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Wei Zhao
Baoli Yao
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62792P **3D motion estimation for multi-object relative motion parameter and the centre of rotation using stereo sequence images** [6279-97]
W. Cao, R. Che, D. Ye, H. Chen, Harbin Institute of Technology (China)

62792Q **Real-time 3D shape acquisition using a novel rotatable interlaced coded structured light** [6279-98]
L. Xu, Z. Zhang, H. Ma, Z. Dong, Shanghai Univ. (China)

62792R **A noise removal algorithm for LIDAR intensity image based on orientation gradient and weighted threshold** [6279-99]
S. Zhang, Y. Wan, Wuhan Univ. (China)

62792S **The edge detection of hyperspectral image based on its proportion image** [6279-100]
Y. Gong, Hunan Univ. of Science and Engineering (China) and Xidian Univ. (China); D. Bi, Changchun Univ. (China)

62792T **A new image reconstruction approach to optical computed tomography based on BP neural network** [6279-101]
Q. Wu, Z. Qian, Nanjing Univ. of Aeronautics and Astronautics (China)

62792U **Averaging algorithm of reticle images in low-level-light weapon sight based on impact condition** [6279-102]
Y. Gao, Nanjing Univ. of Science and Technology (China) and Nanyang Institute of Technology (China); B. Chang, Nanjing Univ. of Science and Technology (China); S. Tian, Nanjing Univ. of Science and Technology (China) and Nanyang Institute of Technology (China); Y. Qiu, Nanjing Univ. of Science and Technology (China); J. Qiao, Nanjing Univ. of Science and Technology (China) and Nanyang Institute of Technology (China); R. Fu, Nanjing Univ. of Science and Technology (China)

62792V **Real-time phase correction of optical images using adaptive optics system based on MEMS technology** [6279-103]
J. Li, H. Chen, P. Wu, Huazhong Univ. of Science and Technology (China); H. Li, Xi'an Jiaotong Univ. (China)

62792W **A temporal algorithm for IR small targets detection** [6279-104]
H. Nie, X. Tian, Z. Shen, National Univ. of Defense Technology (China)

62792X **Quantitative evaluation of laser jamming effect on imaging systems** [6279-105]
W. Gao, Beijing Institute of Tracking and Telecommunication Technology (China)

62792Y **Small target fusion detection algorithm via image neighborhood entropy and univalue segment assimilating nucleus principle** [6279-106]
M. Hu, Z. Chen, National Univ. of Defense Technology (China)

62792Z **Correlation detection filter for imaging laser radar** [6279-107]
J. Sun, Q. Li, W. Lu, Q. Wang, Harbin Institute of Technology (China)

627930 **Optimizing image normalization algorithm for shape distortions** [6279-108]
J. Liang, Huazhong Univ. of Science and Technology (China) and Hubei Univ. (China); Y. Feng, Huazhong Univ. of Science and Technology (China)

627931 **An automatic target recognition algorithm based on image matching with multiple sub templates** [6279-109]
L. Z. Qian, Univ. of Science and Technology of China (China) and The Artillery Academy (China); D. Z. Zhao, S. X. Tao, G. Li, The Artillery Academy (China)

627932 **Modified simultaneous algebraic reconstruction technique and its application to image reconstruction** [6279-110]
C. Li, South Central Univ. for Nationalities (China)

627933 **Spatial fusion algorithm of multispectral and high-resolution panchromatic images** [6279-111]
L. Xu, J. Yao, Xidian Univ. (China)

627934 **Analysis on the cophasing errors of optical sparse-aperture imaging system** [6279-112]
D. Wang, H. Liu, J. Han, Beijing Univ. of Technology (China); H. Guo, X. Fu, National Astronomical Observatories (China); S. Tao, Beijing Univ. of Technology (China)

627935 **Study on real-time images compounded using spatial light modulator** [6279-113]
J. Xu, Z. Chen, X. Ni, Z. Lu, Zhejiang Univ. (China)

627936 **An adaptive lifted pyramid for image compression** [6279-114]
J. Xiang, Xi'an Institute of Optics and Precision Mechanics (China) and Chinese Academy of Sciences (China); H. Su, Guangdong Nortel Telecommunications Equipment Co., Ltd. (China); X. Su, Xi'an Institute of Optics and Precision Mechanics (China)

627937 **Decorrelation of hyperspectral images using spectral correlation** [6279-115]
L. Chen, Xi'an Research Institute of High Technology (China) and 535 Hospital (China); D. Liu, Xi'an Research Institute of High Technology (China) and Huazhong Univ. of Science and Technology (China); S. Huang, Xi'an Research Institute of High Technology (China)

627938 **A sub-pixel correlation tracking method for extended target based on hierarchy model** [6279-116]
Z. Peng, A. Guan, Univ. of Electronic Science and Technology of China (China); S. Tian, X. Fan, Jishou Univ. (China)

627939 **Study of real-time target recognition system based on optical correlator** [6279-117]
Y. Zhang, G. Feng, Shijiazhuang Mechanical Engineering College (China); R. Xue, Xian Optical Instrument Factory (China); P. Yan, Shijiazhuang Mechanical Engineering College (China)

62793A **A real-time image sequence processing algorithm for target ranging** [6279-118]
X. Fu, S. Liu, E. Li, Xidian Univ. (China)

62793B **Color image encryption based on fractional Fourier transforms and pixel scrambling technique** [6279-119]
J. Zhao, H. Lu, Q. Fan, Northwestern Polytechnical Univ. (China)

