Laser and Plasma Accelerators Workshop 2011 Program

Workshop Opening and Lightning Round Talks (June 20-21)

Monday (June 20)		
8:00 Opening Remarks (Jie Zhang)		
Session 1, Chair: C. S. Liu		
8:15-8:45	Chan Joshi (UCLA)	Electron and Ion Acceleration Work at UCLA
8:45-9:15	Victor Malka (LOA)	Laser Plasma Accelerators at LOA
9:15-9:45	Mike Downer (UT Austin)	Recent Progress of Laser Plasma Accelerator at UT Austin
9:45-10:15	Wei Gai (ANL)	Recent Experimental Results at Argonne Wakefield Accelerator and Its Future Plan
Break		
Session 2, Chair: T. Katsouleas		
10:45-11:15	Patric Muggli (MPI)	A Proton Driven Wakefield Experiment at CERN
11:15-11:45	M.D. Litos (SLAC)	Early Results from Plasma Wakefield Experiments at FACET
11:45-12:15	Stefan Karsch (MPQ)	LWFA at MPQ: Overview of Recent Results
Lunch break		
Session 3, Chair: R. Bingham		
13:30-14:00	G. H. Welsh (U.Strathclyde)	High Resolution Electron Beam Measurements on the ALPHA-X Laser Plasma Wakefield Accelerator
14:00-14:30	K. Nakamura (LBNL)	Overview of the Recent Progress in Laser Plasma Accelerator Experiments at LOASIS Program
14:30-15:00	A.G.R. Thomas (U. Michigan)	Recent Experiments and Simulation Results in Laser Wakefield Acceleration from the University of Michigan
15:00-15:30	Z. Najmudin (IC, UK)	Recent Progress of Laser Plasma Acceleration at Imperial College
Break		
Session 4, Chair: K. Nakajima		
16:00-16:30	R. A. Fonceca (IST)	Recent Progress of Large Scale Plasma Simulation at IST and UCLA

16:30-17:00	V. Yakimenko (BNL)	Experimental Program at Accelerator Test Facility
17:00-17:30	B. Cros (LPGP, France)	Electron Beams and X-ray Radiation Generated by Laser Wakefield in Capillary Tubes
Dinner		

Tuesday (June 21)		
Session5, Chair: Z.M. Sheng		
8:30-9:00	Y. T. Li (IOP, Beijing)	Studies of Secondary Sources Driven by Intense Laser Pulses at the Institute of Physics, CAS
9:00-9:30	R.X. Li (SIOM, Shanghai)	Recent Progress of Laser Plasma Acceleration at SIOM
9:30-10:00	Y.Q. Gu (LFRC, Mianyang)	Recent Progress of Laser Plasma Acceleration at LFRC
Break		
Session 6, Chair: W. Lu		
10:30-11:00	U. Schramm (HZDR)	Dose Controlled Radiobiological Experiments with Ultra-short Pulse Laser Accelerated Proton Pulses
11:00-11:30	B.M. Heglich (LANL)	Particle Acceleration in the Transparent Overdense Regime of Plasma Physics
11:30-12:30	**Introduction of Working Groups 1, 2, 3, 4 by the working group leaders**	
Lunch break		

Working group talks, posters, John Dawson Thesis Prize Awarding Ceremony

Working groups talks (see additional programs) **Tuesday afternoon (June 21) –Thursday afternoon (June 23)**
Poster Session Ⅰ: June 21, Tuesday, 16:00-17:30
John Dawson Thesis Prize Awarding Ceremony: Tuesday 17:30-18:30 **Co-Chaired by Chan Joshi and Victor Malka**
Poster Session Ⅱ: June 23, Thursday, 14:00-15:30

Working Group 1: Laser Plasma Electron Acceleration

Working Group Leaders: Stefan Karch(MPQ), Alec Thomas (U. Michigan), Stefan Kneip (IC, UK)

