

PERSONAL

PERSONAL INFORMATION



Name	Emmanouil (Manolis) Benis
Date of Birth	8 November 1970
Place of Birth	Kavala
Nationality/Citizenship	Greek/Greek
Marital Status	Married, 2 children
Address	Department of Physics, University of Ioannina GR 45110, Ioannina, Greece
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EDUCATION

- 2001 Ph.D. in Atomic Physics - Department of Physics, University of Crete, Greece (in collaboration with the J.R. McDonald Laboratory, Department of Physics, Kansas State University, USA).
Thesis title: *A novel high-efficiency paracentric hemispherical spectrograph for zero-degree Auger projectile spectroscopy*
- 1996 MSc in Physics - Department of Physics, University of Crete, Greece.
- 1993 Advanced summer school in Physics, Department of Physics, University of Crete, Greece.
(Accepted into the Master Program)
- 1993 BSc in Physics - Department of Physics, Aristotle University of Thessaloniki, Greece.

EMPLOYMENT

- 10/2014 - 08/2016 Collaborator Teaching Staff, Hellenic Open University, Greece.
- 09/2013 - present Assistant Professor, Department of Physics, University of Ioannina, Greece.
- 11/2009 - 08/2013 Assistant Professor (tenure), Department of Physics, University of Ioannina, Greece.
- 09/2007 - 10/2009 Associate (Application) Scientist C, Institute of Electronic Structure and Laser, Greece.
- 09/2003 - 08/2007 Research Associate, Institute of Electronic Structure and Laser, Greece.
- 08/2001 - 08/2003 Research Associate, Department of Physics, Kansas State University, USA.
- 09/1996 - 08/2001 Research Assistant, Department of Physics, Kansas State University, USA.
- 10/1993 - 12/2000 Teaching Assistant and Laboratory Instructor, Department of Physics, University of Crete, Greece.

HONORARY DISTINCTIONS

- Awarded as "Outstanding Reviewer" by the Journal of Physics B for 2016.
- Awarded as "Outstanding Reviewer" by the Nuclear Inst. and Methods in Physics Research B for 2018.

- SPARC Collaboration: *Atomic physics, quantum electrodynamics, ultra-high electro-magnetic fields studies with beams of highly-charged heavy ions.*
Representative for Greece and Italy for the Collaboration Board (since 2017).
- Member of the Board for the “International Symposium on Ion-Atom Collisions – ISIAC” (since 2019).

REFEREE

Scientific Journals

- Physical Review Letters
- New Journal of Physics
- Journal of Physics B: Atomic Molecular and Optical Physics
- Journal of Electron Spectroscopy and Related Phenomena
- Nuclear Instruments and Methods in Physics Research A
- Nuclear Instruments and Methods in Physics Research B
- Rapid Communications in Mass Spectrometry
- Journal of Instrumentation
- Journal of Optics
- Physical Chemistry Chemical Physics
- Journal of X ray spectrometry
- International Journal of Mass Spectrometry

Textbooks

- *Wave Physics*, N. Papadogiannis and E. Bakarezos, Hellenic Academic Ebooks, Kallipos, ISBN: 978-960- 603-050-5, 2015.

Research Proposals

- Hellenic Foundation for Research and Innovation
- Ministry of Development and Investment, Program EDBM34

Contests

- The Odysseus contest, European youth space contest, 2013

Faculty Election Committees in Universities

- Department of Physics, University of Ioannina
- Department of Material Science, University of Patras
- Department of Financial and Management Engineering, University of the Aegean
- Department of Electrical and Computer Engineering, University of Thessaly
- Department of Informatics, University of Thessaly
- Department of Electronic Engineering, Technological Educational Institute of Crete
- Department of Optics and Optometry, Technological Educational Institute of Western Greece

CONFERENCES ORGANIZATION

- 9th European Conference on Atoms Molecules and Photons (ECAMP IX), Heraklion, Crete, Greece, 6-11 May 2007. Member of the local organizing committee.
- 20th International Symposium on Ion-Atom Collisions (XX ISIAC), Agios Nikolaos, Crete, Greece, 1-4 August 2007. Member of the local organizing committee.

- Multiplier event of the program “Innovative Education & Training in High Power Laser Plasmas – PowerLaPs”, Ioannina, 30 August 2019. Organizer.

RESEARCH

RESEARCH

Accelerator-based Atomic Physics

- Electron elastic scattering processes (Binary encounter, RTE, NTE).
- Cusp electrons (ECC, ELC).
- State-selective population of doubly and triply excited ionic states.
- Mixed-state ionic beams - Metastable components.
- Development of high-resolution high-efficiency electron spectrographs.

Laser-based Atomic Molecular and Optical Physics

- Lower and higher order harmonics generation.
- Non-linear dynamics in the VUV/XUV spectral region.
- Photoionization and photodissociation
- Ion acceleration with ultra-intense lasers.
- Betatron radiation sources.

RESEARCH EXPERIENCE

Experimental Skills

- High resolution Auger electron spectroscopy
- Multi-fragment imaging techniques
- Pump-probe techniques
- Electrostatic spectrometers (hemispherical, parallel plate)
- Time of flight spectrometers (mass spectrometer, magnetic bottle spectrometer)
- Pulsed jets and cold gas targets
- High and ultra high vacuum technology
- Position sensitive detectors (resistive, backgammon, delay line anode)
- Standard electronics for signal processing
- Standard laser optics components
- Engineering design

Computational Skills

- Specialized Scientific Packages: Mathematica, Origin, Fityk, CorelDraw SIMION3D, COWAN, TARDIS, ARGON (CDW-EIS)
- Computing Languages: FORTRAN, LUA
- Software development for data acquisition and analysis
- Software development for modeling physical processes

Foreign Languages

- English (excellent)

COLLABORATION WITH INSTITUTES

2010 – Present. Institute for Plasma Physics and Lasers, Greece

2012 – Present. National Center for Scientific Research, Demokritos, Greece

2015 – Present. GSI Helmholtz Centre for Heavy Ion Research, Germany

Earlier collaborations / visits

19/03/2006 – 29/03/2006	Max-Planck-Institut fur Quantenoptik, Garching, Germany.
09/03/2003 – 16/03/2003	Lawrence Berkeley National Laboratory (ALS), USA.
02/08/2002 – 19/08/2002	Lawrence Berkeley National Laboratory (ALS), USA.
15/02/2002 – 21/02/2002	Department of Physics, Western Michigan University, USA.
06/09/1995 – 29/09/1995	Hahn-Meitner Institute, Berlin, Germany.
03/05/1995 – 23/07/1995	Manne Siegbahn Laboratory, Stockholm University, Sweden.
30/08/1994 – 18/09/1994	Manne Siegbahn Laboratory, Stockholm University, Sweden.