62793C **Morphology-based adaptive preprocessing method of infrared image sequence** [6279-120]
X. Cai, Electronic Engineering Institute (China) and Anhui Provincial Key Lab. of Electronic Restriction (China); Y. Hu, Anhui Provincial Key Lab. of Electronic Restriction (China); G. Hu, Electronic Engineering Institute (China); X. Tao, Electronic Engineering Institute (China) and Anhui Provincial Key Lab. of Electronic Restriction (China); W. Lei, Electronic Engineering Institute (China)

62793D **Non-uniform MR image reconstruction based on non-uniform FFT** [6279-121]
X.-Y. Liang, Shanghai Univ. (China); W.-M. Zeng, Johns Hopkins Univ. (USA); Z.-H. Dong, Z.-J. Zhang, Shanghai Univ. (China); L.-M. Luo, Southeast Univ. (China)

62793E **An algorithm based on spatial filter for infrared small target detection and its application to an all-directional IRST system** [6279-122]
J. Luo, H. Ji, J. Liu, Xidian Univ. (China)

62793F **The application of the multi-scale GVF model based on the B-spline lifting wavelet in medical image segmentation** [6279-123]
J. Xue, Z. Liu, H. Zhang, Tianjin Univ. (China); S. Wang, Tianjin Telecom Corp. (China)

62793G **A general image processing algorithm demo and evaluation system for infrared imaging** [6279-124]
H. Qu, Q. Chen, G. Gu, X. Sui, Nanjing Univ. of Science and Technology (China)

62793H **An improved NAS-RIF algorithm for blind image restoration** [6279-125]
N. Liu, Y. Jiang, S. Lou, Xidian Univ. (China)

62793I **Enhancement of panoramic image resolution based on swift interpolation of Bezier surface** [6279-126]
X. Xiao, G. Yang, J. Bai, Zhejiang Univ. (China)

62793J **A weighted least-squares-image-matching-based target tracking algorithm** [6279-127]
X. Zhang, L. Li, X. Zhu, Y. Shang, Q. Yu, National Univ. of Defense Technology (China)

62793K **Comparison of anamalous range image suppression methods of laser radar and combination of filter methods** [6279-128]
C. Zhe, L. Qi, W. Qi, Harbin Institute of Technology (China)

62793L **Object-oriented information extraction technology from QuickBird pan-sharpened images** [6279-129]
C. Zhou, Shandong Univ. of Science and Technology (China) and Institute of Remote Sensing Applications (China); P. Wang, Z. Zhang, C. Qi, Shandong Univ. of Science and Technology (China); Y. Wang, Xi'an Univ. of Science and Technology (China)

62793M **Superresolution reconstruction of images by weighted wavelet bicubic interpolation search algorithm** [6279-130]
Y. Qu, C. Bian, Y. Li, Xi'an Institute of Optics and Precision Mechanics (China)

62793N **New 2D adaptive image thresholding method based on within and between cluster scatter** [6279-131]
Y. Zhou, K. Yang, Huazhong Univ. of Science and Technology (China)

62793O **Image blurring of narrow laser beam transfer in ocean and through wavy sea surface** [6279-132]
M. Xia, K. Yang, Y. Zheng, J. Rao, Huazhong Univ. of Science and Technology (China)

62793P **Double-channel on-line automatic fruit grading system based on computer vision** [6279-133]
J. Zhang, Y. Xun, W. Li, China Agricultural Univ. (China); C. Zhang, Guangdong Agricultural Machinery Research Institute (China)

62793Q **Multiple facula targets recognition based on edge and region search** [6279-134]
Y. Shang, X. Zhu, Q. Yu, National Univ. of Defense Technology (China); H. Han, Satellite Positioning Station (China); X. Zhang, National Univ. of Defense Technology (China)

62793R **Automatic interpretation and precision detection of target's axis in image sequences** [6279-135]
X. Hu, Y. Xue, S. Zhang, X. Liu, HOTC (China)

62793S **Analysis of scannerless imaging lidar in large field-of-view condition** [6279-136]
S. Li, J. Liu, Q. Wang, Q. Wang, Harbin Institute of Technology (China)

POSTER SESSION: FEMTO-ATTOSECOND LIGHT AND PHOTOELECTRON SOURCES

62793T **Analysis of the output impulse of PCSS triggered by femto-second laser pulse** [6279-137]
Z. Jing, T. Wang, C. Ruan, J. Wang, Xi'an Institute of Optics and Precision Mechanics (China); H. Yang, Univ. of Electronic Science and Technology of China (China); X. Li, Chang'an Univ. (China); L. Wu, Xi'an Institute of Optics and Precision Mechanics (China)

62793U **Self-starting 21-ps Ti:sapphire laser with high beam quality** [6279-138]
W. Ling, Y. Wang, W. Zhao, Xi'an Institute of Optics and Precision Mechanics (China); J. Tian, J. Zhu, Z. Wei, Institute of Physics (China)

62793V **Self-phase modulation of an ultrashort laser pulse from laser breakdown plasma** [6279-139]
Y. Zhang, Northwest Institute of Nuclear Technology (China); L. Yan, Tsinghua Univ. (China); G. Zheng, L. Wang, J. Liu, Northwest Institute of Nuclear Technology (China)

62793W **Self-starting mode-locked Cr: forsterite laser pumped by 1030-nm Yb: YAG laser** [6279-140]
B. Zhou, P. Wang, Y. Cang, J. Zhen, Z. Wei, Institute of Physics (China); L. Chen, Beijing Univ. of Posts and Telecommunications (China)

