

**SECOND INTERNATIONAL CONFERENCE
SUPERSTRONG FIELDS IN PLASMAS**

*Villa Monastero, Varenna, Italy
August 27 - September 1, 2001*

CONFERENCE PROGRAMME

Monday, August 27th

Morning

8:00 - 8:40

Registration

8:40 - 9:00

Welcome

9:00 - 9.45

IM1

Yamanouchi K.

(Department of Chemistry, Tokyo University, Japan)

“Dynamics of molecules in intense laser light fields: new research direction”

9:45 - 10:30

IM2

Sergeev A.

(IAP-RAS, N. Novgorod, Russia)

“X-Ray pulse train generation by long-lived atoms and ions in superintense laser field”

10:30 - 11:00

Photo + Break

11:00 - 11:45

IM3

Nisoli M.

(INFN, Dipartimento di Fisica, Politecnico, Milan, Italy)

“High-order harmonic generation in the few-optical-cycle regime”

11:45 - 12:30

IM4

Hentschel M. *(Technical University of Vienna, Austria)*

“Towards attosecond metrology”

12:30 - 12:50

OM1

Tarasevich A.

(Institut für Laser- und Plasmaphysik, Universität Essen, Essen, Germany)

“Plasma mirror distortions and parametric instabilities induced by high intensity femtosecond pulses on a solid target”

12:50 – 13:10

OM2

Lucianetti A

(Max-Born-Institut, Berlin, Germany)

“Short pulse X-ray lasers by travelling wave excitation with a CPA laser driver”

Monday, August 27th

Afternoon

13:10 - 15:00

Lunch

15:00 - 15:45

IM5

Tajima T.

(University of Texas at Austin and LLNL, USA)

“Superhigh field science: applications to high energy physics and extreme astrophysical conditions”

15:45 - 16:30

IM6

Bartels R.

(JILA, National Institutes of Standard and Technology and University of Colorado, Boulder, USA)

“Coherent control of atoms and molecules in the high field regime”

16:30 - 16:50

Break

16:50 - 17:10

OM3

Dietrich C.

(Institut für Laser- und Plasmaphysik, Universität Essen, Essen, Germany)

“3/2 harmonic emission from femtosecond laser produced plasmas”

17:10 - 17:30

OM4

Dreher M.

(MPI für Quantenoptik, Garching, Germany)

“Superradiant amplification of ultra-short laser pulses: experimental realization”

17:30 - 18:15

IM7

Borisov A.

(University of Illinois at Chicago, Dept. of Physics, USA)

“Ultra-bright multi-keV X-ray source for biological microholography”

18:15 - 19:00

IM8

Fisch N.

(PPPL, Princeton, USA)

“Compression of intense laser pulses in plasma”

21:30

Welcome Party

Tuesday, August 28th

Morning

9:00 - 9:45

IT9

Umstadter D. (*University of Michigan, Ann Arbor, USA*)

“Developments in relativistic nonlinear optics”

9:45 - 10:30

IT10

Mora P. (*Centre de Physique Théorique, Ecole Polytechnique, Palaiseau Cedex, France*)

“Interaction of ultra-intense laser pulses with plasmas”

10:30 - 10:50

Break

10:50 - 11:35

IT11

Bulanov S. (*GPI-RAS, Moscow, Russia*)

“Relativistic interaction of ultrashort laser pulses with plasmas”

11:35 - 12:20

IT12

Koga J. (*Advanced Photon Research Center, JAERI, Japan*)

“Relativistic self-focusing of ultraintense laser pulses and ion acceleration”

12:20 - 12:40

OT5

Esirkepov T. (*ILE, Osaka University, Osaka, Japan*)

“Accelerated dense ion filament formed by ultra intense laser in plasma slab”

12:40 – 13:00

OT6

Kishimoto Y. (*JAERI, Naka, Ibaraki, Japan*)

“Fundamental properties of laser-cluster interaction and application to X-ray sources and nuclear fusion”

13:00 - 15:00

Lunch

Tuesday, August 28th

Afternoon

15:00 - 15:45

IT13

Wahlström C.-G. (*Dept. of Physics, Lund Institute of Technology, Sweden*)

"Influence of laser pulse duration on relativistic channels"

15:45 - 16:30

IT14

Roth M. (*GSI, Darmstadt, Germany*)

"Intense ion beams accelerated by ultra-intense laser pulses"

16:30 - 16:50

Break

16:50 - 17:10

OT7

Schnürer M. (*Max-Born-Institut, Berlin, Germany*)

(Absolute X-ray yield studies from Xe-clusters with ultrashort Ti:Sa laser pulses at 2×10^{18} W/cm²)

17:10 - 17:30

OT8

Pegoraro F. (*Phys. Dept., Pisa University, Pisa, Italy*)

"Reconnection processes in a laser plasma in the presence of counter-streaming electrons"

17:30 - 18:15

IT15

Chen P. (*SLAC, Stanford University, USA*)

"Laboratory astrophysics using high intensity particle and photon beams"

18:15 - 19:00

IT16

Liang E. (*Rice University, Houston, USA*)

"Generation and astrophysics applications of relativistic plasmas with ultra-intense lasers"

Wednesday, August 29th

Morning

9:00 - 9:45

IW17

Habs D.

