be Attended)

15:20-15:55, Aug. 10, 2014, Poster Presentation (Even Numbered Poster ID Will be Attended)

Abstract ID	Poster ID	Author	Affiliation	Title
1_496	P1-1	Zhao Jun, Song Yuqian, Guo Tiantai*, Kong Ming, WangYingjun, Shan Liang	College of Metrology and Measurement Engineering, China Jiliang University258 Xueyuan Street, Hangzhou310018, China	An Improved LMD Algorithm Based on Extracting the Extrema of Envelope Curve
1_528	P1-2	LUO Zai, XU Chen-jie, HU Xiao-feng, JIANG Wen-song	College of Metrology Technology and Engineering, China Jiliang University, Hangzhou, 310018, China	The Finite Element Fatigue Analysis on the Rectangular Clutch Spring of Automatic Slack Adjuster ¹
1_544	P1-3	LUO Zai , WEI Qing , HU Xiaofeng	College of Metrology Technology and Engineering, China Jiliang University, Hangzhou, 310018, China	Failure analysis of energy storage spring of automobile composite brake chamber ¹
1_723	P1-4	Huiping Yang ^a , Guanbin Gao ^{*a}	^a Faculty of Mechanical and Electrical Engineering, Kunming University of Science and Technology, Kunming 650500, China	Study on the data acquisition system of articulated arm coordinate measuring machines
	P1-5	Gu Wei, Tan Jiubin and Huang Jingzhi	Center of Ultra-precision Optoelectronic Instrument, Harbin Institute of Technology	Theoretical Analysis and Experimental Verification of Harmonic Suppression in Multi-step Error Separation Technique
2_573	P1-6	Yu Wang ^{1,a} , Xingwang Li ² , Dongdong Ma ³ , Fugui Huang ^{4,b}	¹⁻⁴ College of Mechanical Engineering and Automation, Huaqiao University, Xiamen 361021, China	Application of harmonic analysis method based on two-dimensional Fourier transform to flatness error sampling
2_644	P1-7	Qu Zhi ^a , Yang Jun ^{*a} , Chen Jianyun ^a	^a College of Mechatronics Engineering and Automation, National University of Defense Technology, Changsha, China	Anti-jamming capability analysis of pseudorandom noise code ranging under narrowband interference

5_703	P1-8	Xiang Kui ^a , Wang Wen ^{*a,b} , Zhang Min ^b , Lu Keqing ^b , Fan Zongwei ^b , Chen Zichen ^a	^a Department of Mechanical Engineering, Zhejiang University, Hangzhou 310027, P.R.China ^b School of Mechanical Engineering, Hangzhou Dianzi University, Hangzhou 310018, P.R.China	Nonlinear Error Analysis of Cylindrical Capacitive Sensor for Measuring Rotation Error of High Precision Spindle Rotor
8_689	P1-9	Ouyang Puzhong ^{*a} , Zhang Zhonghua ^b	^a Changcheng Institute of Metrology and Measurement, Huanshan Village, Haidian District, Beijing, China, 100095 ^b National Institute of Metrology, No.18, Beisanhuan East Road, Beijing, China, 100029	Uncertainty Evaluation of Duration of AC Transient Signal Based on the Combination of Hilbert Transforms and the Least Square Method
8_797	P1-10	Ji Qizheng ^{*a} Gao Zhiliang ^a Zhang Xunbiao ^b Chen Jian ^c	^a Beijing Orient Institute for Measurement & Test, Beijing 100086 ^b Shanghai Indoor Contamination Control Industry Association, Shanghai 20000; ^c Suzhou Sujing Automation Equipment Corporation, Suzhou 215122	Discuss on Traceability Method of Light- scattering Airborne Particle Counter's Counting Performance
11_670	P1-11	Guo-liang Tian, Bi-xi Yan, Ming-li Dong, Jun Wang, Peng Sun	School of Instrumentation Science and Opto-electronics Engineering, Beijing Information Science and Technology University, Beijing 100192, China	Simulation Analysis of Position Error of Parabolic Trough Concentrator Mirror Installation
11_681	P1-12	Chen Xiaolu, Xu Tao, Chen Biao, Tao Ronghua	Department of Navigation and Communication, Navy Submarine Academy, Qingdao, Shandong, China,266071	Ranging algorithm of low altitude radio fuze based on process measurement
11_691	P1-13	FENG Jin-yang*, WU Shu-qing,LI Chun-jian, SU Duo-wu, YU Mei	National Institute of Metrology, Beijing 100029, China	Influence of Self-vibration on High Accuracy Free-fall Absolute Gravity Measurement with Laser Interferometer
11_701	P1-14	Chen Liu, Yongqi Gu, Yuanyang Zheng, Shijun Qin, Jun Wang	Institute of Plasma Physics Chinese Academy of Sciences, Hefei city, China, 230031	Study on precision spatial measurement network of EAST

