



“PIERO CALDIROLA” INTERNATIONAL CENTRE FOR THE PROMOTION OF SCIENCE  
AND INTERNATIONAL SCHOOL OF PLASMA PHYSICS



INTERNATIONAL CONFERENCE ON

# ULTRASHORT HIGH-ENERGY RADIATION AND MATTER

VILLA MONASTERO, VARENNA, ITALY

October 7 -10, 2003

## ORGANISED BY

- “Piero Caldirola” International Centre for the Promotion of Science  
and International School of Plasma Physics, Milano, Italy  
- University of Milano Bicocca, Milano, Italy

## PURPOSE

The workshop is intended as a forum to discuss the latest experimental, theoretical and computational results related to the interaction of high energy radiation with matter. High energy is intended to mean soft x-ray and beyond, but important new results from visible systems will be incorporated. The workshop will be interdisciplinary amongst scientists from many fields, including: plasma physics; x-ray physics and optics; solid state physics and material science; biology ; quantum optics.  
Topics will include, among other subjects:  
understanding damage thresholds for x-ray interactions with matter  
developing ~ 5 keV x-ray sources to investigate damage,  
developing ~ 100 keV Thomson sources for material studies,  
developing short pulse (100 fs and less) x-ray diagnostics,  
developing novel X-ray optics  
developing models for the response of biological samples to ultra intense, sub ps x-rays high-energy radiation

## DIRECTORS

A.Wootton, Lawrence Livermore National Laboratory, USA  
D.Batani, University of Milano Bicocca, Italy

## SCIENTIFIC COMMITTEE

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Sergio Martellucci, University of Roma “Tor Vergata”, Italy  
Juergen Meyer-ter-Vehn, MPQ, Garching, Germany  
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Kazutaka Nakamura, Tokyo Institute of Technology, Japan  
Piergiorgio Nicolosi, University of Padova, Italy  
Luigi Palumbo, University of Roma “La Sapienza”  
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Elio Sindoni, University of Milano Bicocca and ISPP, Italy  
Thomas Tschentscher, HASYLAB, DESY, Hamburg, Germany  
Alan Wootton, Lawrence Livermore National Laboratory, USA

## LOCAL ORGANISING COMMITTEE

D. Batani, University of Milano Bicocca, Italy  
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F. Strati, University of Milano Bicocca, Italy  
M.Milani, University of Milano Bicocca, Italy  
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## SPONSORED BY:

“Piero Caldirola” International Centre for the Promotion of Science  
and International School of Plasma Physics, Milano, Italy  
“FEMTO” Programme of the European Science Foundation (ESF).

### **APPLICATIONS:**

Application and hotel reservation forms can be obtained from the Organizing Secretariat at the following address:  
Mrs. Donatella Pifferetti, Via Nazionale, 85, 23821 Abbadia Lariana (LC), Italy, e-mail: [isplasma@tin.it](mailto:isplasma@tin.it), Fax +39-0341-732490  
They can also be downloaded from the conference web site ([www.ispp.it](http://www.ispp.it)). Information on hotel categories and prices are also available at the web site.

### **CONTRIBUTED PAPERS**

Contributed papers for the workshop will be selected on the basis of a one page abstract. No particular form is required. These abstracts should be sent to: D. Batani, Fax +39-02 64482585, e-mail [batani@mib.infn.it](mailto:batani@mib.infn.it)

### **REGISTRATION FEE**

A registration fee of €360 should be paid **in Varenna at the registration desk.**

Alternatively, the same fee can be paid by bank transfer to: Banca Popolare di Lecco, Division of the Deutsche Bank, Via IV Novembre, 23829 Varenna (LC), Italy, account n. c/c 9500/E, ABI 03104, CAB 51830, SWIFT DEUTITM1029, in favour of International School of Plasma Physics, indicating clearly the participants' names. All bank expenses are at participants' charge.

The fee covers admission to the Workshop and social events.

