

Curriculum Vitae

Personal information

Name	KAZIANNIS SPYRIDON
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E-mail	skaziannis@hotmail.com
Nationality	Greek
Date of birth	12/07/1977
MILITARY SERVICE	9/02/2011 – 9/11/2011
MOTHER LANGUAGE	Greek
OTHER LANGUAGES	English fluent

Education and training

- Dates (from – to) 2002-2007
- Name and type of organisation providing education and training Atomic and Molecular Physics Laboratory, Physics Department, University of Ioannina, Ioannina, Greece
- Subject of Thesis Alignment – ionization and dissociation processes of alkyl halide molecules induced by strong laser fields
- Title of qualification awarded Ph. D in Physics under supervision of Professor Constantine Kosmidis

- Dates (from – to) 1999-2001
- Name and type of organisation providing education and training Physics Department, University of Ioannina, Ioannina, Greece
- Postgraduate courses Quantum Mechanics (two semesters), Electrodynamics (one semester), Mathematical Methods of Physics (two semesters), Atomic and Molecular Physics (two semesters)

- Dates (from – to) 1995-1999
- Name and type of organisation providing education and training Physics Department, University of Ioannina, Ioannina, Greece
- Title of qualification awarded B.Sc. in Physics (8.05 on a 1- 10 scale, 2nd best of the particular year)

Seminars – Schools

“Ultrafast processes, methods and applications”, The Onassis Foundation Science Lecture Series, The 2001 Lectures in Chemistry and Physics, FORTH, Heraklion – Greece, July 2 – 6, 2001

Grants - Funds

2002 – 2005. Recipient of a 3-year scholarship by the program HERAKLITOS of the Operational Program for Education and Initial Vocational Training of the Hellenic Ministry of Education, under the 3rd Community Support Framework and the European Social Fund

1995 – 1999. Annual scholarships from the Physics Department of the University of Ioannina, Greece.

11/2008. Principal researcher of a 5 week experimental at the LENS institute Florence, Italy in collaboration with members of the Atomic & Molecular Physics Lab of Ioannina University and that of the hosting institution (Dr M. Bellini). The related research is focused on the ionization/dissociation processes leading to the formation of molecular H_3^+ fragment ions from polyatomic molecules under strong laser irradiation.

PROFESSIONAL EXPERIENCE

- Dates (from – to)
• Name and address of employer
• Occupation or position held
Main activities and responsibilities
- 1/03/2012
Physics Department, University of Ioannina, Ioannina, Greece.
Post – doctoral researcher
Molecular orientation/ alignment under strong asymmetric laser fields ($\omega/2\omega$).
Excited stated dynamics probed by time resolved fs mass spectrometry
- Dates (from – to)
• Name and address of employer
• Occupation or position held
• Main activities and responsibilities
- 6/10/2008 – 30/01/2011
Biomolecular & Chemical Physics Laboratory, Strathclyde University, Glasgow
Research assistant
Developing the available at the time 2D Infrared spectrometer with the view of recording transient two dimensional IR spectra and ground electronic state 2D spectra following the photon echo technique. Applying these experimental techniques for ultrafast spectroscopic studies on [FeFe]Hydrogenase model systems relating to their structure, reactivity and vibrational relaxation dynamics.
- Dates (from – to)
• Name and address of employer
• Occupation or position held
• Main activities and responsibilities
- 5/11/2007-15/02/2008
European Laboratory for Non-linear Spectroscopy (LENS), Florence, Italy.
Assistant researcher
Optimizing the production efficiency of the 9th order harmonic of a Ti: Sapphire laser (800nm, 25 fs) during its interaction with noble gases. Using a pump-probe experimental scheme to apply the Ramsey type spectroscopic technique on the study of high-lying Rydberg bound atomic states of Krypton (Spectroscopy in the XUV region).
- Dates (from – to)
• Name and address of employer
• Type of business or sector
• Occupation or position held
• Main activities and responsibilities
- 2006- 30th of june 2007 Archimedes II
Archimedes Research Program
Centre for funding Research and Education
Principal researcher
Principal researcher for the Atomic and Molecular Physics Laboratory, (Physics Department, University of Ioannina, Ioannina, Greece) for the project: “Acoustics Microscopy using ultrasounds of ultra- high frequency generated by laser irradiation of metallic and dielectric substrates ”
- Dates (from – to)
• Name and address of employer
• Occupation or position held
Main activities and responsibilities
- 2000-2001
General Secretariat of Research and Technology PENED
Assistant researcher
Participation as researcher for the Atomic and Molecular Physics Laboratory, (University of Ioannina, Greece) for the project: “Laser Restoration of Painted Artworks: Characterization of Effects and Procedure Optimization”. The project was realized in cooperation with the Institute of electronic structure and Laser (IESL), Forth, Crete, Greece