11_706	P1-15	Li Chun-jian, Xu jin-yi, Feng jin-yang, Su Duo-wu, Wu Shuqing	Laboratory of Vibration and Gravity, Division of Mechanics and Acoustics, National Institute of Metrology, Beijing 100013, China	The Correction due to self-attraction effect of NIM-3A absolute gravimeter
15_017	P1-16	Shaokai Wang, Jiwen Cui, Jiubin Tan*	School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin 150001,China	Error mechanism analyses of an ultra-precision stage for high speed scan motion over a large stroke
15_023	P1-17	Jun Wang, Huaxia Deng*, Jin Zhang*, Liandong Yu	School of Instrument Science and Optoelectronics Engineering, Hefei University of Technology, Hefei, Anhui, China. 230009	The Propagation of Manufacture Uncertainty to Dynamic Measurement
2_612	P2-1	Ruixue Xia ^{*a, b} , Jiang Han ^a , Rongsheng Lu ^a , Lian Xia ^a	^a Hefei University of Technology, Hefei, China 230009 ^b Anhui Xinhua University, Hefei, China 230088;	Vision-based On-machine Measurement for CNC Machine Tool
2_725	P2-2	Tao Wang ^{a,b} , Guilin Wang ^{a,b} , Dengchao Zhu ^{a,b} , Shengyi Li ^{a,b}	^a School of Mechatronics Engineering and Automation, National University of Defense Technology, Changsha 410073, P.R.China ^b Hu'nan Key Laboratory of Ultra- precision Machining Technology, Changsha 410073, P.R.China	Influence of Measuring Algorithm on Shape Accuracy in the Compensating Turning of High Gradient Thin-wall Parts
2_825	P2-3	Wei Ma, Jiubin Tan *, Jiwen Cui, Yongmeng Liu	Center of Ultra-precision Optoelectronic Instrument, Harbin Institute of Technology, Harbin	Study on pneumatic hammer in rectangular aerostatic thrust bearing with groove
1_509	P3-1	Hongyuan Wang, Wenzhi Gao, Yuan Wang.	College of Instrumentation & Electrical Engineering, Jilin University. Ximinzhu street no.938, Changchun city of Jilin province ,China	The design and implementation of handwriting drawing board based on the common copper clad laminare

1_585	P3-2	Guo-dong Jiang**a, Po Li ^a	^a Department of Energy and Electrical Engineering, Nanjing Institute of Industry and Technology, Nanjing 210046, China	An Eddy Current Testing Signal Source with Anti-interference Ability
1_806	P3-3	Yinhan Gao ^a , Juxian Wang ^b , Kaiyu Yang ^{*a} , Tianhao Wang ^a , Zhanyang An ^b	^a State Key Laboratory of automotive simulation and control, Jilin University, Changchun, Jilin, China ^b College of Instrumentation & Electrical Engineering, Jilin University, Changchun 130026, China	Common Mode EMI Prediction and Research in Induction Motor for Electric Vehicles
2_795	P3-4	Jiang Fangliang ^{*a} , Ji Qizheng ^a , Zhai Dongwei ^a , Dong Yibo ^a , Dong Chun ^a	^a Beijing Orient Institute for Measurement & Test, 9628#, Beijing, P.R.China	Investigating of Ultrasonic Flow Precision Measurement
3_519	P3-5	Cai Li , Lu Hai-yan*, Zhan Weiwei, Yang Zhen-yu , Wang Xiu	China Earthquake Disaster Prevention Center, Beijing 100029	Design and application of the digital quartz horizontal pendulum tilt meter based on CCD
3_525	P3-6	Zhang Genwei, Zhao Jiang, Yang Liu,Liu Bo, Jiang Yanwei, Yang Jie	Institute of Chemical Defense, Beijing102205,China	Design and implementation of embedded ion mobility spectrometry instrument based on SOPC
3_610	P3-7	ZHANG Wen ^{a,b,c} , ZHANG Hui-jun ^{a,b} , Li Xiao-hui ^{a,b}	^a National Time Service Center, Chinese Academy of Sciences, Xi'an, China 710600 ^b Key Laboratory of Time and Frequency Primary Standards, National Time Service Center, Chinese Academy of Sciences, Xi'an, China 710600; ^c University of Chinese Academy of Sciences, Beijing, China 100049	Design of extensible Meteorological data acquisition system based on FPGA
3_712	P3-8	WU Shuqing**a, Li Chunjian ^a , SU Duowu ^a , FENG Jinyang ^a , XU Jinyi ^a	National Institute of Metrology, China, No.18, Bei San Huan Dong Lu, Chaoyang Dist, Beijing, P.R.China, 100029	Time interval measurement based on FPGA in NIM-3 type absolute gravimeter

