High Energy Density Sciences 2014

HEDS 2014

Tuesday, April 22

9:30-9:40 OPIC Opening Room 301&302

Opening Remarks

9:30 S. Nakai, Organizer Greeting OPIC2014Organizing Chair
President of Laser Society of Japan, Osaka University Professor Emeritus

9:40-11:30 Keynote Speeches by Congress Chairs Room 301&302

9:40 **VCSEL Photonics -Small and Smart-**
K. Iga, Tokyo Institute of Technology, Former President

10:10 **Accelerator on a Chip and the Path to Coherent X-rays**
R. L. Byer, Stanford Univ., USA

----- Break (10:40-11:00) -----

11:00 **Optical Tweezers as an Engineering Tool**
A. Ostendorf, Ruhr-Univ. Bochum, Germany

11:30-12:10 Special Talk Room 301&302

11:30 **High-Field Laser and High Energy Physics**
A. Suzuki, KEK, Director General, Japan

----- Lunch Break (12:10-13:30) -----

13:30-14:50 Session B (talk of history of the field, current status, and outlook of each professional international) Room 303

13:30 **Industrial Appl. of LED (LEDIA)**
H. Amano, Nagoya Univ.

13:50 **High Energy Density Science (HEDS)**
R. Kodama, Osaka Univ.

14:10 **Laser & Synchrotron Radiation (LSC)**
H. Azechi, Osaka Univ.

14:30 **Laser Processing (SLPC)**
R. Poprawe, Fraunhofer Inst. for Laser Tech.

----- Break (14:50-15:30) -----

15:30-15:40 HEDS Opening Room 311&312

Opening Remarks

15:30 R. Kodama, Conference Chair of HEDS 2014, Osaka Univ., Japan

15:40-16:20 HEDS1：Plenary talk-1 Room 311&312

Chair: R. Kodama, Osaka Univ., Japan

HEDS1-1 **(Plenary) On the Prospects of Laser Driven Hadron Therapy**
15:40 S.V. Bulanov, JAEA, Japan

16:20-17:45 HEDS2 ： High Field Laser Physics-1 Room 311&312

Chair: R. Kodama, Osaka Univ., Japan

HEDS2-1 **(Invited) Ultra-high Magnetic Field Effects on Laser Plasma Interactions**
16:20 K. Mima, GPI, Japan

HEDS2-2 **Enhancement of Electron Beam Intensity Generated by Irradiation of Foil Target with Two Femtosecond**
16:45 **Laser Pulses**
S. Inoue, Kyoto University, Japan

HEDS2-3 **Strongly Magnetized, High-velocity Collisionless Shocks for Laboratory Astrophysics**
17:05 D. Higginson, LULI, France

HEDS2-4 **Nuclear Reaction Induced by Proton Recollision in a Laser-driven Molecule**
17:25 E. Loetstedt, RIKEN, Japan

----- OPIC Banquet (Room 501& 502) (18:00-20:00) -----

Wednesday, April 23

9:00-10:20 HEDS3 : Plenary Talk-2 Room 311&312

Chair: K. Kondo, JAEA, Japan

HEDS3-1 (Plenary) X-ray Quantum Optics with Ultra-high Intensity X-ray Lasers
9:00 H. Yoneda, Inst. Laser Science, Univ. Electro-Comunicaton, Japan

HEDS3-2 (Plenary) Ultra Compact Femtosecond X-rays Beams with Plasma Wigglers
9:40 V. Malka, LOA, France

----- Break (10:20-10:40) -----

10:40-12:30 HEDS4 : Quantum Beams -1 (Electron Acceleration) Room 311&312

Chair: E. Miura, AIST, Japan

HEDS4-1 (Invited, Special) Laser-plasma Acceleration of Electrons to 2 GeV and Beyond
10:40 M. Downer, U. Texas, USA

HEDS4-2 (Invited, Special) Laser-plasma Wakefield Accelerators as Attosecond to Femtosecond Sources of High
11:10 Energy Particles and Incoherent and Coherent Radiation
D. Jaroszynski, Univ. of Strathclyde, UK