TEACHING EXPERIENCE

- Dates (from – to)
• Name and address of employer
• Occupation or position held
• Main activities and responsibilities
- 2002-2003
Physics Department, University of Ioannina, Ioannina, Greece.
Teaching assistant
Teaching assistant in the laboratories of Mechanics, Electromagnetism, Optics - Waves & Acoustics

EXPERIMENTAL EXPERIENCE

- Vacuum Techniques
- Time of Flight Mass Spectrometry (TOFMS) in linear and reflecting configuration (R-TOFMS) (recording ions and angular distributions)
- LIF (laser induced fluorescence) (monitoring photons)
- Hands on experience with *nanosecond* and *picosecond* laser systems acquired in the Atomic and Molecular Physics Laboratory in the University of Ioannina, Greece.
- Ablation of polymeric (PMMA, polystyrene) films
- Interferometric techniques used for optical detection of ultra-high frequency (of the order of GHz) ultrasounds propagating inside various substrates (dielectrics, metals)
- Experience with high power *femtosecond* laser systems acquired during experiments performed in TOPS (Terahertz to Optical pulse source) laboratory of Strathclyde University, Scotland (up to 10mJ/pulse at 50fs).
- Experience with ultra short laser pulses 10fs (produced by self-phase modulation in a noble-gas filled hollow fibre and temporal compression with a series of broadband multi-layer chirped mirrors) acquired during experiments performed in Astra Laser Facility of RAL (Rutherford Appleton Laboratory), England [August -September, 2006].
- Hands on experience with Ti:Saph fsec laser systems acquired during my post doctoral research at the LENS institute (25fs, 1W, 1KHz Femtopower system) and Strathclyde University (30fs, 3W, KHz Coherent system: Micra & Mantis oscil, Evolution pump amplifier, Legend elite amplifier).
- Hands on experience with OPA systems acquired at Strathclyde University (Light conversion, coherent systems covering the spectral region from 300nm up to the mid infrared ~10um).
- High-order harmonic generation for application in VUV/XUV spectroscopy. The related experience was acquired at the LENS (European Laboratory for Non-linear Spectroscopy), Florence (Italy), during a 3-month experimental study of XUV Ramsey Spectroscopy (FT technique) of high-lying bound states of Krypton, Argon.
- Multiple laser beam (pump – probe) experimental techniques and their application on Ultrafast Multidimensional Spectroscopic studies: [Mid IR regime (Vibrational Spectroscopy)/ XUV regime (VUV Spectroscopy).]

