

Tuesday, November 8

8:30 Registration

Room A

8:45-9:50 **Exhibitors' Presentation**

**Chair: Nobuie Konishi (Nobby Tech Ltd.), Masato Furuse (Photoron Ltd.)
and Yasuhiro Sasaki (nac Image Technology Inc.)**

9:50-10:10 Coffee Break

10:10-11:40 **High-Speed Biomedical Imaging I**

Chair: Katsumasa Fujita (Osaka University) and T.G. Etoh (Osaka University)

10:10	2A-A01	Yuji Sasaki	The University of Tokyo	Protein Motions with X-ray Single Molecule Observations (Invited)	...	75
10:40	2A-A02	Geoffrey H. Campbell, Melissa K. Santala, and Joseph T. McKeown	Lawrence Livermore National Laboratory	Time resolved electron microscopy for in situ experiments (Invited)	...	76
11:10	2A-A03	Stephan Nickell, Anna Lena Eberle, Dirk Zeidler	Carl Zeiss	MultiSEM - the world's fastest scanning electron microscope (Invited)	...	77

11:40-13:00 Lunch (Izumi)

13:00-14:30 **High-Speed Biomedical Imaging II**

**Chair: Geoffrey H. Campbell (LLNL, USA) and
Wei Zhao (Xi'an Institute of Optics and Precision Mechanics)**

13:00	2A-P01	Haruo Sugi	Teikyo University	Electron Microscopic Recording of Myosin Head Power Stroke Producing Muscle (Invited)	...	78
13:30	2A-P02	Katsumasa Fujita	Osaka University	Raman microscopy for imaging cellular dynamics (Invited)	...	79
14:00	2A-P03	Toshio Ando	Kanazawa University	High-speed Atomic Force Microscopy for Observing Protein Molecules (Invited)	...	80

14:30-15:00 Coffee Break, Poster Posting

15:00-16:40 **Poster Short Presentations II (3 min./poster)**

Chair: Mayuko Koga (Hyogo Pref. University) and Alessio Morace (Osaka University)

2P-01	T. Baba, K. Ikezaki, H. Sekiguchi, T. Kubo, Y. C. Sasaki	The University of Tokyo	X-ray imaging of single protein's motion with Ultra-high speed and accuracy	...	81
2P-02	Wei Shi, Hong Liu, Zhijin Yan, Ming Xu, Lei Hou, Ting Shang	Xi'an University of Technology	Research progress on linear avalanche multiplication GaAs terahertz emitter	...	82
2P-03	Ming Xu, Kangkang Bian, Yu Ji, Wei Shi, Hong Liu, Lei Hou	Xi'an University of Technology	Research on Synchronization of 2 Parallel GaAs Photoconductive Semiconductor Switches Excited by 2 Laser Diodes	...	83
2P-04	B. Hosseini, H. Moosavi-Nejad, S.F. Moosavi-Nejad, H. Akiyama, H. Hosseini	Kumamoto University	Microscopic Observation of Effects of Shock Waves on Cancer Cells	...	84
2P-05	Truc Hung NGO, Yen-Wei CHEN, Naoki MATSUSHIRO	Ritsumeikan University	A Fast Dynamic Three-dimensional Facial Structure Reconstruction for Quantitative Assessment of Facial Paralysis	...	85
2P-06	Kazuya Seo, Koji Kawabata	Yamagata University	The launch conditions of a discus and the size optimization on the basis of the launch condition	...	86
2P-07	Ryusuke Noda, Toshiyuki Nakata, Hao Liu, Huihe Qiu, Wei Shyy	The Hong Kong University of Science and Technology	Filming and modeling three-dimensional kinematics of insect flapping wings and body	...	87