HEDS4-3 (Invited) Future Light Source driven by Dielectric Laser Accelerator
11:40 Y. C. Huang, National Tsinghua Univ., Taiwan

HEDS4-4 (Invited) High Density Electron Beam and High Power Laser Complex for the Novel Accelerator
12:05 Experiment in the KEK 7 GeV Electron Linear Accelerator
M. Yoshida, KEK, Japan

----- Lunch Break (12:30-14:00) -----

14:00-15:50 HEDS5 : Quantum Beams -2 (Quantum Beam Imaging) Room 311&312

Chair: K. Arakawa, Shimane Univ., Japan

HEDS5-1 (Invited, Special) A Window in Time: Interrogating Rapid Materials Phenomena with Movie-mode
14:00 Dynamic Electron Microscopy
T. LaGrange, LLNL, USA

HEDS5-2 (Invited, Special) Relativistic Laser-plasma Interaction Using kHz few Cycle Laser Pulses: a Path to a
14:30 Femtosecond Electron Source for Ultrafast Electron Diffraction
J. Faure, LOA., France

HEDS5-3 (Invited) Accelerator Based Femtosecond Time-resolved Electron Microscopy
15:00 J. Yang, Osaka Univ., Japan

HEDS5-4 (Invited) Staging Laser Wakefield Acceleration for Single-shot Ultrafast Electron Diffraction Imaging
15:25 T. Hosokai, Osaka Univ., Japan

----- Break (15:50-16:00) -----

16:00-17:30 HEDS6 : Radiation Sources-1 (X-ray Sources) Room 311&312

Chair: K. A. Tanaka, Osaka Univ., Japan

HEDS6-1 (Invited) Status and Perspective of SACLA
16:00 M. Yabashi, SP-8, SACLA, Japan

HEDS6-2 (Invited) Improvement of Surface Properties by Laser Irradiation and Real-time Probing of Mechanism by
16:25 XFEL at SACLA
Y. Sano, Toshiba Corp., Japan

HEDS6-3 High-resolution XUV Imaging of Catastrophes in Relativistic Plasma
16:50 A. Pirozhkov, JAEA, Japan

HEDS6-4 X-ray Spectroscopy Studies on Warm Solid Matter Isochorically Heated by Laser-generated Electrons
17:10 S. Pikuz, JIHT, RAS, Russia

----- HEDS Banquet (18:00-20:00) -----

Thursday, April 24

9:00-10:20 HEDS7 : Plenary Talk-3 Room 311&312

Chair: K. Koyama, KEK, Japan

HEDS7-1 (Plenary) Demonstration of High Gradient Inverse Ion Channel Laser Acceleration Mechanism
9:00 C. Joshi, UCLA, USA

HEDS7-2 (Plenary) Laser Plasma Acceleration of Low Emittance, High Energy Bunches, and Applications
9:40 C. Geddes, LBNL, USA

----- Break (10:20-10:40) -----

10:40-12:00 HEDS8 : Radiation Sources-2 (Plasma Photonics) Room 311&312

Chair: J. Koga, JAEA, Japan

HEDS8-1 10:40 **(Invited, Special) Control of Temporal Evolution of Laser-generated Plasma Filaments Using a Dual Femtosecond/Nanosecond Laser Pulse**
A. Zigler, Hebrew Univ., Israel

HEDS8-2 11:10 **(Invited) Turbulent Magnetic Fields, Ultrafast Surface Transport and THz Reflectivity Oscillations in High Energy Density Plasmas**
G.R. Kumar, Tata Inst., India

HEDS8-3 11:35 **(Invited) Study of Laser-driven Electron Accelerator And Betatron X-ray Sources in IOP**
L. Chen, Chinese Academy of Sciences, IOP, China

----- Lunch Break & Poster Session (12:00-14:45) -----

13:00-14:45 HEDSp9 : Poster Session Exhibition Hall C

Chair: T. Hosokai, Osaka Univ., Japan

HEDSp9-1 **Short Duration Neutron Beams Produced by Ultra-intense Lasers**
D. Higginson, LULI, France