FUNDING

Principal Investigator

- 2003. Marie Curie International Reintegration Grants (IRG), FP6-2002-Mobility-12. Title: *Characterization and research applications of attosecond pulses*. Budget: 80 k€.
- 2016. Granting of funds within GSI Transnational Access. Title: *Ionization Dynamics* - ESR/Ben. Budget: 4,500 €.
- 2018. Granting of funds within GSI Transnational Access. Title: *Electron Emission following 1s Adiabatic Ionization and Quasi-resonant 1s-1s Charge Transfer in Symmetric Heavy-Ion Atom Collisions* - E132/Ben. Budget: 4,700 €.

Scientific Responsible

- 2012. THALES, Greek Ministry of Education. Title: *APAPES - Atomic Physics with Accelerators: Projectile Electron Spectroscopy at the NCSR Demokritos Tandem accelerator*. Budget: 600 k€. Scientific Responsible for the University of Ioannina
- 2018. Large-Scale Research Infrastructure for the Greek Roadmap of Research Infrastructures. Title: *CALIBRA: Cluster of Accelerator Laboratories for Ion-Beam Research and Applications*. Joint Research Activity: Atomic Physics. Auger electron Projectile Spectroscopy. Budget: 3.5 M€. Scientific Responsible for the Atomic Physics since 01/2019.
- 2019. Researcher support with emphasis to young researchers - circle B, Ministry of Finance and Development. Title: *Development and optimization of a betatron-type radiation source generated by ultra-intense electromagnetic laser fields*. Budget ~50 000 €. Deputy Scientific Responsible.

Member of the Scientific Team

- 2004. Bilateral Scientific and Technological Cooperation between Greece and Hungary, Greek Ministry for Industry, Energy & Technology. Title: *Electron scattering processes in ion-atom collisions*. Budget: 11,740 €.
- 2004. Marie Curie Transfer of Knowledge Grant, Contr. Nr. MTKD-CT-2004-517145. Title: *XUV-High Order Harmonic Metrology Tools for Novel Spectroscopic Applications (X-HOMES)*. Budget: 400 k€.
- 2004. Marie Curie “Joint Research Activities” Grant. Title: *Frontiers of Optical Science: Controlling Intense Light (FOSCIL)*. Budget: 170 k€.

- 2008. FP7, The People Programme, Industry-Academia Partnerships and Pathways, Grant agreement ID: 218053. Title: *Femtosecond Lasers for the generation of Ultrafast XUV pulses (FLUX)*. Budget: 682,490€.
- 2010. ELI-GR, Ministry of Education/General Secretariat for Research and Technology/EU. *Hellenic network for the European Research Infrastructure “ELI”*. Budget: 120 k€.
- 2010. HiPER-GR, Ministry of Education/General Secretariat for Research and Technology/EU. *Hellenic network for the European Research Infrastructure “HiPER”*. Budget: 120 k €.
- 2011. University of Ioannina. Title: *Supply of optical components for use in the fs pump-probe experimental setup*. Budget: 5,000 €.
- 2012. THALES, Greek Ministry of Education. Title: *ISEPUMA - Interaction of ultrashort intense electromagnetic pulses with matter*. Budget: 600 k€.
- 2012. COST Action MP1203, European Cooperation in Science and Technology. Title: *Advanced X-ray spatial and temporal metrology*
- 2014. University of Ioannina. Title: *Supply of optical components for integration in the fs pump-probe experimental setup*. Budget: 9,840 €.
- 2019. COST Action CA17126, European Cooperation in Science and Technology. Title: *Towards understanding and modelling intense electronic excitation*. Budget: ~ 420k€.
- 2018. Large-Scale Research Infrastructure for the Greek Roadmap of Research Infrastructures. Title: *HELLAS-CH, cooperation of ELI - LASERLAB Europe, HiPER & IPERION-CH*. Program code: MIS 5002735. Budget: ~ 3 M€.

Employment contracts

- 01/11/1994-21/12/1995. ELKE, University of Crete, Program code: KA501.
- 01/09/1996-30/08/1998. ELKE, University of Crete, Program code: KA728. Title: *Differential cross section measurements of Resonance Transfer Excitation (RTE) in collisions of light ions with H₂ and He targets using position sensitive detection (PSD) with zero-degree Auger electron spectroscopy*.
- 01/10/1998-31/10/1998. ELKE, University of Crete, Program code: KA1009. Title: *Undergraduate Training & World Wide Web - EPEAK*.
- 01/10/2000-31/12/2000. Institute of Electronic Structure and Laser, Bilateral Scientific and Technological Cooperation between Greece and Hungary, SEA00184-1. Title: *Study of two-electron mechanisms in collisions of highly-charged ions with atoms*.
- 01/10/2015-31/12/2015. ELKE, TEI of Crete, Program code: MIS 376841. *National Research Infrastructure for the HiPER Project, Work Package 4*.