3_733	P3-9	Weiwei Yue, Hongyan Zhang, Shouzhen Jiang, Chengjie Bai*	College of Physics and Electronics, Shandong Normal University, P.R. China,250014	Portable and Modularized Fluorometer based on Optical Fiber
3_735	P3-10	Yan Di, Chen Zhu, Shi Xueshu	Equipment Academy of PLA, Huairou, Beijing, 101416	Modeling and Simulation of Continuous Wave Velocity Radar Based on Third-order DPLL
3_750	P3-11	Zhang Changfan*, He Lingsong, Gao Zhiqiang, Ling Cong, Du Jianhao	Mechanical School of Science & Engineering, Huazhong University of Science & Technology, Wuhan 430074, China	Front End Design of Smart Phone based Mobile Health
3_751	P3-12	He Lingsong, Gao Zhiqiang*, Su wei, Wang can, Zhang Changfan	School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan 430074, China	Research on Cloud-based Remote Measurement and Analysis system
3_760	P3-13	Mingfu Wen ^{ab} , Miao Yu ^{1ab} , Jie Fu ^{ab} , Zhengzhong Wu ^c	^a College of Optoelectronic Engineering, Chongqing University, Chongqing, China, 400044; ^b Key Laboratory for Optoelectronic Technology and Systems of Ministry of Education, Chongqing University, Chongqing, China, 400044; ^c Information & Logistic Engineering Department, Logistic Engineering University, Chongqing, China, 401311	A Magneto-rheological Rotary Damper Equipped in a Multi-functional Hinge for the Solar Array Deployment System
3_778	P3-14	Chang Suping ^{*a} , Zhao Shuling ^b , Wang ShuZhen ^b and Liu Xiaojun ^a	^a Department of Mechanical Engineering, Huazhong University of Science and Technology, Wuhan 430074, China; ^b Department of Electrical and Mechanical Engineering, Luoyang Institute of Science and Technology, Luoyang 471023,China	A multi-function surface topography measurement system based on white light interference
4_531	P3-15	Zhan Weiwei, Lu Haiyan*, Cai Li, Wang Xiu, Yang Zhenyu	China Earthquake Disaster Prevention Center, Beijing, China, 100029	Design of CCD Driver for Quartz Horizontal Pendulum Tilt meter Based on CPLD

5_668	P3-16	Kai Yang*, Rencheng Zhang, Jianhong Yang and Yanyan Gao	College of Mechanical Engineering and Automation, Huaqiao University, Xiamen, China, 361021	Research on Arc Fault Detection Based on Frequency Constrained Independent Component Analysis
5_676	P3-17	Gao Ting**a, Gan Xiaochuan a, Ma Liqun ^a	^a Changcheng Institute of Metrology & Measurement, 1066 Post Box, Beijing, P.R.China 10095;	Achieve communication between Panasonic PLC and PC based on serial Port control in C#.NET environment
7_601	P3-18	Cunbao Lin, Shuhua Yan, Zhiguang Du, Chunhua Wei, Guochao Wang	College of Mechatronic Engineering and Automation, National University of Defense Technology, Changsha, Hunan, P. R. China, 410073	Low-noise front-end electronics for detecting intermediate-frequency weak light signals
8_661	P3-19	Zheng Yong**a, Chen Yan ^b	^a Engineering Research Center of Mechanical Testing Technology and Equipment (Ministry of Education), Chongqing Key Laboratory of Time Grating Sensing & Advanced Testing Technology, Chongqing University of Technology, Chongqing, China 400054; ^b School of Electronic Information & Automation, Chongqing University of Technology Chongqing, China, 400054	Design of transmission error signal generator system based on FPGA and ARM
15_024	P3-20	Chaojia Liang, Huaxia Deng*, Jin Zhang*, Liandong Yu	School of Instrument Science and Optoelectronic Engineering, Hefei University of Technology, China	Vibration studies of simply supported beam based on binocular stereo vision
15_029	P3-21	Alexey A. Gorbachev*, Valery V. Korotaev, Dmitri V. Apehtin	ITMO University, 49 Kronverkskiy av., Saint-Petersburg, Russia, 197101	System for blades output edge measuring in low-pressure cylinder of closed turbine
15_030	P3-22	ZHAO Zhongyi, HUANG Hailong	Liaoning University of Technology, Jinzhou Liaoning 121001, China	Simulation Research on ATP System of Airborne Laser Communication
15_212	P3-23	Weihong Song, Xi Hou, Fan Wu, Shibin Wu, Hongwei Jing	Institute of Optics and Electronics, Chinese Academy of Sciences, Chengdu, China 610209;	Experimental study on absolute measurement of spherical surfaces with shift-rotation method based on Zernike polynomials

