

Curriculum Vitae

Ioannis Ftilis

Personal Data

- First name: Ioannis
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Studies

- In progress, Master Course in Plasma Physics and Applications
School of Applied Science, Technological Educational Institute of Crete, Greece
- 2009 PhD
Physics Department, University of Patras, Greece
Thesis title: «Two-photon absorption of novel symmetric organic molecules and two-photon polymerization»
- 2004 Master in Photonics
Physics Department, University of Ioannina, Greece
- 2002 Bachelor in Physics
Physics Department, University of Patras, Greece

Scholarships/Awards

- 2002-2003 Fellowship by the Postgraduate Program in Physics of the department of Physics, at the University of Ioannina (financing EPEAEK, Europe-Greece)
- 2004-2007 Fellowship by the National Scholarship Foundation of Greece for doctorate thesis elaboration.

Languages

- Greek, native language
- English, Level B2

Seminars and Lectures Attendance

- Training Course “Applications of Light Microscopy in Biomedical Research”, University of Ioannina, BRI-FORTH, Greek Network for Light Microscopy, 12-16 July 2004, Ioannina, Greece
- Lectures in Chemistry and Physics devoted to “The Nanotechnology Revolution”, The Onassis Foundation Science Lecture Series, FORTH, 19-23 July 2004, Heraklion, Greece

Computer Knowledges

- Windows, Office, OriginPro, PhotoShop, DIMAS (Seismology)
- Labview, GLAD (optics), Fortran, Matlab
- Hardware, networks

Other Skills

- Skills in design and develop of optical experiments. Experience in interferometry, shadowgraphy and schlieren imaging techniques, in pump-probe experiments utilizing ultrafast laser, in diagnostics of high energy photons. Skills in programming and configuration of devices for the automatization of experiments.
- Experience on pulsed power devices for plasma generation from solid and gas targets (x-pinch, plasma focus). Experience on working with high vacuum systems and setting up experiments in vacuum.
- Trained to operate, adjust and maintain the TW-class power ultrafast laser system installation at the research Centre for Plasma Physics and Lasers (CPPL) in Greece. Skills in using ultrafast pulses measurement systems: BONSAI (Amplitude-technologies) for duration, WIZZLER (Fastlite) for duration-phase, SEQUOIA (Amplitude-technologies) for pulse contrast,
- Working experience on femtosecond laser (Tsunami, Spectra Physics), picosecond laser (SL312, EKSPLA), gamma ray multichannel analyzer (Canberra, ProSpect), motion controller (ESP, Newport), data acquisition hardware (National Instrument), optical fiber fusion splicer (Fujikura), optical analyzer (Anritsu), picoammeter (Keithley), acoustic emission recording and analysis system (Physical Acoustics, Mistras), dielectric spectroscopy (Novocontrol).
- Skills in implement educational experiment setups in physics and fundamental electronics. Experience on PASCO educational hardware and software.

Work Experience

- 2000- 2002 Teaching Assistant (unpaid) at laboratory exercises of the course “Principals of Laser Operation”, Physics Department, University of Patras.