(LMU, Munich, Germany)

“Laser acceleration obtaining monochromatic particle beams, new beam handling techniques and crystalline ion beams”

9:45 - 10:30

IW18

Nakajima K.

(High Energy Accelerator Research Organization, Tsukuba, Japan)

“Super-high energy super-intense particle physics by super-strong laser-matter interactions”

10:30 - 10:50

Break

10:50 - 12:20

FORUM on Strong Lasers in High Energy Physics

12:20 - 13:05

IW19

Gordienko V.

(M.V.Lomonosov Moscow State University, Moscow, Russia)

“Nuclear processes in dense plasmas produced by femtosecond-laser pulses at subrelativistic intensities”

13:5 - 15:30

Lunch

15.30 Departure for Piona Abbey

19:00 Social Dinner

Thursday, August 30th

Morning

9:00 - 9:45

ITh20

Ditmire T.

(Dept. of Physics, University of Texas at Austin, Austin, USA)

“Fusion yield optimization in plasmas of exploding deuterium clusters”

9:45 - 10:30

ITh21

Balcou Ph.

(LOA, ENSTA - Ecole Polytechnique, Palaiseau, France)

“Neutron generation by laser irradiation of CD₄ clusters”

10:30 - 10:50

Break

10:50 - 11:35

ITh22

Witte K.

(MPI für Quantenoptik, Garching, Germany)

“Hot solid-state aluminum plasmas, positrons and neutrons generated with the Garching laser facility ATLAS”

11:35 - 12:20

ITh23

Krushelnick K.

(Imperial College, University of London, U. K.)

“Nuclear diagnostics of ultra-intense laser interactions with matter”

12:20 - 12:40

OTh9

Mulser P.

(TQE, Darmstadt University of Technology, Darmstadt, Germany)

“Fast coronal ignition and the problem of energy transport”

12:40 - 13:00

OTh10

Desai T.

(INFN, Università degli Studi di Milano - Bicocca, Milano, Italy)

“Cluster dynamics at different incident laser wavelengths”

13:00 - 15:00

Lunch

Thursday, August 30th

Afternoon

15:00 - 15:45

ITh24

Yamakawa K. (*Advanced Photon Research Center, JAERI, Japan*)

“Status and future developments of ultrahigh intensity lasers at JAERI”

15:45 - 16:30

ITh25

Pogorelsky I. (*BNL, Upton, USA*)

“Strong-field physics with mid-infrared lasers”

16:30 - 16:50

Break

16:50 - 17:10

OTh11

Rhodes Ch. (*University of Illinois at Chicago, Dept. of Physics, USA*)

“Observation of directed emission and spectral narrowing on Xe(L) hollow atoms (2s2p) double-hole inner-shell transitions at 2.80 Å”

17:10 – 17:30

OTh12

Murusidze I.G.(*Institute of Physics, GAS, Tbilisi, Georgia*)

“Dynamics of spatiotemporal self-focusing of a fs, multiterawatt, relativistic laser pulse in an underdense plasma”

17:30 – 18:15

ITh26

Chambaret J.P. (*LOA, ENSTA - Centre de l'Yvette, Palaiseau, France*)

“Super strong pulse lasers delivering at 10 Hz intensities as high as 10^{21} W/cm². Present status and bottlenecks for the future”

18:15 - 18:45

ITh27

Ross I. (*CLC, RAL, Chilton, UK*)

“Current status and future prospects for OPCPA”

19:00

Meeting of the PC

Friday, August 31st

Morning

9:00 - 9:45

IF28

Joachain Ch.

(Université Libre de Bruxelles, Brussels, Belgium)

“Non-dipole and relativistic effects in laser-atom interactions”

9:45 - 10:30

IF29

Keitel C.

(University of Freiburg, Freiburg, Germany)

“Relativistic interaction of short laser pulses with multiply charged ions and crystals”

10:30 - 10:50

Break

10:50 - 11:35

IF30

Macchi A.

(Dipartimento di Fisica and INFN, Università di Pisa, Italy)

“Surface effects in laser interaction with overdense plasmas”

11:35 - 12:20

IF31

Amiranoff F.