TEACHING & SUPERVISION

COURSES IN BACHELOR & MASTERS PROGRAMS

09/2010 - Present: Department of Physics, University of Ioannina

- Modern Physics I (3rd semester)
- Modern Physics II (4th semester)
- Physics of Lasers (7th semester)
- Atomic Physics (7th semester)
- Laboratory courses in Modern Physics I (7th semester)
- Laboratory courses in Wave Physics and Optics (4th semester)
- Laboratory courses in Electromagnetism (3rd semester)

10/2010 - 08/2013: Department of Chemistry, University of Ioannina

- Laboratory courses in Experimental Physics (1st semester)

10/2014 - 08/2015: Hellenic Open University

- Quantum Physics

10/2010 - 08/2013: Department of Chemistry, University of Ioannina

- Laboratory courses in Experimental Physics (1st semester)

09/2016 - Present: Department of Biological Applications and Technology, University of Ioannina

- General Physics (1st semester)

10/2015 - 08/2018: Department of Electronics Engineering, TEI of Crete, Masters Program PLAPA – Plasma Physics and Applications

- Atomic Processes in Plasma

10/2018 - 08/2019: Department of Electronics Engineering, TEI of Crete, Masters Program LAPLA - Lasers, Plasma and Applications

- Lasers Spectroscopy

10/2019 - Present: Department of Electronics Engineering, Hellenic Mediterranean University, Masters Program LAPLA - Lasers, Plasma and Applications

- Lasers Spectroscopy

COURSES IN TRAINING PROGRAMS & SUMMER SCHOOLS

- 2011 & 2012 & 2013: LLP/Erasmus IP, summer school, Heraklion, Crete, Greece, CPOTS – *Introduction to Charged Particle Optics: Theory and Simulation*.
20 hrs yearly: Imaging Spectrometers / Magnetic bottle electron spectrometer / SIMION 3D laboratories.
- 2013: LLP/Erasmus IP summer school, Rethymnon, Crete, Greece, HIPOLIN – *An introduction to high power light-matter interactions*.
2 hrs: Atomic and molecular dynamics using strong laser pulses.
- 2016: Erasmus+: Key Action 1, Higher Education Student and Staff Mobility, Dublin City University, Ireland,

8 hrs: Strong field laser-matter interactions / Higher order harmonic generation / Attosecond pulses / Non-linear dynamics in the VUV/XUV spectral region / Charged Particle Optics: Introduction to the operational principles of lenses, spectrometers and spectrographs / Charged Particle Optics: Hands on simulations using the SIMION package.

- Erasmus+: Key Action: Cooperation for innovation and the exchange of good practices, 2017-2019. PowerLaPs – *Innovative Education & Training in High Power Laser Plasmas*. Rethymnon, Crete, Greece, 2018 & 2019
6 hrs: Basics of laser-atom interactions and atomic processes in plasma / Atomic Physics in Plasma Diagnostics

TEXTBOOKS & NOTES

- *Atomic Physics* – Notes, Open Academic Courses (2013).
- *Physics of Lasers* – Notes, Open Academic Courses (2013).
- *General Physics* – Notes, Open Academic Courses (2016).
- *Principles and Practice of Physics*, E. Mazur, Broken Hill Publishers Ltd, Member of the team for the translation in Greek and the translation editing (2018-2019).
- *College Physics*, R. A. Freedman, T. Ruskell, P.R. Kesten and D.L. Tauck, Broken Hill Publishers Ltd, Member of team for the translation in Greek editing (2019).

FUNDED TEACHING/TRAINING PROGRAMS

- 2011. LLP/Erasmus IP, summer school, Heraklion, Crete, Greece, CPOTS – *Introduction to Charged Particle Optics: Theory and Simulation*. Scientific Responsible for the University of Ioannina. Budget: 30,313 €.
- 2012. LLP/Erasmus IP, summer school, Heraklion, Crete, Greece, CPOTS – *Introduction to Charged Particle Optics: Theory and Simulation*. Scientific Responsible for the University of Ioannina. Budget: 37,880 €.
- 2013. LLP/Erasmus IP, summer school, Heraklion, Crete, Greece, CPOTS – *Introduction to Charged Particle Optics: Theory and Simulation*. Scientific Responsible for the University of Ioannina. Budget: 40,000 €.
- 2017-2019. Erasmus+: Key Action: Cooperation for innovation and the exchange of good practices, PowerLaPs – *Innovative Education & Training in High Power Laser Plasmas*. Scientific Responsible & Management for the University of Ioannina. Budget: 269,602 € (36,000€ for UoI).

SUPERVISION OF THESES

PhD

1. *High brightness coherent XUV radiation pulsed sources using strong laser pulses* Stilianos Petrakis (ongoing).
2. *Particle acceleration with an ultra-intense laser*, Anastasios Grigoriadis (ongoing).
Co-supervision of PhD Theses (3-member advisory committee)
 1. *Interactions of molecules with asymmetric $\omega/2\omega$ laser fields*, Nikoletta Kotsina, Supervisor: Prof. C. Kosmidis (2015).

2. *Ultra-fast molecular dynamics of toluene and its products in the vacuum ultraviolet spectrum*, Christina Papadopoulou, Supervisor: Prof. C. Kosmidis (2017).
3. *Atomic Physics with Accelerators: Projectile electron spectroscopy at the NCSR Demokritos Tandem accelerator*, Ioannis Madesis. Supervisor: Prof. T.J.M. Zouros (ongoing)..
4. *Zero-degree Auger projectile spectroscopy of He-like ions*, Angelos Laoutaris, Supervisor: Prof. T.J.M. Zouros (ongoing).

Master

1. *Tunable femtosecond UV/VUV light source based on harmonic generation in static and semi-infinite gas cells utilizing optical parametric amplification*, Lazaros Varvarezos (2015).
2. *Comparative ionization of atoms and diatomic molecules in strong infrared laser fields*, Emmanouil Kechaoglou (2017).
3. *Hydrodynamic simulations of collisional shockwaves in gas targets for improved ion acceleration*, Stylianos Passalidis, Department of Electronic Engineering, TEI of Crete (2018).
4. *Electron capture to continuum in fast collisions of protons with gases*, Stefanos Nanos (2019).