RESEARCH INTERESTS:

• Ultrafast multidimensional Vibrational Spectroscopy (2D IR spectroscopy, Transient – 2D IR spectroscopy) as a tool to understand:

- _ Vibrational relaxation dynamics (IVR, Solute – solvent interactions)
- _ Structural dynamics of transient species
- _ Reactivity of molecules in liquid phase

(Thus far, my research was focused on the study of [FeFe]Hydrogenase enzyme model systems)

• Interaction of (gas phase) polyatomic molecules with strong laser fields (10^{14} – 10^{16} W/cm²):

- _ Multiple ionization processes (MPI multiphoton absorption, Field ionization: tunneling/ Barrier suppression)
- _ Multielectron dissociative ionization (MEDI, Coulomb explosion)
- _ The dynamics of dissociative/ ionization processes leading to the formation of energetic H₂⁺ and H₃⁺ molecular fragments (dependence on the irradiation conditions: laser pulse duration/ intensity).
- _ Alignment of alkyl halide molecules under ps and fs laser fields. (Dependence of alignment efficiency on the molecular characteristics).

RESEARCH PUBLICATIONS

Publications in Research Journals

1. Siozos P, **Kaziannis S**, Kosmidis C, “Multielectron dissociative ionization of CH₃I under strong picosecond laser irradiation”, *Int J of Mass Spectr.* **225** 249-259 (2003)
2. Siozos P, **Kaziannis S**, Kosmidis C and Lyras A, “Ionization/dissociation processes in some alkyl iodides induced by strong picosecond laser beam”, *Int J of Mass Spectr.* **243** 189-198 (2005).
3. Kosmidis C, Siozos P, **Kaziannis S**, Robson L, Ledingham KWD, McKenna P and Jaroszynski DA “Interaction mechanism of some alkyl iodides with femtosecond laser pulses”, *J Phys Chem A.* **109** 1279-1285 (2005).
4. **Kaziannis S**, Siozos P and Kosmidis C, “Dynamic alignment of CH₃I by strong picosecond laser pulses”, *Chem Phys Lett.* **401** 115-121 (2005)
5. Kosmidis C, **Kaziannis S**, Siozos P, Lyras A, Robson L, Ledingham KWD, McKenna P and Jaroszynski DA, “Molecular hydrogen ion elimination from alkyl iodides under strong laser beam irradiation”, *Int J of Mass Spectr.* **1** 1-8 (2006)
6. **Kaziannis S** and Kosmidis C, “Comparative study of multielectron ionization of alkyl halides induced by picosecond laser irradiation”, *J Phys Chem A.* **111** 2839-2851 (2007)
7. Kapakoglou N, Betzios I P, **Kaziannis S**, Kosmidis C, Drouza C, Manos M, Sigalas M, Keramidas A and Kabanos T, “Polyoxomolybdenum (V/VI)-Sulfite Compounds: Synthesis, Structure and Physical studies”, *Inorg Chem* **46** 6002-6010 (2007)

8. Patsalas P, **Kaziannis S**, Kosmidis C, Papadimitriou D, Abadias G and Evangelakis G.A, “Optimized pulsed laser deposition by wavelength and static electric field control: The case of tetrahedral amorphous carbon films”, *J Appl Phys* **101** 1 (2007)
9. **Kaziannis S**, Kosmidis C and Lyras, A, “Alignment of ethyl halide molecules with strong picosecond laser fields”, *J.Phys. Chem. A.* **112** 4754-4764 (2008) _
10. **Kaziannis, S.**, Kosmidis, C,. “The ejection anisotropy in the Coulomb explosion of some alkyl halide molecules under strong ps laser fields”, *Chem. Phys. Lett.* **467**, 281-286 (2009).
11. **Kaziannis, S.**, Lontos, I., Karras, G., Corsi, C., Bellini, M., Kosmidis, C. “ The ejection of triatomic molecular hydrogen ions H_3^+ produced by the interaction of benzene molecules with ultrafast laser pulses”, *J. Chem. Phys.* **131**, 144308 (2009).
12. Lontos, I., Cavalieri, S., Corsi, C., Eramo, R., **Kaziannis, S.**, Pirri, A., Sali, E., Bellini, M. “Ramsey spectroscopy of bound atomic states with extreme ultraviolet laser harmonics” *Optics Lett.* **35**, 832 – 834,(2010)
13. Determination of the photolysis products of [FeFe]Hydrogenase Enzyme model systems using Ultrafast Multidimensional Infrared Spectroscopy. Stewart I.A., Wright J.A., Greetham G.A., **Kaziannis S.**, Santabarbara S., Towrie M., Parker A.W., Pickett C.J., Hunt N.T. *Inorg Chem.* **49**, 9563, (2010).
14. Femtosecond to Microsecond Photochemistry of a [FeFe]Hydrogenase Enzyme Model Compound. **Kaziannis S***, Santabarbara S., Wright J.A., Greetham G.A., Towrie M., Parker A.W., Pickett C.J., Hunt N.T. *J Phys Chem B.* **114**, 15370, (2010).
15. The role of CN and CO ligands in the vibrational relaxation dynamics of model compounds of the [FeFe]-hydrogenase enzyme. **Kaziannis S**, Wright JA, Candelaresi M, Kania R, Greetham MG, Parker AW, Pickett CJ and Hunt NT. *Phys. Chem. Chem. Phys.* **13**, 10295, (2011).