4_823	P3-24	LiuHua MiaoYanxiao LiuKe	Beijing Aerospace Institute for Metrology and measurement Technology, No. 1, South Dahongmen Road/Street, Fengtai District Beijing Municipality, PRC	The Research and Realization on the Control Method of Improving Stabilized Sighting Precision
15_018	P3-25	Zhang Shufeng, Jia Junwei, Chai hao, Ming jian, Li jijun, Zhang mingzhi	Beijing Orient Institute for Measurement & Test, Mail Box 9628 Beijing CHINA 100086	Experimental study of temperature measurement and calibration in vacuum based on TDLAS
4_474	P4-1	Hou Maosheng, Tian Yanrong, Ji Lin, Wang Longxiao, Liu Jiaqi, Zhao Weiqian*	Beijing Key Lab for Precision Optoelectronic Measurement Instrument and Technology, School of Optoelectronics, Beijing Institute of Technology, Beijing, China, 100081	The Development of ultra-precision centering and leveling turntable based on aerostatic bearing technology
4_522	P4-2	Wang Yong, Gu Song	College of Information & Communication Engineering, HarbinEngineeringUniversity,Harbin 150001, China	Research of ultraviolet communication system based on BPSK subcarrier intensity modulation
4_755	P4-3	Beibei Liu , Yingjie Yu*, Wenjing Zhou , Xiaoyan Wu	Department of Precision Mechanical Engineering, Shanghai University, Shanghai 200072, China	Accuracy analysis of phase retrieval using Fourier transform method
	P4-4	Weibo Wang	School of Electrical Engineering and Automation, Harbin Institute of Technology	Stitching Interferometry for Asphero-diffractive Surface
4_785	P4-5	Lirong Qiu, Lei Wang,DaliLiu, MaoshengHou, WeiqianZhao*	Beijing Key Lab for Precision Optoelectronic Measurement Instrument and Technology, Beijing Institute of Technology, 5 South Zhongguancun Street, Haidian District, Beijing, China,100081	Image inpainting for the differential confocal microscope

15_020	P4-6	Ming-Fu Chen ^{*a} , Bo-Cheng Chen ^b , Chih-Wen Chen ^a , Rui-Cian Weng ^a , Ming Chang ^b	^a Instrument Technology Research Center, National Applied Research Lab., Taiwan 300; ^b Department of Mechanical Engineering, Chung Yuan Christian University, Taiwan 320	Design and features of an illumination device for a line scanned optical defect inspection system for glass substrates
	P4-7	Huang Xiangdong,* Wang Chongyang	Center of Ultra-precision Optoelectronic Instrument, Harbin Institute of Technology, Harbin, China	Spatial Super-resolution with shifted-focus phase filter in confocal microscope
	P4-8	Zou Li Min, Pang Ming Shu, Zhou Meng Jiao, Wang Bao Kai	Postdoctoral Research Station of Optical Engineering, Harbin Institute of Technology, Harbin, P. R. China 150001	Multifocal axial confocal microscopic scanning with a Phase-only Liquid Crystal Spatial Light Modulator
	P4-9	Zhongyuan Liu, Jiubin Tan, Jian Liu, and Tao Liu	School of Electrical Engineering and Automation, Harbin Institute of Technology, China	A method based on vectorial angular spectrum theory for designing super-oscillatory lenses
4_771	P4-10	Jiwei Tian, Yun Wang*, Nan Zhou, Weirui Zhao, Weiqian Zhao	Beijing Key Lab for Precision Optoelectronic Measurement Instrument and Technology, Beijing Institute of Technology, 5 South Zhongguancun Street, Haidian District, Beijing, China, 100081	Laser Confocal Measurement System for Curvature Radius of Lenses Based On Grating Ruler
	P4-11	Zhengang Lu	Center of Ultra-precision Optoelectronic Instrument, Harbin Institute of Technology, Harbin	Double-grating diffraction interferometric stylus probing system for surface probing and roughness measurement
10_631	P4-12	Hongwei Li and Xinping Zhang	Institute of Information Photonics Technology and College of Applied Sciences, Beijing University of Technology, Beijing 100124, P. R. China	Organic crystals based on different growing mechanisms onto planar substrates
4_589	P5-1	Xian-sheng LI *, Jian-wei REN, Zhi WAN, Hong-xing LIU	Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences, Changchun, China, 130033	A New Method for Improving Noise Equivalent Radiance of Electro-optical Systems Sensor

