

IAMPI2006

International Conference on the “Interaction of Atoms, Molecules and Plasmas with Intense Ultrashort Laser Pulses” 1-5 October, 2006 - Szeged, Hungary

Conference program (updated: 14/09/2006)

There are coordinated and chaired (traditional) sessions. The coordinators invited most of the speakers of their sessions, and they are to lead it, thus giving space for interesting, living discussions on a field of current interest.

October 1, 2006 (Sunday)

9.00 Opening ceremony

Morning: ***Fundamental atomic and molecular processes in intense laser fields***

Coordinator: Charles Joachain

9.20 *Su1* A. Maquet: Strong field atomic physics: IR lasers versus XFEL

9.55 *Su2* K. Yamanouchi: Ultrafast hydrogen migration in hydrocarbon molecules in intense laser fields and formation of hydrogen molecular ions

10.30 Coffee break

10.50 *Su3* H. van der Hart: Recent progress in the application of R-matrix Floquet theory

11.25 *Su4* C.H. Keitel: QED, nuclear and high-energy processes in extremely strong laser pulses

12.00 *Su5* Th. Uphues: Attosecond time resolved ionisation spectroscopy:
Sampling of inner-shell processes in rare gases

12.35 *Su6* K.Z. Hatsagortsyan: Relativistic recollisions with tailored laser pulses

12.55 Lunch break

Afternoon: ***Laser plasmas***

Chair: Matthew Zepf

14.30 *Su7* P. Mulser: Collisionless absorption. Physical mechanisms and related strengths

15.05 *Su8* T. Mendonca: Photon acceleration in the sub-cycle optical domain

15.40 *Su9* A. Sagisaka: Characterization of thin-foil preformed plasmas for high-intensity laser plasma interactions

16.00 Coffee break

16.20 *Su10* A. Giulietti: Search for stable propagation of intense laser pulses in gas

16.55 *Su11* J. Limpouch: K- α emission from medium and high-Z materials irradiated by femtosecond laser pulses

17.15 *Su12* E. Förster: Advanced X-ray Spectroscopy for Investigation of Hot Dense Plasmas

17.55 *Su13* C. Deiss: X-ray generation by laser-cluster interaction

18.15 *Su14* A Andreev: Interaction of ultra-high intensity laser pulse with a mass limited targets

Evening: ***Welcome cocktail*** (included in the registration fees)

Venue: The new Study and Information Centre (TIK) of the

University of Szeged. Bus transfer provided from Hotel Forrás and back.

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October 2, 2006 (Monday)

- Morning: ***Fast particle generation by ultrashort laser pulses***
Coordinator: Jürgen Meyer-ter-Vehn
- 9.00 *Mo1* J. Badziak: Production of collimated high-current ion beams by short-pulse lasers
- 9.35 *Mo2* M. Geissler: Bubble regime of wake field acceleration with few cycle laser pulse
- 10.10 *Mo3* A.S. Pirozhkov: Super-high frequency upshifting in the nonlinear interaction of laser pulse with breaking wake wave
- 10.30 Coffee break
- 10.50 *Mo4* Cs. Tóth: GeV electron beams from table-top laser-plasma accelerator using capillary waveguides
- 11.25 *Mo5* V. Malka: Laser plasma accelerators
- 12.00 *Mo6* D. Batani: Direct evidence of electric fields and fast electron slowing down during propagation in high-intensity laser matter interaction
- 12.35 *Mo7* O. Klimo: Propagation of high-current fast electron beam in a dielectric target
- 12.55 Lunch break
- Afternoon: ***New laser sources***
Chair: Ferenc Krausz
- 14.30 *Mo8* J. Meyer-ter-Vehn: Plasma physics with intense VUV radiation
- 15.05 *Mo9* B. Ziaja: Statistical model of radiation damage within an atomic cluster irradiated by VUV photons from FEL
- 15.25 *Mo10* E. Turcu: Astra-TA1 facility for ultrafast time-resolved science
- 16.00 Coffee break
- 16.20 *Mo11* B. Rus: Applications of multi-millijoule soft X-ray lasers in dense plasma physics
- 16.55 *Mo12* R. Lopez-Martens: High-energy few-cycle pulse compression through 1 self-channeling in gases
- 17.15 *Mo13* V. Zvorykin: Hybrid Ti:Sapphire / KrF laser facility GARPUN for combined subpicosecond/ nanosecond laser-matter interaction studies
- 17.50 *Mo14* K. Osvay: A bandwidth independent linear method for detection of carrier envelope phase drift
- 18.10-20.00 ***Poster Session***

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October 3, 2006 (Tuesday)