INTERNATIONAL CONFERENCES:

1. **Kaziannis S**, Siozos P and Kosmidis C, “Multielectron dissociative ionization of CH_3I induced by strong ps laser fields”, LAP 2002, International conference on laser probing, 7 – 12 July, 2002, Leuven, Belgium
2. **Kaziannis S**, Siozos P and Kosmidis C, “On the angular distributions arising from the interaction of strong laser fields with Alkyl Halides”, ECAMP 2004, the 8th EPS conference on Atomic and Molecular Physics, 6 – 10 July, 2004, Rennes, France
3. Siozos P, **Kaziannis S**, Kosmidis C, Robson L, Ledingham KWD, McKenna P and Jaroszynski DA, “A comparison of the interaction of Alkyl iodides with strong femtosecond and picosecond laser fields”, ECAMP 2004, the 8th EPS conference on Atomic and Molecular Physics, 6 – 10 July, 2004, Rennes, France **Kaziannis S** and Kosmidis C, “Ejection anisotropy in the

Coulomb_explosion of some Alkyl Halides under strong ps laser irradiation”, ECAMP 2007, the 9th EPS conference on Atomic and Molecular Physics, 6 – 11 May, 2007, Heraklio, Crete, Greece

4. Patsalas P, **Kaziannis S**, Papadimitriou D, Kosmidis C and Evangelakis GA, “Ion dynamics and material characteristics in a pulsed laser deposition of tetrahedral amorphous carbon films in a static electric field”, EMRS 2006, European Materials Research Society, May 29 – June 2, Nice, France.

5. Tzianaki E, Tatarakis M, Bakarezos M, Eleftheriou M, Papadogiannis NA, **Kaziannis S**, Kosmidis C, Lyras A. “*Experimental studies of generation and propagation of high frequency acoustic waves in various solid materials using ultraviolet picosecond laser pulses*”. JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA, VOL. 123, P. 3155, 2008 (PROCEEDINGS OF THE ACOUSTICS '08 CONFERENCE, PARIS, FRANCE, 26 JUNE – 4 JULY 2008).

6. Gerald MB, Stewart AI, Joseph AW, **Kaziannis S**, Santabarbara S, Clark IP, Greetham GM, Towrie M, Parker AW, Pickett CJ and Hunt NT. “Ultrafast Multidimensional Infrared Spectroscopy of Transient Structures - New Insights into the FeFe [Hydrogenase] Enzyme Reaction Mechanism” International Conference on Ultrafast Phenomena (UP), Snowmass Village, Colorado, July 18, 2010.

7. Kannia R, **Kaziannis S** and Hunt NT. Measuring molecular dynamics in solution with ultrafast 2D-IR spectroscopy. Annual meeting of the Spectroscopy and Dynamics Group. Heriot-Watt, Edinburgh, 5-7 January 2011.

Other Interests: Sports, music, travelling

CHARACTER REFERENCE: Available if asked.