Wednesday		
Session1: DIAGNOSTICS		
8:30-8:50	Zhengyan Li	Frequency-Domain Tomography for Ultrafast Imaging of Evolving Laser–Plasma Accelerator Structures
8:50-9:10	S.I.Bajlekov	Coherent Transition Radiation as a Temporal and Transverse Electron Bunch Profile Diagnostic
9:10-9:30	A. Buck	Real-Time Observation of Laser-Driven Electron Acceleration
9:30-9:50	Dong-Gyu Jang	The Electron Densities Measurements of the Hydrogen-Filled Capillary Plasma by Using the Interferometric and Spectroscopic Method
9:50-10:10		Discussions
Wednesday		
Session 2: PROGRESS in LWFA		
10:30-10:50	X. Wang	Self-Injected Petawatt Laser-driven Plasma Electron Acceleration in $10^{17}cm^{-3}$ Plasma
10:50-11:10	Antonia Popp	Evolution of Electron-bunch Parameters During Laser Wakefield Acceleration
11:10-11:30	J.F. Hua	A Versatile Experimental Facility for Plasma Based Accelerator Research at Tsinghua University
11:30-11:50	W.-M. Wang	TeV Electron Beam Gerneration by A Circularly Polarized Intense Laser Pulse
11:50-12:10	Kazuhisa Nakajima	Large-Scale Laser-Plasma Accelerators Toward High-Energy Frontier
12:10-12:25		Discussions
Thursday		
Session 3: INJECTION		
10:30-10:50	W. Lu	Self and Controlled Injection in Multi-dimensional Wakefield Driven by Lasers or Charged Particle Beams
10:50-11:10	A.Irman	A Preliminary Study of Ionization In Laser wakefield acceleration with the 150 TW DRACO laser
11:10-11:30	Y. Y. Ma	Electron Bow-wave Injection Regime in Laser Wakefield Acceleration
11:30-11:50	Chunmei Wang	Shock-Wave Based Density Downramp for Electron Injection

11:50-12:10	H.C. Wu	Electron Injection and Acceleration Improved by Shaped Dense Plasma Wall (tube) in the Blowout (bubble) Regime
12:10-12:25		Discussions
Thursday		
Session 4: TECHNIQUES		
16:00-16:20	S.M. Wiggins	Linearly Tapered Capillaries
16:20-16:40	Xiaofang Wang	Propagation of a High-Intensity Laser Pulse in Gas-Target Plasma
16:40-17:00	N.E. Andreev	Electron Bunch Compression and Acceleration in Laser Wake Fields
17:00-17:30		Discussions and Summary
Friday		
8:30-10:30		Summary Report (Stefan Karch, Alec Thomas, Stefan Kneip)

Working Group 2: Radiation Generation and Application

Working Group Leaders: Mark Wiggins (U. Strathclyde), Liming Chen (IOP, CAS)

Discussion Topics

a) betatron X-ray sources

b) gamma-ray sources (betatron, Thomson scattering, bremsstrahlung, etc)

c) undulator and FEL sources

d) optical, infra-red and THz sources

e) applications

We are interested in laser-based radiation sources of all kinds and this Working Group comprises a mixture of source mechanisms (e.g. betatron oscillation, FEL) and radiation types produced (e.g. X-rays, THz). Overriding everything are applications of the photon beams, bearing in mind that our community's objective, in this regard, is to provide useful radiation sources to user groups (e.g. biologists, chemists).

We will aim to appreciate the progress in the field of radiation generation since LPAW09 and identify goals and challenges for the next two years.

Tuesday		
Session 1: X-ray/gamma-ray sources from LWFA electron beams		
14:00-14:20	S. Kneip	Betatron X-rays as Wakefield Diagnostic and Radiation Source
14:20-14:40	C. Thaury	A New Diagnostic for Mapping the Betatron X-ray Radiation in Laser-Plasma Accelerators
14:40-15:00	M. Wiggins	Towards a Tunable X-ray/γ-ray Betatron Source from Laser Wakefield Accelerators
15:00-15:20	Y. Gu	High-charge Energetic Electron Bunch Generation for γ-ray Radiography
15:20-15:40		Discussions
Wednesday		

Thursday		
Session 2: Various radiation Sources and techniques		
8:30-8:50	M. S. Hur	Laser Pulse Shaping in an Overdense Plasma and the Generation of an Electron Mirror
8:50-9:10	M. Wen	Monochromatic High Frequency Pulse Generated from Few-cycle Laser Driven Thomson Backscattering
9:10-9:30	L. X. Yan	Experimental Study on THz Production Based on Ultrashort Electron Bunch

9:30-9:50	H. Zhuo	Powerful Low Frequency Electromagnetic Emission from Laser-Solid Generated Fast Electrons Self-guided Along the Grating Surface
9:50-10:10		Discussions
Thursday		
Session 3:		
10:30-10:50	V. Yakimenko	CO_2 Laser Based Undulator for A Compact SASE FEL
10:50-11:10	J. Zhou	Laser Acceleration using a Micro Accelerator Platform for Application as Radiation Sources
11:10-11:30		Discussions
Thursday		
Session 4:		
16:00-16:20	J. Farmer	Raman Amplifcation in Plasma: a Laser Source for Wakefield Acceleration
16:20-16:40	D. B. Zou	A Simple Model to Achieve Laser Pulse Trapping and Amplifying in the Interaction with a Thin Foil and a Solid Target
16:40-17:00	L. Chen	Ultra-short Intense Laser Driven K-shell X-ray Source for Imaging
17:00-17:30		Discussions
17:30-18:30		Summary Preparation (Mark Wiggins & Liming Chen)
Friday		
8:30-10:30		Summary Report (Mark Wiggins & Liming Chen)