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2P-08	Li YongPing	Ningbo Dahongying University	Rapid Tree Model Reconstruction for Fruit Harvesting Robot System Based on Binocular Stereo Vision	...	88
2P-09	M. Nishida, S. Furuya, K. Yamada	Nagoya Inst. Of technology	A Study on High Accuracy Measurement of Dynamic Stress-Strain Curves Using a Split-Hopkinson Tension Bar	...	89
2P-10	T. Goji Etoh, Q. A. Nguyen, K. Shimonomura, Y. Le Thy, Y. Kamakura	Osaka University	The Upper-bound Frame Rate of Silicon Image Sensors	...	90
2P-11	Akihito Komazawa	Shizuoka University	A Time-of-Flight Range Image Sensor Using High-Speed 4-Tap Lock-in Pixels	...	91
2P-12	V.B. Lebedev, A.A. Demchenko, G.G. Feldman, V.N. Krutikov	All-Russian Research Institute for Optical and Physical Measurements (VNIIOFI)	Miniaturization of high-speed streak cameras for fast running processes recording	...	92
2P-13	Jinshou Tian, Tao Wang, Dandan Hui, Jun Zhang, Shaorong Chen, Hui Jia	Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences	Small-size Streak Tube for Imaging Lidar	...	93
2P-14	Yosuke Miki, Yonghee Lee, Ryosuke Yonesaka, Peng Xia, Masato Shinomura, Yasuhiro Awatsuji, Kenzo Nishio	Kyoto Inst. of Technology	Recording of high-speed and high-dynamic-range motion picture using a polarization imaging camera	...	94
2P-15	K. Uchiyama, B. Cieslik, T. Ai, F. Niikura, S. Abe	Hamamatsu Photonics K.K.	A review of ultra-high-speed imaging and applications using Streak cameras	...	95
2P-16	N. Sarukura, M. J. F. Empizo, K. Yamanoi, K. Mori, K. Iwano, Y. Minami, M. V. Luong, T. Shimizu, T. Norimatsu, H. Azechi, A. A. Salvador, R. V. Sarmago, T. Fukuda	Osaka University	Radiation Resistance and Improved Emission Lifetimes of Hydrothermal-grown Bulk ZnO Single Crystals After Gamma-ray Irradiation	...	96
2P-17	P.I. Konovalov, A.S. Dolotov, R.I. Nurtdinov, M.P. Vikulin	VNIIA	New method of electron scrubbing of microchannel plates	...	97
2P-18	P.I. Konovalov, A.Yu. Sokolov, R.I. Nurtdinov, M.P.Vikulin, I.G.Pryanishnikov, A.S. Dolotov	VNIIA	New generation of streak tubes producing by VNIIA	...	98
2P-19	H.Omata Y.Akahoshi Y.Suzuki K.Okubo T.Koura	Kyushu Inst. of Technology	Measure load and pressure of gelatin projectile by using high-speed camera	...	99
2P-20	Megumi Kageyama, Yasuhiro Akahoshi, Takao Koura, Takahiko Matakí, Yukihiro Kitazawa, Kazuo Shimamura, Taku Izumiyama, Kozue Hashimoto, Satomi Kawamoto, Junichi Aoyama	Kyushu Inst. of Technology	Evaluation of penetration characteristics of harpoon tips for capturing space debris and development of debris capture gun	...	100
2P-21	Takanari Sakai, Koki Umeda, Satoshi Kinoshita, Keiko Watanabe	Ritsumeikan University	Plasma Measurement by Optical Visualization and Triple Probe Method under High-speed Impact	...	101
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2P-27	K. Takahashi, N. Ozaki, T. Matsuoka, K. Sueda, K. Miyanishi, N. Hartley, B. Albertazzi, H. Habara, A. Faenov, T. Pikuz, Y. Fujimoto, M. Harmand, R. Hazama, A. Ikegami, Y. Inubushi, Y. Matsumura	Osaka University	Experimental System Developments for in situ Observation of Laser-Shock Compression Dynamics using the High Power Laser and SACLA-XFEL	107
2P-28	Yewang Chen, Xu Wu, Shuangchen Ruan, Chunyu Guo, Weiqi Li, Jun Yu, RuoHeng Luo, and Yihuai Zhu	Shenzhen University	Ultra-flat and ultra-broadband supercontinuum generation in photonic crystal fiber pumped by noise-like pulses	108
2P-29	Zhenhua Wang, Wenhua Li, Min Luan, Qiang Wu, Xinzheng Zhang, Jingjun Xu	Nankai University	High efficient background-free transient beam deflection optical gating for broadband femtosecond time-resolved spectroscopy	109
2P-30	Jun Liu, Xiong Shen, Ruxin Li	Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences	Transient-grating self-referenced spectral interferometry for sub-nanojoule femtosecond pulses characterization and 2DES	110
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2P-32	G. N. Hall, N. Izumi, R. Tommasini, J. P. Holder, O. L. Landen, D. Hargrove, P. M. Bell, D. K. Bradley, et al	Lawrence Livermore National Laboratory	Spatial Resolution and Detective Quantum Efficiency measurements of AXIS: an in-strument for imaging Compton radiographs at the National Ignition Facility	112
2P-33	S. R. Nagel, H.Chen, T. J. Hilsabeck, P.M. Bell, D.K. Bradley, A.K.L. Dymoke-Bradshaw, J.D. Hares, A.U. Hazi, S.M. Kerr, J.D. Kilkenny, E.V. Marley, J. Park, G.J. Williams	Lawrence Livermore National Laboratory	Ultra-high speed imaging of K-alpha emission from short-pulse laser-plasma interactions using DIXI (dilation x-ray imager)	113
2P-34	Manabu Tanaka, Tomoyuki Imatsuji, Taro Hashizume, Takayuki Watanabe, Hisao Nagai, Takeshi Koiwasaki, Takafumi Okuma	Kyushu University	Investigation of Temperature Fluctuation Phenomena in Multiphase AC Arc by High-Speed Camera with Bandpass Filter Optics	114