5_493	P5-2	Jinlong Lan ^a , Zhengtian Gu ^a	^a Laboratory of Photo-electric Functional Films, College of Science, Uni. of Shanghai for Sci. and Tech., 516 Jun Gong Road, Shanghai 200093, China	Characteristics of the Coated Long-Period Fiber Grating Based on Mode Transition and Dual-Peak Resonance
5_504	P5-3	Pengbing Hu ^{a*} , Zhemin Chen ^a , Sunqiang Pan ^a , Guoshui Li ^a , Jianfeng Zhang ^a , Jia Cheng ^{a, b}	^a Research and Development Centre of Metrology, Zhejiang Institute of Metrology, Hangzhou 310018, China; ^b Zhejiang Provincial Center of Intellectual Property Research and Service, Hangzhou 310006, China	Optical fiber waist-enlarged bitaper-based Michelson interferometric humidity sensor
5_748	P5-4	Hui Shen ^{*a, d} , Fengsheng Zhang ^a , Jinhao Qiu ^b , Yixiang Bian ^{c, d}	^a College of Mechanical & Electrical Engineering, Qingdao University, Qingdao, 266071, China; ^b State Key Laboratory of Mechanics and Control of Mechanical Structures, Nanjing University of Aeronautics & Astronautics, Nanjing, 210016, China; ^c College of Mechanical & Electrical Engineering, Yangzhou University, Yangzhou, 225009, China; ^d R&D Center, Yangzhou speed instrument and equipment Co. Ltd., Yangzhou, 225009, China	Multimode vibration damping as a result of piezoelectric energy harvesting
5_758	P5-5	Lin Chen ^{*a, b} , Hongwei Jing ^a , Zhongwei Wei ^{a, b} , Xuedong Cao ^a	^a Institute of Optics and Electronics, Chinese Academy of Sciences, P.O. Box 350, Chengdu, 610209, China; ^b University of Chinese Academy of Sciences, Beijing 100049, China	Measurement of the Centering Error of the Probe for Swing Arm Profilometer based on the Spectral Confocal Sensor
7_801	P5-6	Weixing Xiong, Shuangyun Shao [*] , Qibo Feng	School of Science, Beijing Jiaotong University, Beijing 100044, China	Dynamic diameter measurements of locomotive wheels by the use of one-dimensional laser displacement sensor and eddy sensors
9_704	P5-7	Zhu Liyan, Wang Wen [*] , Lu Keqing, Fan Zhongwei	School of Mechanical Engineering, Hangzhou Dianzi University, Hangzhou 310018, P.R.China	A Non-contact Measuring Method for Profile of Different Diameter Micro/Mini Holes Based on Capacitance Sensor

	P5-8	Bo Zhao, Lei Wang*,Min-er Xu	School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, 150001	A displacement measuring system based on grating double diffraction
15_046	P5-9	Li Yong* ^a , Wang Shuai* ^a , Chu ZhaoRui* ^a , TangJie, Xu Yang, Ai ZhuJun* ^a , Wang HongTao* ^a	^a School of Instrument Science and Optoelectronic Engineering, Hefei University of Technology, Hefei, CHN,230009	A New Suspension Structure of Micro/nano Probe
15_013	P5-10	FENG Shengdong, LIU Xiaojun, CHEN Liangzhou, LU Wenlong*	School of Mech. Sci. &Eng, Huazhong Univ. of Sci. and Tech.,Wuhan,China,430074	A voice coil motor based measuring force control system for tactile scanning profiler
	P5-11	Jianwei Wu, Yong Yuan, Jiwen Cui	Center of Ultra-precision Optoelectronic Instrument, Harbin Institute of Technology	Effects of dynamic characters of the Macro-micro Fast Coupling System in Long Stroke System
10_487	P5-12	Yehua Bie ^{a,b,*} , Jun Luo ^{a,b} , Xinyu Zhang ^{a,b} , An Jic, Hongshi Sang ^a , and Changsheng Xie ^b	^a National Key Laboratory of Science &Technology on Multispectral Information Processing, ^b Wuhan National Laboratory for Optoelectronics, Huazhong University of Science & Technology, Wuhan 430074, Hubei Province, China, ^c Institute of Semiconductors, Chinese Academy of Sciences	Modeling and simulation of terahertz metamaterial sensors based on the effect of resonance induction
	P5-13	Jingzhi Huang*, Tao Sun, Wei Gu, Jiubin Tan	Harbin Institute of Technology,No.2 Yikuang Street, Nangang District, Harbin 150080, China	Precision Adjustment Method and Apparatus of 4-DOF with High Positioning Stability
15_045	P5-14	MA Hong-tao, JIN Hui	Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences ,Jilin Changchun 130033	Experimental study on imaging spectrometer focusing formula in orbit
	P5-15	LI Peng, CUI Ji-wen, TAN Jiubin*,DING Xue-mei	School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin 150001, China	Application of deadbeat control with constraint and non-ripple in precision rapid displacement system

