High Energy Density Sciences 2014

HEDS 2014

Tuesday, April 22

15:30-15:40 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 15:40 **(Plenary) On the Prospects of Laser Driven Hadron Therapy**
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 16:20 **(Invited) Ultra-high Magnetic Field Effects on Laser Plasma Interactions**
K. Mima
GPI, Japan

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

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

HEDS2-4 17:25 **Nuclear Reaction Induced by Proton Recollision in a Laser-driven Molecule**
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 9:00 **(Plenary) X-ray Quantum Optics with Ultra-high Intensity X-ray Lasers**
H. Yoneda
Inst. Laser Science, Univ. Electro-Comunicaton, Japan

HEDS3-2 9:40 **(Plenary) Ultra Compact Femtosecond X-rays Beams with Plasma Wigglers**
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 10:40 **(Invited, Special) Laser-plasma Acceleration of Electrons to 2 GeV and Beyond**
M. Downer
U. Texas, USA

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

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

HEDS4-4 12:05 **(Invited) High Density Electron Beam and High Power Laser Complex for the Novel Accelerator 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 14:00 **(Invited, Special) A Window in Time: Interrogating Rapid Materials Phenomena with Movie-mode Dynamic Electron Microscopy**
T. LaGrange
LLNL, USA

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

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

HEDS5-4 15:25 **(Invited) Staging Laser Wakefield Acceleration for Single-shot Ultrafast Electron Diffraction Imaging**
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 16:00 **(Invited) Status and Perspective of SACLA**
M. Yabashi
SP-8, SACLA, Japan

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

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

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

Thursday, April 24

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

Chair: K. Koyama, KEK, Japan

HEDS7-1 9:00 **(Plenary) Demonstration of High Gradient Inverse Ion Channel Laser Acceleration**

Mechanism
C. Joshi
UCLA, USA

HEDS7-2 9:40 **(Plenary) Laser Plasma Acceleration of Low Emittance, High Energy Bunches, and Applications**
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 14:45 **(Invited) High Field Sciences Explored with High-peak Power Lasers at JAEA**
M. Kando
JAEA, Japan

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

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

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

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

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

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

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

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