62793X **Stabilization and phase control of femtosecond Ti:sapphire laser with a repetition rate of 90MHz** [6279-141]
W. Zhang, H. Han, P. Wang, Z. Wei, Institute of Physics (China)

62793Y **Generation of 7-fs laser pulse and measurement of carrier-envelope phase by difference-frequency generation** [6279-142]
Y. Zhao, H. Han, P. Wang, W. Zhang, Z. Wei, Institute of Physics (China)

62793Z **Compression and carrier-envelope phase control of 5fs laser pulse for driving attosecond pulse** [6279-143]
J. Zhu, P. Wang, H. Han, H. Teng, Z. Wei, Institute of Physics (China)

POSTER SESSION: PULSED X-RAY SOURCES AND RADIOGRAPHY

627940 **X-ray spectra from weakly ionized linear molybdenum plasma** [6279-144]
H. Obara, Tohoku Univ. (Japan); E. Sato, Iwate Medical Univ. (Japan); R. Germer, Technische Univ. Berlin (Germany); E. Tanaka, Tokyo Univ. of Agriculture (Japan); H. Mori, National Cardiovascular Ctr. Research Institute (Japan); T. Kawai, Hamamatsu Photonics, Inc. (Japan); T. Inoue, A. Ogawa, Iwate Medical Univ. (Japan); K. Takayama, Tohoku Univ. Biomedical Engineering Research Organization (Japan)

627941 **High-sensitive radiography system utilizing a pulse x-ray generator and a night-vision CCD camera (MLX)** [6279-145]
E. Sato, M. Sagae, Iwate Medical Univ. (Japan); E. Tanaka, Tokyo Univ. of Agriculture (Japan); H. Mori, National Cardiovascular Ctr. Research Institute (Japan); T. Kawai, Hamamatsu Photonics Inc. (Japan); T. Inoue, A. Ogawa, S. Sato, Iwate Medical Univ. (Japan); T. Ichimaru, Hirosaki Univ. (Japan); K. Takayama, Tohoku Univ. Biomedical Engineering Research Organization (Japan)

POSTER SESSION: DIAGNOSIS OF HIGH-TEMPERATURE AND HIGH-DENSITY PLASMAS

627942 **Investigation of interaction of the plasma clouds forming as a result of two laser target irradiation** [6279-146]
V. I. Annenkov, A. V. Bessarab, G. A. Bondarenko, G. V. Dolgoleva, All-Russian Research Institute of Experimental Physics (Russia); G. G. Feldman, BIFO Co. (Russia); V. A. Krotov, V. P. Kovalenko, A. V. Kunin, All-Russian Research Institute of Experimental Physics (Russia); V. B. Lebedev, BIFO Co. (Russia); I. N. Nikitin, E. A. Novikova, A. I. Panov, I. V. Sobolev, S. S. Sokolov, V. A. Starodubtsev, R. R. Sungatullin, A. E. Shirokov, V. A. Zhmailo, All-Russian

627943 **Experimental study on the flame behaviors of premixed methane/air mixture in horizontal rectangular ducts** [6279-147]
D. Chen, J. Sun, S. Chen, Y. Liu, G. Chu, Univ. of Science and Technology of China (China)

627944 **Optics-ammunition mechanism of plasma radiation inspired by exploding wires blasting in inert gases** [6279-148]
X. Zhao, Xi'an High-Tech Research Institute (China) and Xi'an Jiaotong Univ. (China); Q. Zhao, Q. Zhang, L. Wang, Xi'an High-Tech Research Institute (China)

627945 **Optical imaging system for wire array Z-pinch on Qiangguang-I** [6279-149]
L. Sheng, M. Lv, Tsinghua Univ. (China) and Northwest Institute of Nuclear Technology (China); K. Wang, A. Qiu, D. Hei, M. Qiu, F. Wei, Y. Yuan, P. Wang, Northwest Institute of Nuclear Technology (China)

POSTER SESSION: ULTRAFAST LASERS AND APPLICATIONS

627946 **Generation of short electrical pulses by photoconductive semiconductor switches triggered with a high-power laser diode** [6279-150]
T.-Y. Zhang, Xi'an Institute of Optics and Precision Mechanics (China) and Xidian Univ. (China); S.-X. Shi, Xidian Univ. (China); W. Zhao, Xi'an Institute of Optics and Precision Mechanics (China)

627947 **Theoretical and numerical investigations of fused silica modification using ultrafast double-pulses** [6279-151]
Q. Liu, J. Wang, Zhejiang Wanli Univ. (China); G. Cheng, Xi'an Institute of Optics and Precision Mechanics (China); J. Chen, F. Liu, Zhejiang Wanli Univ. (China); C. Liu, Ningxia Univ. (China)

627948 **Fast photomultiplier tube gating system for underwater laser detector** [6279-152]
X. Lei, Huazhong Univ. of Science and Technology (China) and Naval Univ. of Engineering (China); K. Yang, Huazhong Univ. of Science and Technology (China); J. Rao, Huazhong Univ. of Science and Technology (China) and Naval Univ. of Engineering (China); X. Zhang, Naval Univ. of Engineering (China); M. Xia, Y. Zheng, W. Li, Huazhong Univ. of Science and Technology (China)

627949 **Laser-induced defect damage on optical thin film** [6279-153]
S. Wu, Z. Xia, Shanghai Institute of Optics and Fine Mechanics (China) and Chinese Academy of Sciences (China); J. Shao, K. Yi, Z. Fan, Shanghai Institute of Optics and Fine Mechanics (China)