- 10/2004-12/2004, 10/2005-12/2005, 02/2006-12/2007
Computer technician and programmer at the enterprise of informatics systems & telecommunications “Wizards Solutions”, Greece
- 10/2004-12/2004 Teaching Assistant at laboratory lessons: i) Laser, ii) Physics for Biologists, at the Physics Department of University of Patras.
- 11/2004-12/2004, 6/2005-8/2005, 07/2006-09/2006, 04/2007-07/2007
Part of the research group of the program “Reformation of the undergraduate courses program” at the Physics Department of University of Patras, financing EPEAEK II (Europe-Greece)
- 10/2005-12/2005 Teaching Assistant at laboratory lessons: i) Laser, ii) Physics for Geologists, at the Physics Department of University of Patras.
- 10/2005-04/2006 Part of the research group of the research program «Pythagoras II» entitled “Non-linear absorption study of new materials by Z-scan technique” (B795.038), financing EPEAEK II (Europe-Greece)
- 10/2007-12/2007, 10/2008-12/2008 Teaching Assistant at laboratory lesson Laser, at the Physics Department of University of Patras.
- 10/2010-06/2011 Adjunct educator at Technol. Educ. Inst. of Crete, Greece
- 10/2011-02/2012 Adjunct educator at Technol. Educ. Inst. of Crete, Greece
- 10/2012–06/2013 Adjunct educator at Technol. Educ. Inst. of Crete, Greece
- 12/2012–04/2013, 11/2015 Participation at the research program “Thales” (code MIS 380208) entitled “Integrated understanding of seismicity, using innovative methodologies of fracture mechanics along with earthquake and non extensive statistical physics - application to the geodynamic system of the Hellenic arc” (SEISMO FEAR HELLARC), at Technol. Educ. Inst. of Crete in Greece, funded from Greek-European program ESPA
- 10/2013–07/2014 Adjunct educator at Technol. Educ. Inst. of Crete, Greece
- 01/2014–01/2015 Post-doc researcher at the research program “National Research Infrastructure for the HiPER Project” at Technol. Educ. Inst. of Crete, funded from Greek-European Union program ESPA
- 04/2014–09/2015 Participation (unpaid) at the research group of the research program “Archimedes III” (MIS 380353, subwork 16) “Design And Development Neutron Source With Application In Explosions Detection” at Technol. Educ. Inst. of Crete, funded from Greek-European Union (ESPA)
- 10/2014–07/2015 Adjunct educator at Technol. Educ. Inst. of Crete, Greece
- 01/2015–12/2015 Post-doc researcher at the research program “National Research Infrastructure for the HiPER Project” at Technol. Educ. Inst. of Crete, funded from Greek-European Union program ESPA
- 10/2015–06/2016 Adjunct educator at Technol. Educ. Inst. of Crete, Greece
- 09/2016–10/2016 Post-doc researcher at the project “Centre of Plasma Physics and Laser (CPPL acts)” of the Technol. Educ. Inst. of Crete, Greece
- 10/2016–02/2017 Adjunct educator at Technol. Educ. Inst. of Crete, Greece
- 03/2017–06/2017 Teaching Fellow, at Technol. Educ. Inst. of Crete, Greece
- 10/2017–02/2018 Teaching Fellow, at Technol. Educ. Inst. of Crete, Greece

- 10/2017–05/2018 Post-doc researcher at the project “Strengthening of the Competitiveness of the Region of Crete in medical applications of secondary plasma radiation - from ultrapower laser”, at the Technol. Educ. Inst. of Crete, Greece

Teaching Experience

Bachelor level courses of:

- Special Chapters in Optoelectronics and Lasers
- Optoelectronic Plasma Devices

Bachelor level laboratory courses of:

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| • Physics | • Electrical and Electronic Measurements |
| • Metrology | • Electronics of Measurement Instruments |
| • Wave Physics | • Electrical Circuits |
| • Optoelectronics & Laser | • Image and Sound Processing |
| • Technical Thermodynamics | • Environmental Geotechnology |
| • Electronic Elements | |

Research Projects

- Project “Reformation of the undergraduate courses program at the Physics Department of University of Patras» (code B.162.003). Participation in the research group for creation of new laboratory exercises in Physics and particularly:
 - ❖ Gathering information of courses programs from department of physics aboard
 - ❖ Gathering of educational material for new laboratory exercises
 - ❖ Processing of the new laboratory educational material
 - ❖ Technical support and testing of the procedures of the new laboratory exercises
- Program “Pythagoras I”, project entitled “Non-linear absorption study of new materials by Z-scan technique” (B795.038), Participation in the research group for the taking, grouping and processing of the measurements for the evaluation of the multiphoton absorption coefficient of the studied materials.
- Program “Thales”, project entitled “Integrated understanding of seismicity, using innovative methodologies of fracture mechanics along with earthquake and non extensive statistical physics - application to the geodynamic system of the Hellenic arc” (SEISMO FEAR HELLARC) (code MIS 380208). Participation in the experiments of acquiring electrical signals and acoustical emissions in rocks under mechanical loading, in the measurements processing, in spatiotemporal representation of the measurements and in the publication of the results. Development of software (in LabView) for the control, automation and recording of the measurements.
- Program “National Research Infrastructure for the HiPER Project”. Participation in the design and development of experimental layouts with the

use of ultrashort laser pulses and of diagnostics setups for the infrastructures needs as well as in the co-writing of relevance technical report.