Room B

10:10-11:50 Explosion, Detonation and the Applications

Chair: Shiro Kubota (AIST) and Tomotaka Homae (National Institute of Technolog, Toyama College)

10:10	2B-A01	M. Asahara, T. Saburi, Y. Wada, S. Kubota, T. Kubota, T. Ando, T. Miyasaka	Gifu University	Simultaneous Direct and Shadowgraph Photographs of Self-Ignition to Flame Development with High-Pressure Hydrogen flow in a rectangular tube	...	115
10:30	2B-A02	T. Biswal, S. Dutta	Defence Research & Development Organisation	Analysis of gun barrel stability during launch dynamics through high-speed imaging	...	116
10:50	2B-A03	T.Saburi, M. Yoshida, S. Kubota	AIST	Dynamic Strain Distribution of FRP Plate under Blast Loading	...	117
11:10	2B-A04	T. Homae, Y. Sugiyama, K. Wakabayashi, T. Matsumura, Y. Nakayama	National Institute of Technology, Toyama College	Interaction between Explosion of Explosives and Water in a Tube	...	118
11:30	2B-A05	S. Kubota, T. Saburi, K. Nagayama	AIST	High Speed Photography for Explosion Phenomena of High Explosives	...	119

11:50-13:00 Lunch (Izumi)

13:00-14:10 High-speed Image Sensors/Cameras and Imaging Systems I

Chair: Kazuhiro Shimonomura (Ritsumeikan University) and Renato Turchetta (Rutherford Appleton Laboratory)

13:00	2B-P01	Tatsuya Yaoita	Ken Automation, Inc.	Visualization of high-speed phenomena using high-speed infrared camera (Invited)	...	120
13:30	2B-P02	H. Nakamura, S. Yamada	National Defense Academy of Japan	Fast Infrared Imaging of Turbulent Heat Transfer	...	121
13:50	2B-P03	Hiroyuki Usui	Nobby Tech. Ltd.	Development of ratio temperature radiometry system by synchronizing a high-speed color camera and a middle-speed twin NIR image sensor camera.	...	122

Room C

10:10-11:50 Spray and Combustion

Chair: Manabu Fuchihata (Kindai University) and Yasuo Moriyoshi (Chiba University)