Bachelor

1. *Study of the VMI spectrometer properties*, Elisavet Bizaki (2011).
2. *Temporal characterization of short laser pulses via 2nd order autocorrelation*, Evangelia Delli (2012).
3. *Development and study of the magnetic bottle spectrometer*, Socratis Anastasopoulos (2012).
4. *Theoretical study and simulation of the magnetic bottle spectrometer*, Alcmene-Vasiliki Dagli (2012).
5. ‘Modeling of the harmonic generation via the interaction of laser radiation with atoms’, Ioannis Makos (2013).
6. *Dissociation of ionic molecular hydrogen in strong laser fields: Floquet picture*, Spiros Divanis (2013).
7. *The role of volume effects in the dissociation of H₂⁺ in interactions with strong laser fields*, Stylianos Passalidis (2014).
8. *Study of the optimization conditions for the generation of the 3rd and 5th harmonics in interactions of strong laser fields with Ar gas in a static cell*, Lazaros Varvarezos (2014).
9. *Study of the applicability of the Intensity Selective Scanning (ISS) technique in the molecular dissociation of H₂⁺ in interactions with strong laser fields*, Anastasios Grigoriadis (2015).
10. *Study of the lower order harmonic generation in interactions of strong laser fields with Ar gas in a pulsed jet*, Emmanouil Kechaoglou (2015).
11. *Determination of J-levels lifetimes of the 1s2s2p ⁴P_J metastable state*, Stefanos Nanos (2016).
12. *Study of the vacuum conditions achieved using a differentially pumped pulsed jet*, Giorgos Arabatzoglou (2017).
13. *Conditioning of an electron gun operation*, Andreas Natsis (2017).
14. *Angular dependence of the 5th harmonic generated along the focal area in interactions of strong laser fields with Ar gas in a pulsed jet*, Christina Chrysohoou (2018).
15. *Atomic structure of Li-like ions using the COWAN code*, Sofoklis Nikolaou (2018).
16. *Optical properties of the electrostatic lens of a hemispherical analyzer spectrometer*, Evangelos Patelis (2019).
17. *Optics of fast ion trajectories in magnetic sector spectrometer*, Christos Karvounis (2019).
18. *Pulsed jet density characterization*, Ioannis Romanidis (2019).

DEFENSE COMMITTEES

PhD

1. *Study of the interaction of alkyl-halide molecular clusters with strong laser fields*, Gabriel Karras, Department of Physics, University of Ioannina (2011).
2. *Photoelectron and phasmatoscopic study of autonizing states*, Anastasios Dimitriou, Department of Physics, University of Ioannina (2014).
3. *Interactions of molecules with asymmetric $\omega/2\omega$ laser fields*, Nikoletta Kotsina, Department of Physics, University of Ioannina (2015).
4. *Study of high frequency elastic waves in multi-layered metal/Silicon materials by ultra-short laser pulses*, Irini Tzianaki, Department of Physics, University of Ioannina (2016).
5. *Ultra-fast molecular dynamics of toluene and its products in the vacuum ultraviolet spectrum*, Christina Papadopoulou, Department of Physics, University of Ioannina (2017).

Master

1. *Plasmonic applications based on graphene*, Spyros Doukas, Department of Materials Science & Engineering, University of Ioannina (2016).
2. *Hydrodynamic simulations of collisional shockwaves in gas targets for improved ion acceleration*, Stylianos Passalidis, Department of Electronic Engineering, TEI of Crete (2017).
3. *Study of laser produced plasma during the interaction of 40 TW ultra-short laser pulses with solid and gas targets*, Anastasios Grigoriadis, Department of Electronic Engineering, TEI of Crete (2018).
4. *Plasma dynamics in single wire Z-pinch under moderate electrical explosion*, Ioannis Filis, Department of Electronic Engineering, TEI of Crete (2018).
5. *Study of X-pinch plasma dynamics using a 40kA pulsed power plasma device*, Nikolaos Ligopsihakis, Department of Electronic Engineering, TEI of Crete (2019).
6. *Experimental and numerical study of laser induced particle acceleration from solid targets*, Ioannis Tazes, Department of Electronic Engineering, Hellenic Mediterranean University (2019).

PUBLICATIONS (IN CHRONOLOGICAL ORDER)

PUBLICATIONS IN REFERRED INTERNATIONAL JOURNALS

1. *Search for inelastic electrons scattered off ions in energetic ion-atom collisions*
T.J.M. Zouros, C. Liao, S. Hagmann, E.C. Montenegro, G. Toth, P. Richard and E.P. Benis
Nucl. Instum. Methods Phys. Res. B **98**, 371 (1995).
2. *A new hemispherical analyser with 2-D PSD and focusing lens for use in 0° electron spectroscopy*
E.P. Benis, K. Zaharakis, M. M. Voultsidou and T.J.M. Zouros
Nucl. Instum. Methods Phys. Res. B **146**, 120 (1998)
3. *High resolution RTE measurements at zero degrees using a hemispherical analyser with lens and 2-D PSD*
E.P. Benis, T.J.M. Zouros and P. Richard
Nucl. Instum. Methods Phys. Res. B **154**, 276 (1999)
4. *Hemispherical analyser with 2-D PSD for zero-degree Auger projectile spectroscopy*
E.P. Benis, T.J.M. Zouros, H. Aliabadi and P. Richard
Phys. Scr. **T80B**, 529 (1999)
5. *Improving the energy resolution of a hemispherical spectrograph using a paracentric entry at a non-zero potential*
E.P. Benis and T.J.M. Zouros
Nucl. Instum. Methods Phys. Res. A **440**, 462 (2000)
6. *Energy dependence of the metastable fraction in $B^{3+}(1s^2\ ^1S, 1s2s\ ^3S)$ beams produced in collisions with solid and gas targets*
M. Zamkov, H. Aliabadi, E.P. Benis, P. Richard, H. Tawara, T.J.M. Zouros
Phys. Rev. A **64**, 052702 (2001)
7. *Absolute cross section and decay rates for the triply excited $B^{2+}(2s2p^2\ ^2D)$ resonance in electron-metastable-ion collisions*
M. Zamkov, H. Aliabadi, E.P. Benis, P. Richard, H. Tawara and T.J.M. Zouros
Phys. Rev. A **65**, 032705 (2002)
8. *Technique for the determination of the $1s2s\ ^3S$ metastable fraction in two-electron ion beams*
E.P. Benis, T.J.M. Zouros, M. Zamkov, and P. Richard
Phys. Rev. A **65**, 064701 (2002)
9. *Fraction of metastable $1s2s\ ^3S$ ions in fast He-like beams ($Z=5-9$) produced in collisions with carbon foils*
M. Zamkov, E.P. Benis, P. Richard, and T.J.M. Zouros
Phys. Rev. A **65**, 062706 (2002)
10. *The hemispherical deflector analyzer revisited: I. Motion in the ideal $1/r$ potential, generalized entry conditions, Kepler orbits and spectrometer basic equation*
T. J. M. Zouros and E.P. Benis
J. Electr. Spectr. Rel. Phenom. **125**, 221 (2002); Erratum: **142**, 175 (2005).
11. *Triple electron capture in fast 0.5-1.1 MeV/u C^{6+} on Ar collisions*
M. Zamkov, E.P. Benis, P. Richard, T.G. Lee, and T.J.M. Zouros
Phys. Rev. A **66**, 042714 (2002)
12. *Absolute measurements and calculation of triple electron capture in fast 0.5-1.1 MeV/u C^{6+} on Ar collisions*