7_684	P5-16	Chih-Liang Chu*, Kuan-Wen Lai, Hung-Chi Chen	Dept. of Mechanical Engineering, Southern Taiwan University of Science and Technology, Tainan, Taiwan.	Development of a scanning touch probe with 5- axis Measuring Functions
	P5-17	Yang Yuanyuan, Tan Jiubin*, Wang Lei	School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin 150001, China	Performance analysis and experiment validation of a pneumatic vibration isolator
	P5-18	Cui Junning ^{1,2} , Lu Yesheng ¹	¹ Center of Ultra-precision Optoelectronic Instrument, Harbin Institute of Technology, Harbin, 150001, China ² Postdoctoral Research Station of Mechanical Engineering, Harbin Institute of Technology, Harbin 150001, China	Thermal Drift Suppression Technology for Capacitance Displacement Sensor Based on the Local Space Temperature Control
6_529	P6-1	Hengzheng Wei*, Weinong Wang,Guoying Ren, Limei Pei	National Institute of Metrology, 100013, Beijing, China	The Application of Coordinate Transform on Ball Plate Calibration
15_024	P6-2	JIA Min-qiang ^a , ZHANG Jian ^a ,GAO Ran ^a , ZHAO Dong- sheng ^a , PENG Ting-ting ^a	^a Shandong Institute of Metrology, Jinan, China, 250014	High Precision Measurement Method of Squareness of Large Rectangular Square
15_011	P6-3	Zheng Yi, Liu Xiaojun, Lei Zili, Li Qian, Yang Xiao, Chen Liangzhou*, Lu Wenlong	School of Mech. Sci. &Eng, Huazhong Univ. of Sci. and Tech.,Wuhan,China,430074	Coarse-fine vertical scanning based optical profilers for structured surface measurement with large step height
	P6-4	Chen Yuanzheng, Zhou Tong, Cui Jiwen*, Tan Jiubin	Center of Ultra-precision Optoelectronic Instrument, Harbin Institute of Technology	Extension of light transmission distance of single core fiber by adding a micro axicon at fiber end for collimation
7_468	P7-1	Bo En, Duan Fa-jie, Feng Fan, Lv Chang-rong	92 Weijin Road, Nankai District, State Key Lab of Precision Measuring Technology & Instruments, Tianjin University, Tianjin 300072, China	A Phase Compensation Method in Fiber-optic Surface Profile Acquisition and Reconstruction System

7_477	P7-2	Xu Tao*, Chen Xiaolu, Wen Dong, Sun Xiaolei	Department of Navigation and Communication, Navy Submarine Academy, Qingdao, Shandong, China, 266042	Transmitter and receiver design of an experimental blue-green laser communication system
7_550	P7-3	Hanzhong Wu ^a , Fumin Zhang ^{*a} , Xinghua Qu ^a , Shuying Zhang ^b , Dexin Lin ^b	^a State Key Laboratory of Precision Measurement Technology and Instrument, Tianjin University, Tianjin 300072, China ^b Tianjin Mechanical-Electronic Products Testing Center, Tianjin 300072, China	Absolute distance measurement by spectrum interferometry with wavelet transform using frequency comb
7_554	P7-4	Guang Shi, Fumin Zhang*, Xinghua Qu	Tianjin University, State Key Laboratory of Precision Measuring Technology and Instruments, 92 Weijin Road, Tianjin, China, 300072	An improvement in the spatial resolution of frequency modulated continuous wave laser ranging system by splicing the equal optical frequency interval sampled signal
7_710	P7-5	Qiang Liu, Ming Wang *, Yufeng Tao, Junbao Chen, Hui Hao, Dongmei Guo	Key Laboratory of Optoelectronic Technology of Jiangsu Province, College of Physics Science and Technology, Nanjing Normal University, Nanjing, Jiangsu, China, 210023	Implementation of real-time displacement precision measurement technology for the sinusoidal phase-shifting laser self-mixing interferometer
7-713	P7-6	SU Duowu* , LI Chunjian , WU Shuqing , FENG Jinyang , XU Jinyi	Gravity Precision Measure lab , National Institute of Metrology, No.18, Bei San Huan Dong Lu, Chaoyang Dist., Beijing 100029, China	The influence of the diffraction effect in absolute gravity measurements
7_718	P7-7	Yanzhong Zhao*, Congmiao Shan, Yonghui Zheng, Laixian Zhang, Huayan Sun	Equipment Academy of PLA, Department of Optical and Electronic Equipment, Beijing, China, 101416	Analytical beam-width characteristics of distorted cat-eye reflected beam
7_803	P7-8	Hongtao He, Shuangyun Shao*, Qibo Feng	School of Science, Beijing Jiaotong University, Beijing 100044, China	Online measurement for geometrical parameters based on 2-D laser sensor
7_805	P7-9	Jianxiong Tan, Shuangyun Shao*, Qibo Feng	School of Science, Beijing Jiaotong University, Beijing 100044, China	Analysis of the rail's settlement on wheel-set's diameter measurement

