Curriculum Vitae *Orfanos Ioannis*

PERSONAL INFORMATION

Name: Orfanos Ioannis

Residence address: Vianou 28 Heraklio, Crete, Greece

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Date of Birth: 08-21-1992

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EDUCATION

2016-present	PhD student at University of Crete, Physics Department & FO.R.T.H.-I.E.S.L. attosecond Science and Technology Laboratory
2014-2016	Master in “Photonics and Lasers” at the University of Patras (Greece), Department of Physics GPA: 8.66/10
2010-2014	Diploma in Physics at the University of Patras (Greece), Department of Physics, GPA: 6.84/10
2007-2010	Senior High School Grade: 19.2/20

Diploma Thesis

Title:	Experimental investigation of the nonlinear properties of some boron-Dipyrromethene dyes under visible and near-infrared excitation
Supervisor:	S. Couris
Abstract:	Experimental results on the NLO properties of the Bodipy derivatives utilizing z-scan technique are presented. The relationship between the nonlinear optical properties and photophysical properties of the derivatives is also considered in order to correlate the magnitude and the sign of the observed nonlinearities with their photophysical characteristics.

Master Thesis

Title: Experimental investigation of the nonlinear properties of some boron-Dipyrromethene dyes (BODIPY) and o-doped polycyclic aromatic hydrocarbons (O-doped nanoribbons)

Supervisors: S. Couris, N. Vainos, A. Georgas

Abstract: The primary objective of this thesis was the investigation of the non-linear optical properties of some molecules of BODIPY family and o doped polycyclic aromatics hydrocarbons (o-oped nanoribbons) derivatives. In particular, we focused on the determination of the second-order hyperpolarizability in order to correlate the magnitude and the sign of the observed nonlinearities with their photophysical characteristics and their structure. The main experimental technique used was the Z-scan technique, employing 35 ps and 4 ns laser pulses at both 532 nm and 1064 nm. From the measurements, the nonlinear absorption and refraction and the corresponding third-order susceptibility $\chi(3)$ and second hyperpolarizability are determined.

PhD Thesis

Title: Development of an intense attosecond pulse source and its use in the study of electronic dynamics with the XUV-pump-XUV-probe technique.

Supervisors: D.Charalambidis, P.Tzallas, P.Rakitzis

Abstract: The aim of my thesis is I) to develop and characterize a table-top XUV *asec* source with the highest ever reported XUV intensity and II) to use this source for XUV-pump-XUV-probe studies in the non-linear XUV regime. More precisely, studies on the multiple ionization of atoms in the non-linear-XUV region and time-delay spectroscopic studies of atoms which are coherently excited in energetically non-degenerated manifold of bound and/or autoionizing states, will be the main subjects of my work. For the realization of the proposed research directions the development and the characterization of a high intensity *asec* XUV source is required. Gas phase high-order-harmonic (HOH) generation sources have been used up to now for the generation of intense XUV pulses with duration < 1 *fs*, which upon focusing can reach intensities sufficient to induce observable non-linear processes in the XUV spectral range.

RESEARCH EXPERIMENTS & SKILLS

- Laser Matter interactions
- Measurement of the nonlinear optical properties of organic solvents, carbon derivatives and thin films employing the Z-scan technique in nanosecond, picosecond and femtosecond domains and Optical Kerr Effect (OKE) technique.
- Development of linear and non-linear optical setups
- Experimental techniques: Z-scan, Optical Kerr Effect (OKE), White light supercontinuum generation.
- Various laser systems: Q-switched, mode-locked, femtosecond , picosecond, nanosecond
- Other techniques: UV-Vis-NIR spectroscopy, Laser Ablation, Laser Induced Breakdown Spectroscopy, Raman spectroscopy, Time Correlated Single Photon Counting , Profilometry , AFM, DLS, DMA, DSC, XRD, FTIR MOS-FET devices, DC conductivity, Dielectric spectroscopy and Photoconductivity.

OTHER ACTIVITIES/SKILLS

LANGUAGES

English: Excellent (C1), Certificate of Proficiency in English, University of Michigan

Italian: Basic (A1)

Greek: Native speaker

PROGRAMMING/SOFTWARE

Matlab, OriginLab, Microsoft Office, Fortran, C++

TEACHING EXPERIENCE

- Teaching assistance in the University of Crete (Greece) during master studies (2017-2018): Advanced Physics Laboratories 2 semesters, 48 teaching hours
- Teaching assistance in the University of Patras (Greece) during master studies (2014-2015): Geometrical and Wave optics 2 semesters, 48 teaching hours

PUBLICATIONS

1. "Multiple ionization of argon via multi-xuv-photon absorption induced by 20-gigawatt high-harmonic pulses" A. Nayak, **I. Orfanos**, I. Makos, M. Dumergue, S. Kühn, E. Skantzakis, B. Bodi, K. Varju, C. Kalpouzos, H. I. B. Banks, A. Emmanouilidou, D. Charalambidis and P. Tzallas, *Phys. Rev. A,* 2018
2. "An Experimental Study of the Structural Effect on the Nanosecond Nonlinear Optical Response of O-Doped Polycyclic Aromatic Hydrocarbons (PAHs)" I.Papadakis, Z.Bouza, A. Stathis, **I. Orfanos**, S. Couris, T. Mileti, and D. Bonifazi, *J. Phys. Chem. A,*2018
3. "A twisted bay-substituted quaterrylene phosphorescing in the NIR spectral region" T. Miletić, A. Fermi, I. Papadakis, **I. Orfanos**, N. Karampitsios, A. Avramopoulos, F. De Leo, N. Demitri, G. Bergamini, P. Ceroni, M. G. Papadopoulos, S. Couris and D. Bonifazi ,*Chemistry A European Journal* ,2017
4. "Nonlinear optical response of some Graphene oxide and Graphene fluoride derivatives" N. Liaros, **I. Orfanos**, I. Papadakis, and S. Couris *Optofluid Microfluid Nanofluid* ,2017
5. "Tailoring colors by O-annulation of polycyclic aromatic hydrocarbons" T. Miletić, A. Fermi, **I. Orfanos**, A. Avramopoulos, F. De Leo, N. Demitri, G. Bergamini, P. Ceroni, M. G. Papadopoulos, S. Couris and D. Bonifazi , *Chemistry A European Journal* ,2017
6. "Ultrafast third order nonlinearities of several organic solvents", K. Iliopoulos, D. Potamianos, E. Kakkava, P. Aloukos, **I. Orfanos**, and S. Couris, *Opt. Express* ,2015