- Morning: **Harmonics on solids**
Chair: Joseph S. Bakos
- 9.00 Tu1 S. Varró: Linear and non-linear carrier-envelope phase difference effects in interactions of ultra-short laser pulses with a metal nano-layer
- 9.35 Tu2 T. Ozaki: Intense harmonic generation from various ablation media
- 9.55 Tu3 M. Zepf: KeV harmonics in the relativistic limit
- 10.30 Coffee break
- 10.50 Tu4 T. Baeva: Relativistic plasma control
- 11.10 Tu5 G.D. Tsakiris: Intense attosecond pulse source for pump-probe experiments
- 11.45 Tu6 V.S. Yakovlev: Using shortwave infrared few-cycle pulses for generation of keV harmonics and attosecond pulses
- 12.05 Tu7 Th. Mercouris: Attosecond time-resolved spectroscopy of electron correlation in excited states
- 12.25 Tu8 C. Thauray: High-order harmonics generation from overdense plasmas
- 12.45 Tu9 T. Desai: Laboratory approach to natural craters, can we?
- 13.05 Lunch break
- Afternoon: **Excursion** (included in the registration fees)
Ópusztaszer, National Historical Memorial Park. Dinner in a Hungarian „Csárda”.

October 4, 2006 (Wednesday)

- Morning: **Attosecond physics**
Chair: Győző Farkas
- 9.00 We1 E. Mével: Broadband isolated attosecond XUV pulses isolated by CEP-stabilized polarization gating
- 9.35 We2 P. Tzallas: On the characterization of attosecond pulses
- 10.10 We3 M. De Grazia: Time-resolved luminescence spectroscopy of dielectric crystals under the condition of high excitation density
- 10.30 Coffee break
- 10.50 We4 M. Nisoli: Few-cycle isolated attosecond pulses
- 11.25 We5 M. Kling: Carrier-envelope phase control of electron dynamics in atomic and molecular systems
- 12.00 We6 A. Kornev: Above-threshold ionization of excited H-states by an ultrashort laser pulse: energy spectra of photoelectrons
- 12.20 We7 Ph. Antoine: Electron correlation effects in two-photon double ionization of helium
- 12.40 We8 C. Ruiz-Mendez: Double ionization in Helium. Ab initio calculations beyond the one dimensional approximation
- 13.00 Lunch break

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- Afternoon: ***High-harmonic generation with molecules***
Coordinator: Manfred Lein
- 14.30 *We9* D. Villeneuve: Determining the electronic structure of molecules using high harmonic emission
- 15.05 *We10* L. Miaja-avila: Molecular and Materials Dynamics Probed by Coherent Electrons from High Harmonic Generation
- 15.40 *We11* C. Valentin: Optimization of high harmonic generation by genetic algorithm
- 16.00 Coffee break
- 16.20 *We12* P. Balcou: Attosecond time-frequency analysis of high-harmonics generation by few cycle laser pulses
- 16.55 *We13* J.P. Marangos: Imaging molecular structure and dynamics using laser driven recollisions
- 17.30 *We14* W. Boutu: Measurement of the attosecond emission from aligned molecules
- 18.05 *We15* Y. Tang: A high average power few-cycle OPCPA drive laser for attosecond pulse production

Evening: ***Conference dinner*** (included in the registration fees)

October 5, 2006 (Thursday)

- Morning: ***Time-resolved applications in the subfemtosecond range***
Chair: Marc Vrakking
- 9.00 *Th1* J. Mauritsson: Attosecond Pulse Trains Generated using Two Color Laser Fields
- 9.35 *Th2* P. Johnsson: Attosecond Ionization Dynamics
- 9.55 *Th3* A. Pirri: Direct interferometric measurement of the atomic dipole phase in high-order harmonic generation 00
- 10.15 *Th4* P. Villoresi: Realization of a time-compensated monochromator exploiting conical diffraction for few-femtosecond XUV pulses
- 10.35 Coffee break
- 10.55 *Th5* Zs. Major: Short-pulse optical parametric chirped-pulse amplification for the generation of high-power few-cycle pulses
- 11.15 *Th6* X. Xie: Effects of molecular orientation in the laser ionization of molecules
- 11.35 *Th7* C. Vozzi: Generation of high energy self-phase-stabilized near-IR pulses by difference frequency generation and optical parametric amplification
- 11.55 *Th8* J. Fülöp: Shaping of picosecond pulses for pumping optical parametric amplification
- 12.15 *Th9* C. Hauri: Intense carrier-envelope phase stable few-cycle pulses at 2 μm from a filament for high-order harmonic generation
- 12.35 *Th10* J.W.G. Tisch: Half cycle cut-offs in harmonic spectra and robust carrier-envelope phase retrieval
- 12.55 Lunch break
- 14.00-15.00 XTRA Marie Curie Business Meeting
- 15.00- Visiting the laser laboratories of the University of Szeged

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Poster session October 2, 2006 (Monday)