Working Group 3: Laser Driven Ion Acceleration

Working Group Leaders: Ulrich Schramm (HZDR) and Z.M. Sheng (SJTU)

Discussion Topics

a) Radiation pressure acceleration theory and experiments

b) Target normal sheath acceleration scaling from theory and experiments

c) Other schemes of ion acceleration and physics

Laser driven ion acceleration from various physical mechanisms will be discussed in the Working Group 3, which includes the radiation pressure acceleration under different laser and plasma parameter conditions, target normal sheath acceleration and improved schemes, collisionless electrostatic shock waves, injection into laser wakefields and RF waves for further acceleration. Key issues of laser driven ion acceleration aiming at potential applications will be discussed.

Wednesday		
Session 1: RPA and TNSA theory and experiments		
8:30-8:50	Baifei Shen	Generation of Energetic Protons with Short Pulse Lasers
8:50-9:10	Z. Najmudin	Ion Acceleration in the Radiation Pressure Dominated Regime
9:10-9:30	F. Dollar	High contrast, high intensity short pulse ion acceleration at the HERCULES laser facility
9:30-9:50	P. Antici	MeV Electron Generation, Transport And Induced Target Bulk Heating from Ultra-Intense Laser Irradiation
9:50-10:10	K. Zeil	Efficient Proton Acceleration with Ultra-Short Laser Pulses
Wednesday		
Session 2: Other schemes of laser driven ion acceleration and physics		
10:30-10:50	Quan-Li Dong	Laser-Driven Shock Acceleration of Ions Deeply Located in the Overdense Plasma Target
10:50-11:10	A. Flacco	Observation of Spectral Modulations in Laser Ion Acceleration from Underdense Plasmas
11:10-11:30	Weimin Zhou	Enhancement of Monoenergetic Proton Beams via Cone Substrate in high Intensity Laser Pulse-Double Layer Target Interactions
11:30-11:50	F.L.Zheng	Generating Ultra-Relativistic Ion Beam by Laser-Plasma Driving Wakefield Acceleration
11:50-12:10	P. Antici	A Compact Post-Acceleration Scheme for Laser Generated Protons
12:10-12:30		Discussions
Thursday		
17:30-18:30		Discussion and Summary (U. Schramm and Z.M. Sheng)
Friday		
8:30-10:30		Summary Report (U. Schramm and Z.M. Sheng)

Working Group 4: Plasma Wakefield Acceleration & Computational Methods

Working Group Leaders: Patric Muggli (MPI), K.V. Lotov (NSU, Russia), M. Tzoufras (UCLA)

Tuesday		
Session 1: Plasma Wakefield Acceleration		
14:00-14:20	B. Hidding	Trojan Horse Laser Electron Acceleration
14:20-14:40	K. Lotov	Self-Organization of Long Proton Beams in Plasma Wakefield
14:40-15:00	P. Muggli	Linear Interaction between an Electron Bunch Train and a Plasma
15:00-15:20	J. Vieira	Self-Modulation of Long SLAC-like Electron Beams
15:20-15:40	N. A. M. Hafz	Possible Observation of Energy Doubling in a Hybrid Laser-Plasma Wakefield Accelerator
15:40-16:00		Discussions
Wednesday		

Thursday		
Session 2: Computational Methods		
8:30-8:50	B. M. Cowan	Advanced Models for Simulation of Laser Plasma Accelerator
8:50-9:10	M. Tzoufras	Quick PIC Simulations for LWFA and PWFA
9:10-9:30	S. Y. Kalmykov	Modeling Multi-GeV, Single-Stage Laser-Plasma Electron Accelerators Driven by Self-Guided Petawatt Laser Pulses
9:30-9:50	S. M. Weng	High-Power Laser Pulse Propagation: Is it Governed by Dispersion, by Momentum or EnergyBalance?
9:50-10:10	M. Tzoufras	A Vlasov-Fokker-Planck Code for Laser-Solid Interactions
10:10-10:30		Discussions
Thursday		
17:30-18:30		Discussion and Summary (Muggli, Lotov, Tzoufras)
Friday		
8:30-10:30		Summary report (Muggli, Lotov, Tzoufras)