- M. Zamkov, E.P. Benis, T.G. Lee, P. Richard, and T.J.M. Zouros
Nucl. Instrum. Methods Phys. Res. B **205**, 522 (2003)
13. *Comparison of two experimental techniques for the determination of the $1s2s\ ^3S$ metastable beam fraction in energetic B^{3+} ions*
E.P. Benis, M. Zamkov, P. Richard, and T.J.M. Zouros
Nucl. Instrum. Methods Phys. Res. B **205**, 517 (2003)
14. *Differential electron scattering from positive ions measured by zero-degree ion-atom spectroscopy*
T.J.M. Zouros, E.P. Benis, T.W. Gorczyca, A.D. Gonzalez, M. Zamkov, and P. Richard
Nucl. Instrum. Methods Phys. Res. B **205**, 508 (2003)
15. *Experimental observation and theoretical calculations of triply excited $2s2p^2\ ^2S^e$, ${}^2, {}^4P^e$, ${}^2D^e$, and $2p^3\ ^2P^o$, ${}^2D^o$ states of fluorine*
M. Zamkov, E.P. Benis, C.D. Lin, T.G. Lee, T. Morishita, P. Richard and T.J.M. Zouros
Phys. Rev. A. **67**, R050703 (2003)
16. *Large-angle elastic resonant and non-resonant scattering of electrons from $B^{3+}(1s^2)$ and $B^{4+}(1s)$ ions: Comparison of experiment and theory*
T.J.M. Zouros, E.P. Benis, and T.W. Gorczyca
Phys. Rev. A **68**, R010701 (2003)
17. *Rescattering double ionization of D_2 and H_2 by intense laser pulses*
A.S. Alnaser, T. Osipov, E.P. Benis, A. Wech, C. L. Cocke, X. M. Tong, and C. D. Lin
Phys. Rev. Lett. **91**, 163002, (2003)
18. *Isoelectronic study of triply excited state Li-like states*
E.P. Benis, T.J.M. Zouros, T.W. Gorczyca, M. Zamkov, and P. Richard
J. Phys. B **36**, L341 (2003)
19. *Elastic resonant and non-resonant differential scattering of quasi-free electrons from $B^{4+}(1s)$ and $B^{3+}(1s^2)$ ions*
E.P. Benis, T.J.M. Zouros, T.W. Gorczyca, A.D. Gonzalez and P. Richard
Phys. Rev. A **69**, 052718 (2004); Erratum: **73**, 029901 (2006)
20. *Vibrationally resolved K-shell photoionization of CO with circularly polarized light*
T. Jahnke, L. Foucar, J. Titze, R. Wallauer, T. Osipov, E.P. Benis, A. Alnaser, O. Jacutzki, W. Arnold, S.K. Semenov, N.A. Cherepkov, L. Schmidt, A. Czasch, A. Staudte, M. Schoffler, C.L. Cocke, M.H. Prior, H. Schmidt-Bocking, and R. Doerner
Phys. Rev. Lett. **93**, 083002 (2004)
21. *Ionization suppression of Cl_2 molecules in intense laser fields*
E.P. Benis, J.F. Xia, X.M. Tong, M. Faheem, M. Zamkov, B. Shan, P. Richard, C.D. Lin and Z. Chang
Phys. Rev. A **70**, 025401 (2004)
[Selected for the September 2004 issue of Virtual Journal of Ultrafast Science.]
22. *Electron correlation in the formation of Li-like ions*
A.S. Alnaser, A. Landers, D.J. Pole, S. Hossain, E.P. Benis, S.M. Ferguson, and J.A. Tanis
Phys. Scr. **T110**, 137 (2004)
23. *Second order autocorrelation of an XUV attosecond pulse train*
L.A.A. Nikolopoulos, E.P. Benis, P. Tzallas, D. Charalambidis, K. Witte, and G.D. Tsakiris
Phys. Rev. Lett. **94**, 113905, (2005)
[Selected for the April 2005 issue of Virtual Journal of Ultrafast Science.]