62794A **Research on the stable state distribution of femetosecond pulses optical soliton communication system** [6279-154]
A. Yin, East China Jiaotong Univ. (China) and Huazhong Univ. of Science and Technology (China); Q. Zhang, A. Zhan, W. Bin, East China Jiaotong Univ. (China)

62794B **Laser-induced acoustic landmine detection with YAG and erbium fiber laser** [6279-155]
C. Cao, X. Zeng, Y. An, J. Xu, Y. Zheng, Xidian Univ. (China)

62794C **Compensation of high-order phase distortions in chirped-pulse amplification system** [6279-156]
B. Zhou, Y.-L. Jiang, Y.-X. Leng, X.-W. Chen, R.-X. Li, Z.-Z. Xu, Shanghai Institute of Optics and Fine Mechanics (China)

62794D **Multi-pulse operation of Yb^{3+}-doped fiber mode-locked laser** [6279-157]
L. Zh. Yang, Y. C. Wang, Taiyuan Univ. of Technology (China); G. F. Chen, Y. Sh. Wang, W. Zhao, Xi'an Institute of Optics and Precision Mechanics (China)

62794E **Numerical study on the propagating performance of super-Gaussian ultrashort optical pulse** [6279-158]
S. Guo, Zhejiang Univ. of Technology (China); W. An, UTStarcom Telecom Co., Ltd. (China); G. Zhu, Zhejiang Univ. of Technology (China)

62794F **Near-field optical characteristics of subwavelength grating irradiated by ultrashort optical pulse** [6279-159]
P. Zhou, Y. Guo, F. Pan, S. Wang, Shanxi Univ. of Technology (China); S. Liu, Shanxi Univ. of Technology (China) and Shanghai Institute of Optics and Fine Mechanics (China); Z. Fan, J. Shao, Shanghai Institute of Optics and Fine Mechanics (China)

62794G **Passive Q-switched fiber laser with SESAM in ytterbium-doped double-clad fiber** [6279-160]
C. Gao, W. Zhao, Y. Wang, S. Zhu, G. Chen, Xi'an Institute of Optics and Precision Mechanics (China); Y. Wang, Institute of Semiconductors (China)

62794H **Experimental study on laser ablating different materials in atmosphere** [6279-161]
J. Li, Z. Tang, Univ. of Science and Technology of China (China)

POSTER SESSION: HIGH-SPEED HOLOGRAPHY AND INTERFEROMETER

62794I **A differential interferometer with the four-focus imaging system** [6279-162]
G. Chen, Z. Li, S. Liu, China Academy of Engineering Physics (China)

62794J **A new real-time surface profile measurement using a sinusoidal phase modulating interferometry** [6279-163]
G. He, X. Wang, D. Li, J. Hu, Shanghai Institute of Optics and Fine Mechanics (China)

62794K **Research of transient flow field real time interferogram acquisition system** [6279-164]
J. Liang, Y. Yang, D. Liu, Y. Zhuo, J. Hui, J. Weng, Zhejiang Univ. (China)

62794L **Research on optical interferometric communication frequency characteristic test and matching method** [6279-165]
L. Guo, Y. Wang, Harbin Engineering Univ. (China); K. Wang, Harbin Institute of Technology (China)

62794M **Observation and research of chip formation and efflux by high-speed hard cutting** [6279-166]
X. Liu, F. Yan, Y. Wang, Y. Wang, H. Pen, T. Chen, Harbin Univ. of Science and Technology (China)

62794N **An adaptive mean shift particle filter for tracking moving objects** [6279-167]
X. Wang, Y. Zha, D. Bi, Air Force Engineering Univ. (China)

62794O **Moving airplane real-time detection based on lifting wavelets** [6279-168]
J. Wu, W. Qiu, P. Wang, Nanchang Univ. (China)

62794P **Research on applications of optical wavelet transform in high-speed photography** [6279-169]
T. Wang, D. Li, C. Tao, H. Shi, Chongqing Univ. (China)

62794Q **Dynamic monitoring studies for high-speed mechanical manufacturing process** [6279-170]
Y. Zhang, L. Wang, Nanjing Univ. of Information Science and Technology (China); Q. Wu, D. Hu, Shanghai Jiao Tong Univ. (China)

62794R **Free-surface velocity measurements using an optically recording velocity interferometer** [6279-171]
J. Lu, Z. Wang, J. Liang, Y. Shan, C. Zhou, Y. Xiang, Z. Lu, X. Tang, China Institute of Atomic Energy (China)

62794S **Study of high-speed photography measuring instrument** [6279-172]
Z. Zhang, J. Sun, Jilin Univ. (China); K. Wu, Changchun Institute of Optics, Fine Mechanics and Physics (China)

62794T **A servo-control system for detecting micro-displacement based on interferometry** [6279-173]
J. Hui, Y. Yang, J. Liang, C. Lu, Zhejiang Univ. (China)

62794U **Moving object detection under complex background using radial basis function neural network** [6279-174]
Z. Lai, Institute of Optics and Electronics (China) and Chinese Academy of Sciences (China); J. Wang, Q. Zhang, Institute of Optics and Electronics (China)

62794V **The measurement of micro-topography surface based on wave cutting interference theory** [6279-175]
M. Hui, Beijing Institute of Technology (China); N. Deng, Beijing Institute of Control and Electric (China)

62794W **Source rock maturity study by capillary tube interferometer** [6279-176]
A. Yang, W. Li, J. Dong, J. Zhang, Ocean Univ. of China (China)