7_721	P7-10	Lijun Dong ^{*a} , Ke Liu ^a , Lei Guo ^a , Yinxiao Miao ^a , Liwei Xin ^b	^a Beijing Aerospace Institute for Metrology and Measurement Technology, Beijing 100076, China ^b Xi'an Institute of Optics and Precision Mechanics of Chinese Academy of Sciences, Xi'an 710119, China	Analyzing time walk error of leading trailing edge CFD of timing discrimination for Gaussian and Rayleigh distribution waveform
	P7-11	Ruitao Yang, Pengcheng Hu, Jiubin Tan	Harbin Institute of Technology	The development of frequency comb based absolute distance measurement
	P7-12	Haijin Fu ^{1,2, a} , Jiubin Tan ¹ , Zhigang Fan ²	¹ Ultra-precision Optoelectronic Instrument Engineering Center, Harbin Institute of Technology, Harbin 150001, China ² Postdoctoral Research Station of Optical Engineering, Harbin Institute of Technology, Harbin 150001, China	A simple method to eliminate the first-order optical nonlinearity harmonic in the heterodyne laser interferometer
7_636	P7-13	Guochao Wang ^{a,b} , Yoon-Soo Jang ^a , Hyunjay Kang ^a , and Byung Jae Chun ^a , Young-Jin Kim ^a , and Seung-Woo Kim ^{*a}	^a Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology, Science Town, Daejeon, South Korea 305-701 ^b Department of Instrument Science and Technology, National University of Defense Technology (NUDT), Hunan, Changsha, China, 410073	Absolute distance measurement using frequency- comb-referenced four-wavelength interferometry
7_739	P7-14	ZHU Wen ^{1,2} , CAO Xue-dong ¹ , FAN Tian-quan ¹ , Wu Shi-bin ¹ , LI Jie ¹ , Yang Jie ¹	¹ Institute of Optics and Electronics, Chinese Academy of Sciences, Chengdu 610209, China; ² University of Chinese Academy of Sciences, Beijing 100049, China	Study on the station-moving measurement technology in the flatness measurement of large annular planes with a Laser Tracker
	P7-15	Zhang Yifei, Wu Ting, Hu Pengcheng*, Wang Xingliang	Center of Ultra-precision Optoelectronic Instrument, Harbin Institute of Technology	Measuring device for beam pointing and positional errors in Multi-axes laser interferometric systems

	P7-16	Hongxing Yang, Jiubin Tan pengcheng Hu, Peng Chen	School of Electrical Engineering and Automation, Harbin Institute of Technology	Interferometer with no cyclic errors using in heterodyne or super heterodyne absolute distance measurement
7_741	P7-17	Gao Yue ^{*a} , Liu Ke ^a , Sun Zeng-yu ^a , Guo Lei ^a , Gan Yu ^b	^a Beijing Aerospace Institute for Metrology and Measurement Technology, Beijing 100076, China	Beam shaping with vortex beam generated by liquid crystal spatial light modulator
7_628	P7-18	Luofeng Shen ^{1,2} , Kai Ni ² , Qian Zhou ^{2,*} and Guanhao Wu [*]	¹ State Key Laboratory of Precision Measurement Technology and Instruments, Department of Precision Instruments, Tsinghua University, Beijing 100084, China; ² Division of Advanced Manufacturing, Graduate School at Shenzhen, Tsinghua University, Shenzhen 518055, China;	Experimental optimization of the repetition frequency difference in dual-frequency-comb based ranging
10_579	P7-19	Yimeng Wang and Xinping Zhang [*]	Institute of Information Photonics Technology and College of Applied Sciences, Beijing University of Technology, Beijing 100124, P. R. China	A triple-wavelength-oscillating optical parametric oscillator based on quasi-phase matching and chirped cavity mirrors
2_527	P8-1	Yin Bai [*] , Qiao Sun, Lei Du, Mei Yu, Jie Bai	National Institute of Metrology, No. 18 Bei San Huan Dong Lu, Beijing 100013, China	Calibration Technology of GPS Based High Accuracy Speed Meter for Vehicles
2_732	P8-2	YongmengLiu ^{a,b*} , Jieru Cao ^b , Maoqiang Yuan ^b , Jiwen Cui ^b , Jing Ma ^a , and Jiubin Tan ^{b*}	^a Postdoctoral Research Station of Electronic Science and Technology, Harbin Institute of Technology ^b Ultra-precision Optoelectronic Instrument Engineering Center, Harbin Institute of Technology, Harbin, 150001, China	Coupling Error Self-calibration Method for 3- DOF Displacement Measurement of Planar Stage Based on Two Optical Planar Gratings
8_475	P8-3	YouZHAI [*] , Luan ZENG, Wei XIONG	Academy of Equipment, Beijing 101416, China	Space camera on orbit calibration based on stellar image correspondences