24. *Optimal energy resolution of a hemispherical analyzer with virtual entry*
T.J.M. Zouros and E.P. Benis
Appl. Phys. Lett. **86**, 094105 (2005)
25. *The attosecond science frontiers: generation, metrology and paths to applications*
P. Tzallas, G.D. Tsakiris, L.A.A. Nikolopoulos, N.A. Papadogiannis, K. Witte, E.P. Benis, and D. Charalambidis
J. Electr. Spectr. Rel. Phenom. **144-147**, 1129 (2005)
26. *Investigation of triply-excited states of Li-like ions in fast ion-atom collisions by zero-degree Auger projectile electron spectroscopy*
T.J.M. Zouros, E.P. Benis, M. Zamkov, C.D. Lin, T.G. Lee, P. Richard, T.W. Gorczyca, T. Morishita
Nucl. Instrum. Methods Phys. Res. B **233**, 161 (2005)
27. *Attosecond pulse trains: generation metrology and application perspectives*
P. Tzallas, E.P. Benis, D. Charalambidis, G.D. Tsakiris, K. Witte, and L.A.A. Nikolopoulos
Laser Phys. **15**, 821, (2005)
28. *Optimization of the energy resolution of an ideal ESCA-type hemispherical analyzer*
T.J.M. Zouros, E.P. Benis, and I. Chatzakis
Nucl. Instrum. Methods Phys. Res. B **235**, 535 (2005)
29. *Spectral phase distribution retrieval through coherent control of harmonic generation*
E. Papalazarou, M. Kovacev, P. Tzallas, E.P. Benis, C. Kalpouzos, G.D. Tsakiris, and D. Charalambidis
Phys. Rev. Lett. **96**, 163901 (2006)
[Selected for the May 2006 issue of Virtual Journal of Ultrafast Science.]
30. *Frequency resolved photoelectron spectra of two-photon ionization of He by an attosecond pulse train*
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Workshop on Ultra-high Intensity Interaction Plasma Emission Diagnostic, CCLRC Rutherford Appleton Laboratory, 4-5 April 2005.
31. *On the generation metrology and applications of of XUV attosecond pulses*
P. Tzallas, E.P. Benis, M. Kovacev, E. Papalazarou, L.A.A Nikolopoulos, G.D. Tsakiris, and D. Charalambidis
XXI International Symposium on Molecular Beams, Hersonissos, Crete, 15-20 May 2005

32. *Zero-degree projectile electron spectroscopy of B^{2+} in 3-8 MeV collisions with H_2*
T.J.M. Zouros, E.P. Benis, and P. Richard
XXIV International Conference on Photonic Electronic and Atomic Collisions, Rosario, Argentina,
20-26 July 2005
33. *Ultimate energy resolution of a hemispherical analyzer using a cylindrically symmetric injection lens and virtual entry aperture*
T.J.M. Zouros and E.P. Benis
XXIV International Conference on Photonic Electronic and Atomic Collisions, Rosario, Argentina,
20-26 July 2005
34. *XUV attosecond pulses: generation, metrology, and potential applications*
E.P. Benis, L.A.A. Nikolopoulos, P. Tzallas, G.D. Tsakiris, and D. Charalambidis
XXIV International Conference on Photonic Electronic and Atomic Collisions, Rosario, Argentina,
20-26 July 2005
35. *On the second order autocorrelation of an XUV attosecond pulse train*
L.A.A. Nikolopoulos, E.P. Benis, P. Tzallas, D. Charalambidis, K. Witte, and G.D. Tsakiris
XXIV International Conference on Photonic Electronic and Atomic Collisions, Rosario, Argentina,
20-26 July 2005
36. *Numerical ab-initio study of non-linear response of helium under an XUV radiation*
L.A.A. Nikolopoulos, E.P. Benis, P. Tzallas, D. Charalambidis, and G.D. Tsakiris
International Conference on Computational Methods in Sciences and Engineering, Loutraki,
Korinthos, Greece, 21-26 October 2005
37. *Single photon-induced symmetry breaking of H_2 dissociative ionization*
F. Martín, J. Fernández, T. Havermeier, L. Foucar, Th. Weber, K. Kreidi, M. Schöffler, L. Schmidt,
T. Jahnke, O. Jagutzki, A. Czasch, E. P. Benis, T. Osipov, A. L. Landers, A. Belkacem, M. H. Prior,
H. Schmidt-Böcking, C. L. Cocke, R. Dörner
9th European Conference on Atoms Molecules and Photons, Heraklion, Crete, Greece, 6-11 May 2007
38. *Single photon-induced symmetry breaking of H_2 dissociation*
F. Martín, J. Fernández, T. Havermeier, L. Foucar, Th. Weber, K. Kreidi, M. Schöffler, L. Schmidt,
T. Jahnke, O. Jagutzki, A. Czasch, E. P. Benis, T. Osipov, A. L. Landers, A. Belkacem, M. H. Prior,
H. Schmidt-Böcking, C. L. Cocke, R. Dörner
9th European Conference on Atoms Molecules and Photons, Heraklion, Crete, Greece, 6-11 May 2007
39. *Towards intense isolated pulses*
P. Tzallas, E. Skantzakis, C. Kalpouzos, E.P. Benis, A. Bonarou, G.D. Tsakiris, and D. Charalambidis
9th European Conference on Atoms Molecules and Photons, Heraklion, Crete, Greece, 6-11 May 2007
40. *Full temporal reconstruction of lower order harmonic superposition*
E. Skantzakis, P. Tzallas, E. Papalazarou, C. Kalpouzos, A. Bonarou, E.P. Benis, G.D. Tsakiris, and
D. Charalambidis
9th European Conference on Atoms Molecules and Photons, Heraklion, Crete, Greece, 6-11 May 2007
41. *Two photon direct double ionization: a non-linear medium for xuv metrology*
E.P. Benis, P. Tzallas, G.D. Tsakiris, and D. Charalambidis
9th European Conference on Atoms Molecules and Photons, Heraklion, Crete, Greece, 6-11 May 2007
42. *Spatiotemporal effects in attosecond pulse train metrology*
E.P. Benis, J. Kruse, P. Tzallas, E. Skantzakis, G.D. Tsakiris, and D. Charalambidis
9th European Conference on Atoms Molecules and Photons, Heraklion, Crete, Greece, 6-11 May 2007
43. *Non-linear XUV processes @ femto / atto-second temporal scales*
P. Tzallas, E.P. Benis, L.A.A. Nikolopoulos, O. Faucon, E. Skantzakis, G.D. Tsakiris, and D.