62794X **Applications of high-speed motion analysis system on solid rocket motor (SRM)** [6279-177]
Y. Liu, G. He, J. Li, P. Liu, J. Chen, Northwestern Polytechnical Univ. (China)

62794Y **High-speed phase shifting profilometry with dual-frequency digital projection grating pattern** [6279-178]
Y. Chen, Y. He, E. Hu, H. Zhu, Huazhong Univ. of Science and Technology (China)

62794Z **Projected fringe profilometry of a high-speed moving object using time delay and integration imaging** [6279-179]
Y. Chen, Y. He, E. Hu, C. Ai, Huazhong Univ. of Science and Technology (China)

Part Three

POSTER SESSION: HIGH-SPEED VIDEO TECHNIQUE

627950 **Design of underwater video attached to buoy for observing shallow water substrate** [6279-180]
Y. Dingtian, South China Sea Institute of Oceanography (China); C. Wenxi, P. Delu, Second Institute of Oceanography (China)

627951 **Motion detection and estimation in low-level-light video sequence** [6279-181]
S. Tian, Nanjing Univ. of Science and Technology (China) and Nanyang Institute of Technology (China); B. Chang, Nanjing Univ. of Science and Technology (China); Y. Gao, Nanjing Univ. of Science and Technology (China) and Nanyang Institute of Technology (China); Y. Qiu, Nanjing Univ. of Science and Technology (China); J. Qiao, Nanjing Univ. of Science and Technology (China) and Nanyang Institute of Technology (China); R. Fu, Nanyang Institute of Technology (China)

627952 **Research on a robot landmark localization system based on monocular camera** [6279-182]
Y. Luo, X. Xu, Y. Zhang, Chongqing Univ. of Posts and Telecommunications (China)

627953 **A new method of glare protection on highway real-time monitoring during nighttime** [6279-183]
J. Xu, Z. Chen, X. Ni, Z. Lu, Zhejiang Univ. (China)

627954 **Automatic moving object segmentation in video sequence** [6279-184]
X. Zhang, Y. Dong, X. Zhuang, Air Force Engineering Univ. (China)

627955 **A novel mobile robot localization based on vision** [6279-185]
Y. Zhang, Y. Luo, Chongqing Univ. of Posts and Telecommunications (China)

627956 **Design and implementation of infrared small target real-time detection system based on pipeline technology** [6279-186]
L. Sun, Mechanical Engineering College (China) and Hebei Univ. of Economics and Trade (China); Y. Wang, Y. He, Mechanical Engineering College (China)

627957 **An approach to fast image mosaic based on binary region segmentation** [6279-187]
X. Han, Peking Univ. (China) and Shenyang Univ. (China); L. Yan, H. Zhao, Peking Univ. (China)

627958 **Real-time recognition of target under complicated background by using Vander Lugt correlator** [6279-188]
W. Hu, J. Wang, Shijiazhuang Mechanical Engineering College (China); R. Xue, Army Representative Office of Xiguang Group (China); X. Shen, W. Hua, Y. Wang, Shijiazhuang Mechanical Engineering College (China)

627959 **Rotation-canceling real time system of color video image** [6279-189]
S. Tao, W. Ma, L. Qian, New Star Research Institute of Applied Technology (China)

62795A **State-space blur model for high-speed forward-moving imaging system and its recursive restoration** [6279-190]
F. Cao, X. Chen, W. Jin, Beijing Institute of Technology (China)

62795B **Detection of small moving targets in staring images sequence with complex background and low contrast** [6279-191]
G. Cao, Changchun Univ. of Science and Technology (China); Y. Qu, Xi'an Institute of Optics and Precision Mechanics (China); Y. Wang, Changchun Univ. of Science and Technology (China); X.-W. Fan, Xi'an Institute of Optics and Precision Mechanics (China); C. Su, Changchun Univ. of Science and Technology (China)

POSTER SESSION: DIAGNOSIS OF ULTRAFAST PHENOMENA

62795C **High-speed diagnostic pulsewise-periodic of electric discharge in water** [6279-192]
V. A. Kolikov, M. E. Pinchuk, A. G. Leks, P. G. Rutberg, Institute for Electrophysics and Electric Power (Russia)

62795D **High-speed optical studies of the long sparks in very transient stages** [6279-193]
Y. V. Shcherbakov, All-Russian Electrotechnical Institute (Russia); V. B. Lebedev, BIFO Co. (Russia); V. A. Rakov, Univ. of Florida (USA); G. G. Feldman, B. N. Gorin, BIFO Co. (Russia); V. S. Syssoev, All-Russian Electrotechnical Institute (Russia); M. A. Karpov, BIFO Co. (Russia)

62795E **High-speed velocity measurements on an EFI-system** [6279-194]
W. C. Prinse, P. G. van't Hof, TNO Defense, Security and Safety (Netherlands); L. K. Cheng, TNO Science and Industry (Netherlands); J. H. G. Scholtes, TNO Defense, Security and Safety (Netherlands)

62795F **Femtosecond study of electron transfer dynamics of anionic-cationic cyanine dye J-aggregates to AgBrI microcrystals** [6279-195]
G. Fu, S. Fan, C. Li, G. Fan, X. Li, S. Yang, Hebei Univ. (China)

62795G **Extracting protein folding kinetics in single-pair fluorescence resonance energy transfer experiment based on wavelet analysis** [6279-196]
G. Shan, Fudan Univ. (China) and Nanyang Technological Univ. (Singapore); W. Huang, Fudan Univ. (China)

62795H **Inversing chlorophyll-a concentration by multi-temporal models using TM images** [6279-197]
Y. Li, W. Lu, H. Wang, Nanjing Normal Univ. (China)

POSTER SESSION: SENSORS FOR HIGH-SPEED DIAGNOSIS (CCD, CMOS, ETC.)