8_595	P8-4	Nan Jiang, Tao He*, Shaohua Sun, Qing Gu	Kunming Shipborne Equipment Research and Test Center, Yunnan, PRC, 650051	An Altazimuth Mount Based Dynamic Calibration Method for GNSS Attitude Measuring
8_736	P8-5	AI Hua, CAO Yanbo	Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Science, Jilin, Changchun 130033, China	Angular precision calibration of rotary table by whole combination measuring method
15_032	P8-6	Ma Huiping* ^a , Jin Yuanqiang ^b , Zhang Xiaoguang ^a , Zhou Hai ^a	^a School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin 150001, China ^b School of Mechatronics Engineering, Harbin Institute of Technology	Complex shape product tolerance and accuracy control method for virtual assembly
15_037	P8-7	JIANG Li* ^a , WANG Dong-wei ^a , LIU Yong ^a , CHEN Xiao-hui ^a , LIU Yue-dong ^b ,	^a Beijing Aerospace Institute for Metrology and Measurement Technology, Beijing, CHINA 100076; ^b Beijing Research Institute of Telemetry, Beijing, CHINA 100076	Calibrating the Positional Consistency between Mechanical Shaft and Electronic Boresight for Radar Antenna
8_518	P8-8	Zhang Wei* ^a , Yu Lian-dong ^a , Dong Zhao ^a	^a School of Instrument Science and Optoelectronic Engineering, HeFei University of Technology, Hefei 230009, China	Parameter Calibration for Parallel Dual-joint Coordinate Measuring Machine with PSO Algorithm
1_559	P9-1	Chen JianYun, Fen XuZhe, LiXianBin, Wu GuangYao	College of Mechatronics Engineering and Automation National Univ. of defense Technology Hunan Changsha, China, 410093	GNSS software receiver sampling noise and clock jitter performance and impact analysis
1_742	P9-2	Luan ZENG*, You ZHAI, Wei XIONG	Academy of Equipment, Beijing 101416 China	Improved SIFT descriptor applied to stereo image matching
1_775	P9-3	Shifu Zhou, Zhijiang Zhang, Dan Zeng, Wei Shen	School of Communication & Information Engineering, Shanghai University	Abnormal events detection in crowded scenes by trajectory cluster

1_791	P9-4	Rui Lei,Zhi-jiang Zhang,Wei Shen Ying Zhou	School of Communication and Information Engineering, Shanghai University, Shanghai200072, China	Distributed compressive sensing of light field
3_607	P9-5	Haihua Cui*, Zhimin Zhao, Ning Dai, Changye Guo, Jinping Weng	Nanjing University of Aeronautics & Astronautic, 29 Yudao Street, Nanjing 210016, China	Multi-view 3D Measurement Data Registration Based on Encoding Point Spatial Location and Match
3_719	P9-6	Lei Guo* ^a , Ke Liu ^a , Yinxiao Miao ^a , Jigui Zhu ^b	^a Beijing Aerospace Institute for Metrology and Measurement Technology, Beijing 100076, China; ^b State Key Laboratory of Precision Measurement Technology and Instruments, Tianjin University, Tianjin 300072, China	The Relaxation Matching Algorithm for Moving Photogrammetry
3_777	P9-7	Chen Li ^a , Yongying Yang* ^a , Pin Cao ^a , Shitong Wang ^a , Dong Liu ^a , Lu Li ^a , Lu Yan ^a , Yang Li ^{a,b} , Shibin Xie ^{a,b} , Yangjie Chen ^b	Aeronautics & Astronautic, 29 Yudao Street, Nanjing 210016, China	Precisely connected and calculated algorithm of punctate scratches in the super-smooth surface defects evaluation system
7_744	P9-8	Ying Tong* ^{ab} , Leilei Liu ^a ,Meirong Zhao ^a , Zilong Wei ^a	^a State Key Laboratory of Precision Measuring Technology and Instruments, Tianjin University, Tianjin, PRC 300072 ^b College of Electronic and Communication Engineering, Tianjin Normal University, Tianjin, PRC 300387	Compressive sensing image fusion based on blended multi-resolution analysis
10_523	P9-9	Chunhua Wei, Shuhua Yan* Cunbao Lin, Guochao Wang	College of Mechatronical Engineering and Automation, National University of Defense Technology, Changsha, Hunan, P. R. China, 410073	A Interference Signal Processing Method for Single Grating Displacement Measurement Based on 3×3 Coupler
15_021	P9-10	Yu-dong Zhang* ^a , Yong-yue Yang ^a	^a School of Instrument Science & Opto- electronic Engineering, Hefei Univ. of Technology/Hefei, China	The least square optimization in image mosaic

15_087	P9-11	Chen Lin ^{*a} , Lu Rong-sheng ^a , Guo Guang-ping ^b , Lu Yu ^a	^a School of Instrument Science and Opto-electronics Engineering, Hefei University of Technology, Hefei, China; ^b Beijing Institute of Aerial Materials, Beijing, China	The research of digital correlation reverse combination algorithm applied in Poisson's ratio measurements
15_042	P9-12	Lin Luo [*] , Wen Zhang, Xiaorong Gao	School of Physics Science and Technology, Southwest Jiaotong University, Chengdu 610031, China	Image recognition technique for the wheel tread defect by using of image processing