Charalambidis

XXV International Conference on Photonic Electronic and Atomic Collisions, Freiburg, Germany,
25-31 July 2007

44. *Two photon double ionization of rare gases by a superposition of high order harmonics*
E.P. Benis, P. Tzallas, T.N. Kitsopoulos, G.D. Tsakiris, and D. Charalambidis
20th International Symposium on Ion-Atom Collisions, Agios Nikolaos, Crete, Greece, 1-4 August 2007
45. *H₂⁺ photodissociation under 7 fs chirped laser pulses*
E.P. Benis, M. Bakarezos, N.A. Papadogiannis, M. Tatarakis, L.A.A. Nikolopoulos
Science @ FELs (Satellite Meeting to the 11th International Conference on Synchrotron Radiation Instrumentation in Lyon), DESY in Hamburg, Germany, 15-18 July 2012
46. *Ionization/dissociation of toluene under strong asymmetric two- color laser fields of fs duration*
S. Kaziannis, N. Kotsina, E.P. Benis, S. Danakas and C. Kosmidis
11th European Conference on Atoms, Molecules and Photons, Aarhus, Denmark, 24-28 June 2013
47. *Molecular dynamics utilizing pump-probe technique at the VUV region*
C. Papadopoulou, S. Kaziannis, S. Danakas, E.P. Benis and C. Kosmidis
COST Action MP1203 meeting at Dublin, Ireland, 21-23 October 2013
48. *Atomic Physics with Accelerators: Projectile Electron Spectroscopy (APAPES)*
I. Madesis, A. Dimitriou, A. Lagoyannis, M. Axiotis, T. Mertzimekis, M. Andrianis, E.P. Benis, S. Harissopoulos, B. Sulik, I. Valastyán, T.J.M. Zouros
23rd Conference on Application of Accelerators in Research & Industry, San Antonio, TX, 25 - 30 May 2014
49. *Treatment of the metastable Auger decay in fast ion-atom collisions in an effective Monte Carlo type simulation*
S. Doukas, N. Angelinos, A. Kanellakopoulos, E.P. Benis, I. Madesis, A. Dimitriou and T.J.M. Zouros
6th International Conference from Scientific Computing to Computational Engineering, Athens, Greece, 9 - 12 July 2014.
50. *Atomic Physics with Accelerators: Projectile Electron Spectroscopy (APAPES)*
I. Madesis, A. Dimitriou, A. Lagoyannis, M. Axiotis, T. Mertzimekis, M. Andrianis, E.P. Benis, S. Harissopoulos, B. Sulik, I. Valastyán, T.J.M. Zouros
International Conferences on the Physics of Highly Charged Ions, San Carlos de Bariloche, Argentina, Aug. 31 - Sept 5 2014
51. *The Auger-KLL spectrum of carbon in 12 MeV C⁴⁺ + Ne collisions: Comparison of experimental measurements and SIMION simulations*
E.P. Benis, I. Madesis, A. Dimitriou, S. Doukas, A. Laoutaris, B. Sulik, I. Valastyán, T.J.M. Zouros
11th Topical Workshop of the Stored Particles Atomic Physics Research Collaboration, Worms, Germany, Oct. 16-17, 2014
52. *High resolution Auger projectile electron spectroscopy of Li-like ions produced by electron capture of He-like ions in collisions with gaseous targets*
I. Madesis, A. Dimitriou, A. Laoutaris, A. Lagoyannis, M. Axiotis, T. J. Mertzimekis, M. Andrianis, E. P. Benis, S. Harissopoulos, B. Sulik, I. Valastyan, T. J. M. Zouros
CDAMOP 2015, New Delhi, India, Mar 11-14, 2015
53. *Formation mechanisms of the 1s2s2p ⁴P₁ metastable state in 12 MeV C⁴⁺ (1s² ¹S, 1s2s ³S) collisions with H₂, He, Ne and Ar*
E.P. Benis, I. Madesis, A. Dimitriou, A. Laoutaris, B. Sulik, O. Sise and T.J.M. Zouros

Photon and fast Ion induced Processes in Atoms, Molecules and Nanostructures, Debrecen, Hungary, Mar 24-26, 2015

54. *The role of the effective solid angle in the determination of the electron yield of metastable projectile Auger states*
E.P. Benis, S. Doukas, I. Madesis, A. Dimitriou, A. Laoutaris, T.J.M. Zouros, F. Parente, C. Martins, J. P. Marques, P. Indelicato and J. P. Santos
9th International Symposium on Swift Heavy Ions in Matter, Darmstadt, Germany, May 18-21, 2015
55. *Energy levels, transition rates and lifetimes for Li-like ions with $Z \leq 10$ in the $1s2s(^3S)3l$ states*
J. P. Santos, J. P. Marques, M. C. Martins, P. Indelicato, E. P. Benis, T. J. M. Zouros, F. Parente
XXIX International Conference on Photonic, Electronic and Atomic Collisions, Toledo, Spain, July 24-30, 2015
56. *Investigation of the dependence of the energy resolution of a hemispherical deflection analyzer on the distance of the position sensitive detector from the focal plane*
C. Nounis, A. Laoutaris, I. Madesis, A. Dimitriou, O. Sise, E.P. Benis, T.J.M. Zouros
XXIX International Conference on Photonic, Electronic and Atomic Collisions, Toledo, Spain, July 24-30, 2015
57. *Use of gas and foil strippers for the production of He-like ionic beams in both pure ground state ($1s^2$) and mixed states ($1s^2$, $1s2s$) for zero-degree Auger projectile electron spectroscopy*
A. Laoutaris, I. Madesis, A. Dimitriou, A. Lagoyannis, M. Axiotis, E.P. Benis, T.J.M. Zouros
XXIX International Conference on Photonic, Electronic and Atomic Collisions, Toledo, Spain, July 24-30, 2015
58. *Separation and solid angle correction of the metastable $1s2s2p\ ^4P$ Auger yield produced in ion-atom collisions using the biased gas cell technique: A tool for the determination of the population mechanisms*
I. Madesis, A. Laoutaris, S. Doukas, A. Dimitriou, E.P. Benis, T.J.M. Zouros
XXIX International Conference on Photonic, Electronic and Atomic Collisions, Toledo, Spain, July 24-30, 2015
59. *Evaluation of $1s2l2l'\ ^4P/\ ^2P$, $^2P/\ ^2P$, $^2D/\ ^2P$ ratios from collisions of mixed state ($1s^2\ ^1S$, $1s2s\ ^3S$) He-like ion beams with H_2 and He targets*
E. P. Benis, I. Madesis and T. J. M. Zouros
18th International Conferences on the Physics of Highly Charged Ions, Sep 11-16, Kielce, Poland, 2016
60. *Modeling the $1s2l2l'$ Auger projectile spectrum in $C^{4+}(1s2s\ ^3S)$ collisions with He including radiative cascade repopulation and Auger depletion*
I. Madesis, A. Laoutaris, E.P. Benis, T.J.M. Zouros, T. Kirchner, J.P. Santos, F. Parente and M. C. Martins
18th International Conferences on the Physics of Highly Charged Ions, Sep 11-16, Kielce, Poland, 2016
61. *Cascade of $1s2s(^3S)3l$ states for Li-like ions with $Z \leq 10$*
J. P. Santos, J. P. Marques, M. C. Martins, P. Indelicato, E. P. Benis, T. J. M. Zouros, F. Parente
18th International Conferences on the Physics of Highly Charged Ions, Sep 11-16, Kielce, Poland, 2016
62. *Determination of the $^4P/\ ^2P$ ratio in single electron capture of C^{4+} ($1s^2$, $1s2s\ ^3S$) mixed state ion beams in 6-18 MeV collisions with H_2 , He, Ne and Ar targets*
I. Madesis, A. Laoutaris, E. P. Benis, T. Kirchner, T. J. M. Zouros