62795I **A new high-speed image sensing technique based on an ordinary CCD** [6279-198]
G. He, X. Wang, D. Li, J. Hu, Shanghai Institute of Optics and Fine Mechanics (China)

62795J **Research on CCD video signal processing based on correlated double sampling** [6279-199]
X. Q. Wu, L. Zhang, X. J. Li, X. W. Xu, Hefei Univ. of Technology (China)

62795K **On the relationship between the illumination of bubble in water and the CCD gray pattern** [6279-200]
H. Ning, Y. Tang, Xi'an Univ. of Technology (China)

62795L **Ultrashort electromagnetic pulse used for target detection** [6279-201]
C. Ruan, W. Zhao, G.-F. Chen, B.-Y. Liu, S.-L. Zhu, Xi'an Institute of Optics and Precision Mechanics (China)

62795M **The research on binocular-vision-based real-time object indication recognition method** [6279-202]
C. Li, Z. Zhang, Z. Dong, Shanghai Univ. (China)

62795N **Simultaneous phase-shifting interferometry based on high-speed CCD** [6279-203]
F. Zuo, Nanjing Univ. of Science and Technology (China) and HuaiYin Teacher's College (China); L. Chen, C. Xu, Nanjing Univ. of Science and Technology (China)

62795O **Development of high-frame-rate CCD image remote acquisition system** [6279-204]
H. Zhang, B. Li, L. Ruan, B. Feng, M. Guo, Northwest Institute of Nuclear Technology (China)

62795P **Design and study of a new crepuscular imaging CCD** [6279-205]
Y. Du, Y. Tang, K. Liu, H. Ning, L. Zhang, H. Li, Xi'an Univ. of Technology (China)

62795Q **Synchronous control analysis of TDI-CCD imaging system** [6279-206]
L. Zhang, Y. X, Li, Nanjing Univ. of Science and Technology (China); X. W. Xu, Hefei Univ. (China)

62795R **Review of current deveopments and trends of CMOS image sensors** [6279-207]
H. Chen, P. Li, X. Zheng, J. Sun, K. Li, Beijing Institute of Technology (China)

62795S **Study CCD image motion for remote sensing detection** [6279-208]
P. Lv, Y. Tang, K. Liu, B. Zhang, S. Wang, Y. Du, Xi'an Univ. of Technology (China)

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Introduction

The 27th International Congress on High-Speed Photography and Photonics (27th ICHSPP) was successfully held at the Xi'an International Conference Center, Xi'an, China, 17–22 September 2006. The 18th ICHSPP was last held in Xi'an in 1988. We are proud to host the congress again in Xi'an after 18 years. Since 1952, this biennial international serial congress has brought together scientists and engineers worldwide to make academic exchange and discussion on high-speed photography. The domain of the congress was extended to photonics in the 13th congress in 1978 in order to reflect the progress of science and technology. In this congress, the scientific scope is further extended to photonics to encourage more scholars to join this community.

More than 300 participants from 15 countries attended the 27th ICHSPP. Countries represented include: Australia, Canada, China, France, Germany, India, Israel, Japan, Netherlands, Poland, Russia, South Africa, Sweden, UK, and USA. Approximately 325 contributions were presented at the congress, split into 8 plenary presentations, 21 parallel session invited presentations, 87 oral presentations and 209 poster presentations. The final papers published in this volume of the SPIE proceedings includes 7 plenary papers, 12 invited papers, 68 oral papers and 190 poster papers. Ten exhibitors contributed to a comprehensive and interesting display of state-of-the-art equipment related to high-speed photography and imaging.

In the tradition of previous congresses, the National Delegates Meeting was held during the 27th ICHSPP. Altogether, 14 national delegates from Australia, China, France, Germany, India, Israel, Japan, Netherlands, Poland, Russia, South Africa, Sweden, the United Kingdom, and the United States, as well as the president of XIOPM and the Administrative Secretary of the Congress attended the meeting at XIOPM, CAS. The national delegates discussed the future development of high-speed photography and photonics. Because of the decrease of high-speed photography, the national delegates collectively decided to modify the name of the congress to "International Congress on High-Speed Imaging and Photonics (ICHSIP)," for the next congress to expand the scope and attract more young scientists. The 28th Congress was determined to be held in Australia in 2008. The 29th Congress was suggested to be held in the Netherlands in 2010.

During the National Delegates Meeting, the winner of the 2006 Hubert Schardin Award was evaluated and decided. At the congress banquet, Prof. Harald Kleine from the Civil and Mechanical Engineering University of New South Wales (Australia) received the 2006 Hubert Schardin Award. Prof. Mikhail Monastyrskiy from the Prokhorov General Physics Institute (Russia) received the 2006 Photo-Sonics Achievement Award.

Grateful acknowledgement is given to our major sponsors:

COS—Chinese Optical Society
XIOPM—Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences
State Key Laboratory of Transient Optics and Photonics (China)
Shaanxi Associations for Science and Technology (China)

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Yanshan University (China)
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Institute of Optoelectronics, Shenzhen University (China)
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We would like to acknowledge all of the national delegates for their support of this congress. We thank Professor T. Goji Etoh from Kinki University (Japan) for his donation of the Photo-Sonics Achievements Award 2004 ($5000) to the congress. We are also grateful to the many people who made great contributions to the success of the congress, including the organizing committee, session chairs, exhibitors, SPIE staff, and all attendees.