10:10	2C-A01	N. Kawahara, K. Kintaka, E. Tomita	Okayama University	High-speed visualization of fuel spray impingement in the near-wall region using a DISI injector	...	123
10:30	2C-A02	Yasuo Moriyoshi, Tatsuya Kuboyama	Chiba University	Elucidation of Phenomena in Internal Combustion Engines by High-Speed Imaging Techniques	...	124
10:50	2C-A03	Takafumi Yamazaki, Tsuneyoshi Matsuoka, Yuji Nakamura	Toyohashi University of Technology	High-speed Imaging of Temporal Thermal Field in Thermoplastic Material during Flame Spread	...	125
11:10	2C-A04	M. Fuchihata, A. Salaimeh, T. Hirasawa, K. Saito	Kindai University	Experimental and frequency analysis validation of numerical simulation results	...	126
11:30	2C-A05	J. Hayashi, N. Nakatsuka, I. Morimoto, F. Akamatsu	Osaka University	Time evolution of the high temperature region formed by laser induced breakdown and of the development of the flame kernel in the constant volume combustion vessel	...	127

11:50-13:00 Lunch (Izumi)

13:00-14:20 **Flow Visualization I**

Chair: Herbert Olivier (SWL, RWTH-Aachen) and Toshiharu Mizukaki (Tokai University)

13:00	2C-P01	Hannah Kittel, I. V. Roisman, C. Tropea	Technical Univ. of Darmstadt	Droplets Make a Splash	...	128
13:20	2C-P02	Y. Tatsumi, S. Murata, H. Nashio, Y. Tanaka	Kyoto Inst. of Technology	Three-dimensional structure of longitudinal vortex past a rotating tire	...	129
13:40	2C-P03	SK Karthick and G Jagadeesh	Indian Institute of Science-Bangalore	Supersonic Gaseous Mixing	...	130
14:00	2C-P04	Koju HIRAKI, Daikai ZAITSU, Yuma YANAGA, Kota TANAKA, Harald KLEINE, Satoshi NONAKA	Kyushu Inst. of Technology	Flow Visualization Around A Rotating Body In A Wind Tunnel	...	131

Room D

10:10-12:00 **High-speed Physics and Chemistry I**

Chair: Andrei Nomerotski (Brookhaven National Laboratory) and Zenghu Chang (University of Central Florida)

10:10	2D-A01	Zhiyi Wei	Institute of Physics, Chinese Academy of Science	Manipulate light matter interaction with attosecond laser pulse (Invited)	...	132
10:40	2D-A02	Yasuo Nabekawa, Tomoya Okino, Katsumi Midorikawa	RIKEN	Probing attosecond dynamics of molecules by an intense a-few-pulse attosecond pulse train (Invited)	...	133
11:10	2D-A03	Shin-ichi Adachi	KEK	Visualizing chemical reactions in solution with femtosecond X-ray scattering (Invited)	...	134
11:40	2D-A04	K. Ichiyangi, S. Takagi, S. Nozawa, R. Fukaya, N. Kawai, A. Kyono, N. Funamori, K.G. Nakamura, and S. Adachi	KEK	Time-resolved single-shot X-ray diffraction for measurements of irreversible structural dynamics under shock wave propagation	...	135

12:00-13:00 *Lunch (Izumi)*

13:00-14:30 **High-speed Physics and Chemistry II**

Chair: Shin-ichi Adachi (KEK) and Yasuo Nabekawa (RIKEN)

13:00	2D-P01	Andrei Nomerotski	Brookhaven National Laboratory	TimepixCam: fast optical imager with time stamping (Invited)	...	136
13:30	2D-P02	Zenghu Chang	University of Central Florida	Ultrabroadband Isolated Attosecond X-ray Pulses (Invited)	...	137
14:00	2D-P03	Ulrich Trunk, on behalf of the AGIPD consortium	DESY-Hamburg	AGIPD: A multi Megapixel, multi Megahertz X-Ray Camera for the European XFEL (Invited)	...	138