HEDSp9-2 **Radiation Reaction Effects in Cascade Scattering of Intense Laser Pulses by Relativistic Electrons. Classical and Quantum Approaches**
A. Zhidkov, Osaka Univ., Japan

HEDSp9-3 **Analysis of E and B Fields Distribution Around a Plasma Channel Observed in Proton Radiography**
Y. Uematsu, Osaka Univ., Japan

HEDSp9-4 **Neutron Measurement in Experiment of Laser Induced Proton Source**
K. Ogura, JAEA, Japan

HEDSp9-5 **Guidance of Fast Electrons Generated by Interaction of Intense Femtosecond Laser and Metal Wire**
K. Teramoto, Kyoto Univ., Japan

HEDSp9-6 **The Generation of Proton Beam by Interaction of Thin Films and Intense Laser Pulses**
Y. Nakashima, Kyoto Univ., Japan

HEDSp9-7 **Development of Comprehensive Simulation Including High-intense Femtosecond Laser Plasma Interaction and Electron Beam Transport and Emission**
M. Hata, Kyoto Univ., Japan

HEDSp9-8 **Proton Generation from a Thin-Foil Target with a High-Intensity Laser**
A. Sagisaka, JAEA, Japan

HEDSp9-9 **Numerical Approach for Defects Formation Studies in Matter Irradiated with Laser-driven Proton Beam**
M. Yamashita, Osaka Univ., Japan

HEDSp9-10 **Monochromotaic X-ray Observation by Bragg Crystal Imager in Fast Ignition Experiment**
S. Nakaguchi, Osaka Univ., Japan

HEDSp9-11 **Enhancement of The Energy Conversion Efficiency From High-Intensity Laser to Electrons by Using Nanowire Target**
R. Shiraishi, Osaka Univ., Japan

HEDSp9-12 **Spectral Modifications of an Intense Laser Pulse Propagating in Underdense Plasmas**
N. Pathak, Osaka Univ., Japan

HEDSp9-13 **Ionization Dynamics and Structure in High Power Laser-Matter Interaction**
D. Kawahito, Kyoto Univ., Japan

HEDSp9-14 **Conceptual Study on Nuclear Transmutation Using Laser Accelerated Protons**
K. Watanabe, Nagoya Univ., Japan

HEDSp9-15 **Electron Injection with Axisymmetric Polarized Laser Pulses for Laser Wake Field Acceleration**
Y. Mizuta, Osaka Univ., Japan

HEDSp9-16 **Repeatable Electron Injection for Staged Laser Wakefield Acceleration**
K. Iwasa, Osaka Univ., Japan

HEDSp9-17 **Electron Transport for Ultrafast Imaging Based on LWFA**
N. Takeguchi, Osaka Univ., Japan

HEDSp9-18 **Research on High-gradient Acceleration at KEK**
K. Koyama, KEK, Japan

HEDSp9-19 **Focusing Electron Beams Generated by Laser-Plasma Acceleration with External Static Magnetic Field**
Y. Oishi, CRIEPI, Japan

HEDSp9-20 **Electron and Photon Acceleration by Interaction between Laser and Plasma**
H. Kotaki, JAEA, Japan

HEDSp9-21 **Preliminary Experiment on Dielectric Laser Acceleration Designed for On-chip Radiation Source**
S. Otsuki, Univ. Tokyo, Japan

HEDSp9-22 **Staged Laser Wakefield Acceleration Driven by Coaxial Two Laser Pulses**
N. Nakanii, Osaka Univ., Japan

HEDSp9-23 **Design of Ultrafast Electron Imaging System**
S. Masuda, Osaka Univ., Japan

HEDSp9-24 **Femtosecond Laser-driven Shock Processing of Solids and its Dynamics**
T. Sano, Osaka Univ., Japan

HEDSp9-25 **Detection of Interaction between Defects in Tungsten using High-voltage Electron Microscopy**
K. Arakawa, Shimane Univ., Japan

HEDSp9-26 **Direct Observation of Ultrafast Structural Change under Dynamic High Pressures**
N. Ozaki, Osaka Univ., Japan

HEDSp9-27 **Observation of Material Dynamics Loading Laser-shock Compression Using In-situ X-ray Diffraction**
T. Sato, Osaka Univ., Japan