XXIX International Conference on Photonic, Electronic and Atomic Collisions, Cairns, Tropical Queensland, Australia, July 26 – August 1, 2017

63. *Effective solid angle correction factors for long-lived Auger states populated in low-Z ion collisions with gas targets*

E. P. Benis, S. Nanos, I. Madesis, A. Laoutaris, T. W. Gorczyca, T. J. M. Zouros

XXIX International Conference on Photonic, Electronic and Atomic Collisions, Cairns, Tropical Queensland, Australia, July 26 – August 1, 2017

64. *Investigation of $2s2p$ 3,1P excitation and $(1s2s$ $^3S)nl$ capture lines in 6-18 MeV C^{4+} ($1s^2$, $1s2s$ 3S) collisions with gas targets*

A. Laoutaris, I. Madesis, E. P. Benis, T. J. M. Zouros

XXIX International Conference on Photonic, Electronic and Atomic Collisions, Cairns, Tropical Queensland, Australia, July 26 – August 1, 2017

65. *Multi-electron processes in MeV/u mixed-state C^{4+} ($1s^2$, $1s2s$ 3S) + He collisions: Comparison of AOCC calculations and experiments*

E.P. Benis, A. Dubois, J.W. Gao, A. Laoutaris, I. Madesis and T.J.M. Zouros

19th International Conferences on the Physics of Highly Charged Ions, Lisboa, Portugal, Sep 3-9, 2018

66. *The role of He-like mixed ($1s^2$ 1S , $1s2s$ $^{1,3}S$) ionic states in the investigation of population mechanisms of He-like and Li-like excited states*

E. P. Benis, I. Madesis2,3, A. Laoutaris, J.W. Gao, A. Dubois and T. J. M. Zouros

15th Topical Workshop of the Stored Particles Atomic Physics Research Collaboration, Lisboa, Portugal, Sep 9-13, 2018

67. *High harmonics generation and characterization using the Zeus laser at CPPL*

S. Petrakis, Y. Orphanos, I. Fililis, E. L. Clark, V. Dimitriou, M. Bakarezos, M.Tatarakis, E.P. Benis and N.A. Papadogiannis

35th European Conference on Laser Interaction with Matter, Rethymno, Crete, Greece, 22-26 October, 2018

68. *Energetic particles source using the Zeus 45 TW laser at CPPL*

G. Andrianaki, A. Grigoriadis, I. Tazes, E. L. Clark, I. Fililis, S. Petrakis, A. Skoulakis, E. Kaselouris, T.G. Maris, I. Tsiapa, M. Bakarezos, I. K. Nikolos, V. Dimitriou, E. P. Benis, N. A. Papadogiannis and M. Tatarakis

35th European Conference on Laser Interaction with Matter, Rethymno, Crete, Greece, 22-26 October, 2018.

69. *Novel gel dosimetry diagnostic for the secondary sources of ZEUS 45TW laser system at CPPL*

E. L. Clark, A. Grigoriadis, I. Tazes, G. Andrianaki, I. Fililis, S. Petrakis, A. Skoulakis, E. Kaselouris, T.G. Maris, I. Tsiapa, M. Bakarezos, I. K. Nikolos, V. Dimitriou, E. P. Benis, N. A. Papadogiannis and M. Tatarakis

3rd European Conference on Plasma Diagnostics (ECPD), Lisbon, Portugal, 6-9 May 2019

70. *Secondary sources generated with the ZEUS 45TW laser system at CPPL*

E. L. Clark, A. Grigoriadis, I. Tazes, G. Andrianaki, I. Fililis, S. Petrakis, A. Skoulakis, E. Kaselouris, T.G. Maris, I. Tsiapa, M. Bakarezos, I. K. Nikolos, V. Dimitriou, E. P. Benis, N. A. Papadogiannis and M. Tatarakis

International Conference on Applications of Nuclear Techniques, Rethymno, Crete, 09-15 June, 2019

71. *Coherence effects in dielectronic processes during swift $C^{4+}(1s^2)$ collisions with helium and hydrogen*

T.J.M. Zouros, I. Madesis, E. P. Benis, A. Laoutaris, J. W. Gao and A. Dubois

XXVI Int. Symposium on Ion-Atom Collisions, Paris, France, Jul 19-22, 2019.

72. *Li-like carbon Auger KLL measurements of mixed-state $C^{4+}(1s^2 \ ^1S, 1s2s \ ^3S)$ ions in 6-15 MeV collisions with He and comparison to 3eAOCC calculations*
I. Madesis, A. Laoutaris, E. P. Benis, T. J.M. Zouros, A. Dubois,
XXXI International Conference on Photonic, Electronic and Atomic Collisions, Deauville,
Normandy, France, July 23-30, 2019
73. *Electron capture to continuum in 0.5-4.5 MeV/u collisions of protons and deuterons with gas targets*
S. Nanos, A. Laoutaris, I. Madesis, T. J. M. Zouros and E.P. Benis
16th Topical Workshop of the Stored Particles Atomic Physics Research Collaboration, Jena,
Germany, Sep 9-13, 2019