- P1. A. Aliverdiev, D. Batani, V. Malka, T. Vinci, M. Koenig, A. Benuzzi-Mounaix, R. Dezulian: *About an expansion of a high-power-laser produced plasma in vacuum*
- P2. M. Cerchez, J. Osterholz and O. Willi: *Study of close to solid density plasmas generated by ultra-short laser pulses*
- P3. L. Veisz, K. Schmid, S. Benavides, U. Schramm, S. Becker, J. Fülöp, Zs. Major, J. Osterhoff, S. Karsch, D. Habs, F. Krausz: *Laser based quasi-monochromatic electron acceleration*
- P4. F.F. Körmendi: *New nonlinear quantum electrodynamical processes accelerating the free charged particle in interaction with intense laser radiation*
- P5. N. Mirnes and A. H. Belbachir: *The temperature evolution in a laser heated plasma*
- P6. B. Gaković, M. Trtica, P. Panjan, M. Čekada, M. Panjan: *Surface modification of multilayered titanium-aluminium nitride coating with high intensity IR laser beam*
- P7. M. Trtica, B. Gakovic, D. Batani, T. Desai, I. Pongrac: *Surface modifications of silicon using the high intensity Nd:YAG laser*
- P8. M. Lenner, A. Kaplan, Ch. Huchon, R.E. Palmer: *Ultrafast laser ablation of graphite*
- P9. R. Gayet, S. Jequier, V. Rodriguez, H. Bachau G. Duchateau, A. Dyan, H. Mathis : *Simulation of primary processes for laser-induced plasma by short laser pulses in KDP crystal*
- P10. I.F. Barna: *Two-Photon Ionization of He Atoms through a Superposition of Higher Harmonics*
- P11. M. Boca, V. Florescu and M. Gavrila: *A relativistic generalization of the Kramers-Henneberger transformation*
- P12. A. Korney, B. Zon: *Theory of Landau–Dykhne and dipole-forbidden transitions*
- P13. E. Mese and R. M. Potvliege: *The Floquet quasienergy spectrum of rare gases*
- P14. G. Buica, T. Nakajima: *Origin of the side peaks appearing in the above-threshold ionization spectra of Mg*
- P15. V. Stancalie, V. Pais, M. Totolici, A. Mihailescu: *Forbidden transitions in excitation by proton impact in Al Li-like ions*

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- P16. R. Veilande, I. Bersons: *Revival structure of ionization probability for Rydberg atoms*
- P17. A.M. Kiselev, A.N. Stepanov, B.A. Tikhomirov, A.B. Tikhomirov: *Nonlinear absorption of intense femtosecond laser radiation in molecular gases*
- P18. O.F. Kostenko, N.E. Andreev: *Heating and ionization of metal cluster by intense femtosecond laser field*
- P19. Á. Börzsönyi, K. Osvay, A. P. Kovács, M. P. Kalashnikov: *Dispersion of femtosecond pulses in vacuum beam lines from ambient pressure down to 0.01 mbar*
- P20. K. Kosma, S.A. Trushin, W. Fuss, W.E. Schmid: *Widely tunable ultraviolet sub-30 fs pulses from supercontinuum for transient spectroscopy*
- P21. P. Dombi, S. E. Irvine, Gy. Farkas, and A. Y. Elezzabi: *Surface-plasmon-ponderomotive electron acceleration as a potential carrier-envelope phase measurement tool*
- P22. K. Mecseki, M. Erdélyi, A. P. Kovács, and G. Szabó: *Cubic Phase Control of Ultrashort Laser Pulses*
- P23. T. Wittmann, M.G.Schätzel, F. Lindner, G.G.Paulus, A Baltuska, M. Lezius, A. Marcinkevicius, F. Tavela, F.Krausz: *Carrier-envelope phase measurement of multiterawatt laser pulses*
- P24. R. Rakowski, T. Suta, I.B. Földes, S. Szatmári, J. Bohus, A. Bartnik, H. Fiedorowicz, J. Mikołajczyk: *Optimization of resonant frequency tripling of KrF laser radiation by gas targets of different lengths*
- P25. C.P. Hauri, K. Varjú, T.Ruchon, E. Gustafsson, A. L’Huillier, R. López-Martens: *Attosecond pulse trains from long laser-gas interaction targets*
- P26. E. V. Moiseenko, P. Martin, G. Farkas: *Generation of very high frequency attosecond pulses with precursors*
- P27. K. Schiessl, E. Persson, A. Scrinzi, and J. Burgdörfer: *Two-Color Driving In High Harmonic Generation: Single-Atom And Pulse Propagation Analysis*
- P28. E. Persson, K. Schiessl, A. Scrinzi, and J. Burgdörfer: *On the generation of attosecond unidirectional half-cycle pulses: inclusion of propagation effects*
- P29. T. Remetter, T. Ruchon, P. Johnsson, K. Varjú, E. Gustafsson, R. López-Martens, M. Kling, Y. Ni, F. Lépine, J. I. Kahn, M. J. J. Vrakking, J. Mauritsson, K. J. Schafer and A. L’Huillier: *Attosecond Electron Wave Packet Interferometry*
- P30. N. Fedorov, A. Belsky, P. Martin: *Application of VUV harmonics light source for investigation of energy transfer mechanisms in the wide band gap solids*