We look forward to meeting you again at the 28th congress in Australia in 2008, and many meetings to come.

Xun Hou
Wei Zhao
Baoli Yao

Congress Awards

2006 Hubert Schardin Award

Prof. Dr. Harald Kleine (Australia)

Presented by Prof. Dr. Manfred Hugenschmidt
Faculty of Electrical Engineering and Information Technique, Institute of High-Frequency and Quantum Electronics, IHQ, University of Karlsruhe, Germany

Dear Professor Hou Xun, dear Professor Wei Zhao, dear chairmen, co-chairmen, members of the Advisory Committee and the Organizing Committee; dear National Delegates, ladies and gentlemen, I greatly appreciate this opportunity to address a few words to the participants of the 27th International Congress on High-Speed Photography and Photonics at Xi'an in China on behalf of the remittance of the Hubert Schardin Award 2006.

First, however, let me acknowledge that China is hosting the High-Speed Congress for the second time. I would like to express my thanks, particularly to Professor Hou Xun, the 27th Congress Chair who also organized the 18th High-Speed Congress in 1988. I personally had the opportunity to attend this first Congress in China, where I met a young PhD student of Prof. Hou. This was Dr. Chang Zenghu who, a few years later, in 1996, received the Hubert Schardin Medal in 1996. At that time Dr. Chang Zenghu was Associate Professor of the XIOPM. He is now a Professor at Kansas State University and during the present Congress he gave a remarkable plenary talk on his Kansas "Attosecond Physics" research program. For participants from abroad, it's most impressing to see the great progress in China and specifically in Xi'an with its new Conference Center, the new University Campus, Institute, and Laboratory buildings of the Institute of Optics and Precision Mechanics with modern equipment and motivated students.

Concerning the Schardin Award, let me remind you that Hubert Schardin, the founder of the German-French Research Institute Saint-Louis, ISL, and the Ernst-Mach Institute at Freiburg, Germany, was strongly engaged in fostering international relationships and cooperation. Schardin and his friends were highly distinguished pioneers worldwide, convinced that scientific progress can be more efficiently achieved by mutual exchange of information. Since 1952, these conferences were organized bi-annually by participating countries. This allowed the Congress to overcome political constraints and moreover to build up an atmosphere of confidence. Schardin himself gave major contributions. Even a few days before his unexpected death in 1965 he was acting as keynote speaker during the High-Speed Congress in Switzerland. To commemorate Schardin, an

Award was set up by the German Physical Society (Deutsche Physikalische Gesellschaft, DPG) in 1968 for being remitted during forthcoming High-Speed Congresses. The Award consists of a certificate and a golden medal, aimed at:

- recognizing outstanding contributions to previous or current Congresses
- encouraging continued efforts concerning research and applications of high-speed imaging
- fostering international communication and cooperation for improving scientific achievements

It's my pleasure now, to announce the decision of the Price Committee, concerning the remittance of the Hubert Schardin Award 2006. According to the rules set up by the DPG, candidates are to be suggested by the National Delegates, as in previous years. Proposals were thoroughly discussed during the Xi'an Award Committee Meeting. After the evaluation, it was commonly decided that the Hubert Schardin Medal 2006 should be awarded to Prof. Dr. Harald Kleine.

Let me briefly review the curriculum vitae of the laureate.

Harald Kleine was born at Krefeld in Germany in 1960. After his studies at the well known RWTH (Rheinisch Westfälische Technische Hochschule) at Aachen he received his Diploma in Mechanical Engineering in 1986. His efforts for outstanding performance of the graduate course in Mechanical Engineering were acknowledged by the Springorum Medal already in 1987. During the following years, 1987 to 1994, Harald Kleine took over the position of a Research Associate in the RWTH-Aachen Shock-Wave Laboratory. During this time he had several opportunities to temporarily stay abroad as an Invited Researcher, working in Japan in 1992 for several months at Yokohama National University and in 1994 at the Mitsubishi Heavy Industries R&D Center in Takasago.

In 1994, Harald Kleine received a PhD from the RWTH with *summa cum laude* honors. The subject of his thesis was related to investigations concerning improvements of optical diagnostic methods for applications in gas-dynamic. For this doctoral thesis he received both the Friedrich Wilhelm Price and Borchers Award in 1995. From October 1994 to August 1997, Harald Kleine was staying as Postdoctoral Fellow in the Department of Mechanical Engineering of the McGill University at Montreal, and from 1997 to 1999 as a Senior Research Engineer at the Medical Engineering Systems in Ottawa, Canada.

From 1999 to 2002, Harald Kleine joined Professor Takayama and stayed as an Associate Professor for about three years at the Graduate School of Engineering at Tohoku University in Sendai, Japan. During that time he was involved in various scientific projects related to shock tube physics and improved optical diagnostics. Harald Kleine also strongly supported Professor Kazuyoshi Takayama in preparing the 24th International Congress on High-Speed Photography and

Photonics, the Millenium Congress in 2000. Moreover, he gave several well-received presentations on his current activities in Japan.

Finally, in 2002, Prof. Harald Kleine moved to Australia taking over a responsibility as Senior Lecturer at the School of Aerospace at the University of South Wales of the Australian Defense Force Academy in Canberra. During the present Congress at Xi'an, his two presentations gave an overview of his new activities in Canberra. The broad spectrum of his current research in Australia includes hypersonic physics, high-speed visualization of shock-focusing phenomena, studies of instabilities, supersonic flows around blunt objects, cavitation phenomena for underwater impact processes, supersonic flows over cavities, and further developments and improvements of visualization techniques.