### **FURTHER INFORMATION CAN BE OBTAINED FROM**

D. Batani, University of Milano Bicocca  
Fax +39-02-64482585 email [batani@mib.infn.it](mailto:batani@mib.infn.it)

### **LIST OF INVITED TALKS:**

RICHARD R. FREEMAN, University of California Davies, USA  
"The use of ultra-high intensity, short pulse lasers in fusion energy development"

LEONIDA GIZZI, CNR, Pisa, Italy  
"Recent results in laser-plasma X-ray sources"

FRED HARTEMANN, Lawrence Livermore National Laboratory, USA  
"Basic concepts in advanced X-ray sources"

ALAN MICHETTE, King's College, London, UK  
"Recent developments in laser-plasma sources and optics for x-ray microscopy and microprobing"

PAOLO VILLORESI, University of Padova, Italy  
"Toward the single-cycle regime in the generation of high-order laser harmonics"

MICHELE BERTOLO, Elettra, Trieste, Italy  
"Synchrotron radiation: properties and related analysis techniques"

MATT ZEPF, Queen's University Belfast, UK  
"Gamma ray beam production and probing in laser matter interaction"

JACEK KRZYWINSKI, Warsaw University, Poland  
"Results from the TTF phase I on FEL beam induced damage of optical elements"

RENE BAKKER, Sincrotrone Trieste, Italy  
"Development of VUV and X-ray FELs"

RICHARD LONDON, Lawrence Livermore National Laboratory, USA  
"The physics of photon- materials interactions"

JÜRGEN MEYER-TER-VEHN, MPQ Garching, Germany  
"Plasma physics with X-rays"

KLAUS EIDMANN, MPQ Garching, Germany  
"Isochoric heating of matter by intense X-ray pulses"

ANTONIO RITUCCI, University of L'Aquila, Italy  
"Table top X ray laser systems"

BRIGITTE CROS, LPGP, University of Orsay, France  
"Soft X-ray laser driven by a guided ultra-short laser pulse"

MARCO BELLINI, Istituto Nazionale Ottica Applicata, Firenze, Italy  
"Generation and applications of XUV harmonics"

MARKUS ROTH, TU-Darmstadt, Germany  
"X-Ray and particle diagnostics for warm dense matter research"

KAZUTAKA G. NAKAMURA, Tokyo Institute of Technology, Japan, "Picosecond time-resolved X-ray diffraction from laser-shocked semiconductors"

JOHN COSTELLO, Dublin City University, Ireland  
"Photoabsorption and Photoionization Imaging and Spectroscopy with Laser Plasma Light Sources"

ROUSSE ANTOINE, LOA, Ensta, Palaiseau, France  
"Novel laser-produced plasma ultrafast x-ray sources and their applications"

KATSUNOBU NISHIHARA, Institute of Laser Engineering, Osaka, Japan, "Laser-Produced-Plasma for EUV Light Source for Lithography"

LUCIA MANCINI, Elettra, Trieste, Italy  
"X-ray imaging applications of third generation synchrotron sources in material science".

ANDRE' EGBERT, Laser Zentrum Hannover, Germany  
"High-repetition rate electron-based ultrashort hard-x-ray source and first applications"

ELKE PLÖNJES, Hasylab / Desy, Hamburg, Germany  
"Layout and photon beam diagnostics at the VUV FEL user facility at DESY"

MERDJII HAMED, Service des Photons Atomes et Molecules, CEA, France, "Manipulating intense XUV coherent light"

THOMAS TSCHENTSCHER, Hasylab / Desy, Germany  
"Short Wavelength FEL facilities and experiments"

ANATOLY FAENOV, Nat.Res.Inst. Phys. Measurements, Moscow, Russia, "Hot electron influence on the radiation properties of matter under interaction by short laser pulses"

JÜRGEN STEIN, MPQ, Garching, Germany  
"Hot electron diagnostics using X-rays and Cerenkov radiation"

YUJI FUKUDA, Advanced Photon Research Center, JAERI, Japan  
"Generation of energetic ions and x rays from clusters irradiated by ultrafast, high-intensity laser pulses"

ANDREI SAVELEV, Lomonosov Moscow State University, Russia  
"Efficient hard X-ray source using femtosecond plasma at solid and liquid targets"

ERNST FILL, MPQ, Garching, Germany  
"Photopumping of XUV lasers by XFEL radiation"

LUIGI PALUMBO, Universita' Roma "La Sapienza"  
"The SPARC/X projects at LNF"

EDMOND TURCU, Rutherford Appleton Laboratory, UK  
"Soft X-ray laser plasma sources and applications"

CHARLES JOACHAIN, Université Libre de Bruxelles, Belgium  
"Interaction of Ultra-Intense Laser Pulses with Relativistic Ions"

ANNIE KLISNICK, Laboratoire d'Interaction du rayonnement X avec la Matière, Orsay, France, "Towards XUV laser facilities in Europe"