(LULI, Ecole Polytechnique, Palaiseau Cedex, France)

“Electron transport and target heating in high-intensity laser-matter interaction experiments”

12:20 - 12:40

OF13

Richardson M. *(Max-Born-Institut, Berlin, Germany)*

“KHz femtosecond laser-plasma hard x-ray and fast ion source”

12:40 - 13:00

OF14

Skoric M.

(Vinca Institute of Nuclear Sciences, Belgrade, Yugoslavia)

“On soliton turbulence in relativistic laser-plasma interaction”

13:00 - 15:00

Lunch

Friday, August 31st

Afternoon

15:00 - 16:30

POSTER SESSION

16:30 - 16:50

Break

16:50 - 17:10

OF15

Nishimura H. (*ILE, University of Osaka, Osaka, Japan*)

“X-ray spectroscopy on energy transport and deposition in ultra-intensity laser produced plasmas”

17:10 - 17:30

OF16

Pretzler G. (*University of Munich, Garching, Germany*)

“Diagnostics of relativistic laser-produced electrons by Cherenkov radiation and keV X-rays”

17:30 - 18:15

IF32

Taguchi T. (*Department of Electrical Engineering, Setsunan University, Neyagawa, Osaka, Japan*)

“Structure formation, tearing and merging of relativistic electron beam propagating through a laser produced plasma”

18:15 - 19:00

IF33

Shvetz G. (*PPPL, Princeton*)

“Excitation of accelerating plasma waves by counter-propagating laser beams”

Saturday, September 1st

Morning

9:00 - 9:45

IS34

Mourou G.

(NSF Center for Ultrafast Optical Science, Ann Arbor, USA)

“Relativistic nonlinear optics in the single cycle and single wavelength limits at kHz repetition rate”

9:45 - 10:30

IS35

Ruhl H.

(1Max-Born Institute, Berlin, Germany)

“3D PIC simulations of proton imaging of plasma perturbations”

10:30 - 10:50

Break

10:50 - 11:35

IS36

Malka V.

(LULI, Ecole Polytechnique, Palaiseau Cedex, France)

“Overview of laser-particle acceleration in an underdense plasma”

11:35 - 12:20

IS37

von der Linde D.

(Institut für Laser- und Plasmaphysik, Universität Essen, Essen, Germany)

“Femtosecond time resolution in X-ray spectroscopy”

12:20 - 12:40

Closing

Poster Session

Friday, August 31st, h. 15:00 – 16:30

1. *"Fullerenes and molecules in strong laser pulses: collective dynamics, field ionization and harmonic generation"*
F. Cornolti, D. Bauer, F. Ceccherini
2. *"Numerical simulations of the laser radiation interaction with a 3-D plasma slab"*
H. Ruhl, S.V. Bulanov, T.V. Lisseikina, F. Pegoraro
3. *"Three dimensional intense electromagnetic solitary waves in underdense plasmas in PIC simulations"*
S. Bulanov, T. Esirkepov, K. Nishihara, F. Pegoraro
4. *"Experimental investigation of temporal aspects on relativistic channel formation"*
J. Mauritsson, A. Sjögren, C. Delfin, V. Lokhnygin, C.-G. Wahlström
5. *"Fluid modelling of relativistic laser-overdense plasma interaction"*
M. Tushentsov, A. Kim, F. Cattani, D. Anderson, M. Lisak
6. *"Vulcan: a Petawatt laser facility for experiments at 10^{21} W/cm²"*
C.B. Edwards, J. Collier, C.N. Danson, M.H.R. Hutchinson, D. Neely, I.N. Ross, B. Wyborn
7. *"Dependence of Raman forward scattering on duration and chirp of an intense laser pulse propagating in a plasma"*
T.-W. Yau, C.-J. Hsu, S.-Y. Chen
8. *"Bistable dependence of polarization frequency under the action of high intense femtosecond pulse on nonlinear medium"*
V.A. Trofimov, D.K. Skripov
9. *"Transformation of laser radiation into coherent structures and fast charged particles"*
N.M. Naumova, S.V. Bulanov, T.Zh.Esirhepov, D. Farina, K. Nishihara, F. Pegoraro, H. Ruhl, A.S. Sakharov
10. *"Bright and dark relativistic solitons in plasmas"*
D. Farina, S.V. Bulanov
11. *"One-dimensional electromagnetic solitons in a hot electron-positron plasma"*
M. Lontano, S.V. Bulanov, J. Koga
12. *"Non linear ion flow induced by a large amplitude wave in a plasma"*
A. Cardinali, C. Castaldo, R. Cesario