HEDSp9-28 **Laser-shock Compression Experiments on Hydrocarbon in Mbar Pressure Range**
T. Ogawa, Osaka Univ., Japan

HEDSp9-29 **Laser-shock Compression of Liquid Mixtures to Planetary Interior Pressures and Temperatures**
M. Kita , Osaka Univ., Japan

HEDSp9-30 **In-situ Observation of Laser Shock-induced Martensite Formation on Type 304 by XRD Technique at SACLA**
T. Fujita, Toshiba Corp., Japan

HEDSp9-31 **Direct Observation of Femtosecond Laser Ablation on Metals by Plasma-based Soft X-ray Laser**
T. Eyama, Univ. Tokushima, Japan

HEDSp9-32 **Development of Experimental Platform for High Energy Density Science Using X-ray Free Electron Laser**
Y. Inubushi, JASRI, Japan

HEDSp9-33 **Status of Experimental Platform for Matter under Dynamical Compression Driven by 40 TW Laser Pulse in XFEL Facility (SACLA)**
T. Matsuoka, Osaka Univ., Japan

HEDSp9-34 **Tunable Quasi-monochromatic Terahertz Radiation from Rippled Air Irradiated by Femtosecond Laser Pulses**
J. Shin, Osaka Univ., Japan

HEDSp9-35 **Single-shot THz Time-domain Spectroscopy System with Spatial Resolution**
T. Zhang, Osaka Univ., Japan

HEDSp9-36 **Simulation of Cherenkov THz Generation by Electron Bunch in a Dielectric-lined Coaxial Waveguide**
C. Tian, Osaka Univ., Japan

HEDSp9-37 **Experimental Study of Plasma Filament Generated by Sub-TW Laser Pulse in N2 Gas**
T. Hommyo, Utsunomiya Univ., Japan

HEDSp9-38 **Characteristics of THz Emission from Plasma Generated by a Femtosecond Pulse Laser**
K. Oguri, Utsunomiya Univ., Japan

HEDSp9 39 **Emission and Absorption Spectroscopy of Laser-produced Bismuth Plasma in the Soft X-ray Spectral Region**
T. Otsuka, Utsunomiya Univ., Japan

HEDSp9-40 **Development of a High Energy Fiber CPA Laser for Few-cycle Laser System**
K. Sueda, Osaka Univ., Japan

HEDSp9-41 **Development of a High-power Laser with a Pulse Shaping Function**
I. Jinno, Osaka Univ., Japan

HEDSp9-42 **Multi Pass Cross-correlator for Single-shot Laser Pulse Contrast Measurement**
A. Kon , JAEA, Japan

14:45-17:30 HEDS10 : High Field Laser Physics-2 Room 311&312

Chair: A. Zhidkov, Osaka Univ., Japan

HEDS10-1 **(Invited) High Field Sciences Explored with High-peak Power Lasers at JAEA**
14:45 M. Kando, JAEA, Japan

HEDS10-2 **(Invited) Laser-driven Ion Acceleration by High Intensity Short-pulse High-contrast Laser System at JAEA**
15:10 M. Nishiuchi, JAEA, Japan

HEDS10-3 **(Invited) Intense, Laser-driven Shocks**
15:35 L. Gizzi, INO, Pisa,, Italy

----- Break (16:00-16:15)-----

HEDS10-4 **(Invited) High Resolution X-ray Spectroscopy of Plasma Irradiated by Ultra-short Laser Pulses with**
16:15 **Intensities of 10^{21} W/cm^2**
A. Faenov, JAEA, Japan

HEDS10-5 **Precision Measurement of the Vacuum from the Contribution of Delbrück Scattering of γ-rays off Nuclei**
16:40 J. Koga, JAEA, Japan

HEDS10-6 **Fast Electron Transport Study in Cone-wire-targets Surrounded by Imploded Plasmas**
17:00 T. Yabuuchi, Osaka Univ., Japan

17:20-17:30 Closing Room 311&312

Closing Remarks
17:20 S.V. Bulanov, JAEA, Japan