It's my pleasure now to ask Harald Kleine to come to the stage, also Professor Hou Xun and Professor Wei Zhao, so that both the Certificate of the DPG and the Hubert Schardin Gold Medal can be handed over. Personally, I would like, also in the name of all members of the Award Committee to transmit our congratulations to Professor Harald Kleine with all best wishes for the further scientific and professional career as well as for all private activities in the future.

2006 Photo-Sonics Achievement Award

Prof. Mikhail A. Monastyrskiy (Russia)

Presented by Prof. James Walton
4DVideo (USA)

The Photo-Sonics Achievement Award recognizes outstanding contributions in the field of high-speed imaging. Preference is given to those developments or inventions that have resulted in significant advances in high-speed photo-instrumentation and/or high-speed photography. The award is intended to recognize the contributions of an individual, thus developments or inventions produced by a group are only considered if one person has contributed substantially to the concept and its development. The recognized work must have been performed within the last five years. The award is presented every two years in conjunction with the International High-Speed Imaging Congress. It consists of a plaque and a certificate bearing a citation of the recognized work. It also carries an honorarium of $5,000, which has been donated by Photo-Sonics, Inc., in Burbank, California, since 1970. Administrative support for the award is provided by SPIE, in Bellingham, Washington.

The Photo-Sonics Award Selection Committee is pleased to announce that at this, the 27th International Congress on High-Speed Photography and Photonics, the recipient of the Photo Sonics Award is Prof. Mikhail Monastyrskiy from the

Photoelectronics Department of the Prokhorov General Physics Institute, in Moscow, Russia. The citation for the recognized work is as follows:

The Photo-Sonics Award is presented to Prof. Mikhail A. Monastyrskiy for his significant contributions to the area of High-Speed Photography and Photonics. Prof. Monastyrskiy has developed a reliable basis for qualitative estimations of the dynamic range of pico/femtosecond streak tubes and diffractometers. His efforts have resulted in the use of non-stationary electric fields (in contrast to the stationary types now being used) to compress photoelectron bunches down to the sub-femtosecond level. This provides definite evidence that laser and photoelectron pulses are comparable for recording high-speed events. It is now possible to perform experiments in time-resolved electron diffraction that are improved by two orders of magnitude beyond the 150 to 200 femtosecond measurements now being performed.

Group photo of participants in the Congress.

Prof. Xun Hou, Congress Chair, making his opening remarks and welcoming attendees in the opening ceremony.

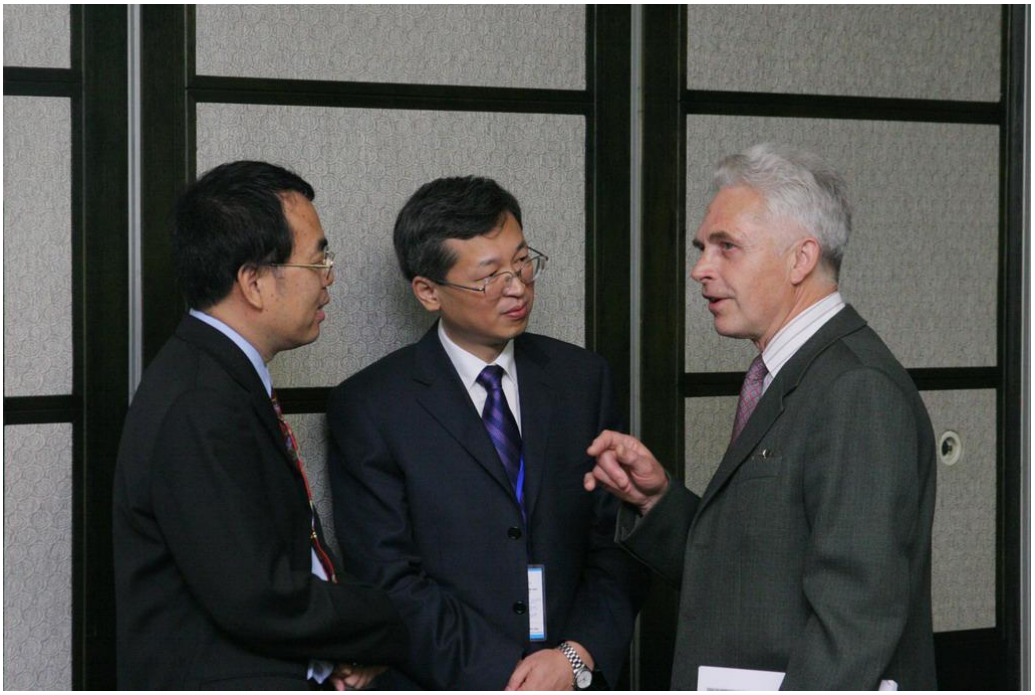
The National Delegates Meeting, at XIOPM, CAS

Group photo of the National Delegates at XIOPM, CAS

National Delegates visiting XIOPM, CAS

Prof. Manfred Hugenschmidt (left), Germany, awarding the Hubert Schardin Medal to Prof. Harald Kleine (right), Australia.

Prof. James Walton (left), USA, awarding the Photo-Sonics Achievement Award to Prof. Mikhail Monastyrskiy (right), Russia.



Prof. Wei Zhao (middle), Prof. Mikhail Ya. Schelev (right) and Prof. Zenghu Chang (left), in discussion at the Congress.