- Program “Archimedes III” (MIS 380353, subwork 16), project entitled “Design and development of neutron source with application to detection of explosives materials” participation in the experimental procedures for the study of the plasma dynamics and the generated electromagnetic and neutron emission.
- Project “Interdepartmental Center for Plasma Physics & Lasers (CPPL acts)”. Participation in the design and development of optical and diagnostic setups with ultrashort laser pulses.
- Program “Strengthening of the Competitiveness of the Region of Crete in medical applications of secondary plasma radiation - from ultrapower laser”, subwork 1 entitled “Study / design / development of particle radiation production station”, for the adjustment and diagnosis of the ultrashort pulses of ultrapower laser, the design and development of the station and carrying out the initial experiments, involving the interaction of the laser pulses with solid targets.

Research Interests

- Plasma diagnostics and applications
- Laser-matter interaction
- Non-linear absorption, two-photon microscopy and polymerization
- Time-resolved spectroscopy
- Optical and electrical characterization of materials
- Non-destructive testing
- Fiber optic lasers, fiber optic sensors

Scientific Publications

Journal Articles: 9 International Conferences: 11 National Conferences: 4
Citations: >150 h-index: 5

A. Journal Articles

A1. “A two-photon absorption study of fluorene and carbazole derivatives. The role of the central core and the solvent polarity”,

I. Ftilis, M. Fakis, I. Polyzos, V. Giannetas, P. Persephonis, P. Vellis and J. Mikroyannidis,

Chemical Physics Letters, 447 (2007) pp.300-304

DOI: [10.1016/j.cplett.2007.09.044](https://doi.org/10.1016/j.cplett.2007.09.044)

5y Impact Factor:1.839

- A2.** “Strong two photon absorption and photophysical properties of symmetrical chromophores with electron accepting edge substituents”,
I. Ftilis, M. Fakis, I. Polyzos, V. Giannetas, P. Persephonis and J. Mikroyannidis
Journal of Physical Chemistry A, 112 (2008) pp.4742-4748
 DOI: [10.1021/jp711896f](https://doi.org/10.1021/jp711896f) Impact Factor:2.883
- A3.** “Photophysics and two-photon absorption of a series of quadrupolar and tribranched molecules. The role of the edge substituent”,
 M. Fakis, I. Ftilis, S. Stefanatos, P. Vellis, J. Mikroyannidis, V. Giannetas, P. Persephonis
Dyes and Pigments, 81 (2009) pp.63-68
 DOI: [10.1016/j.dyepig.2008.08.014](https://doi.org/10.1016/j.dyepig.2008.08.014) 5y Impact Factor: 3.708
- A4.** “Benzothiazole-based fluorophores of donor- π -acceptor- π -donor type displaying high two-photon absorption”,
 V. Hrobarikova, P. Hrobarik, P. Gajdos, I. Ftilis, M. Fakis, P. Persephonis, P. Zahradnik
Journal of Organic Chemistry, 75 (2010) pp.3053-3068
 DOI: [10.1021/jo100359q](https://doi.org/10.1021/jo100359q) Impact Factor: 4.785
- A5.** “Two-photon polymerization of a diacrylate using fluorene photoinitiators–sensitizers”,
I. Ftilis, M. Fakis, I. Polyzos, V. Giannetas and P. Persephonis
J. of Photochemistry and Photobiology A: Chemistry, 215 (2010) pp.25-30
 DOI: [10.1016/j.jphotochem.2010.07.016](https://doi.org/10.1016/j.jphotochem.2010.07.016) 5y Impact Factor: 2.573
- A6.** “Complex electrical conductivity measurements of a KTB amphibolite sample at elevated temperatures”
 V. Saltas, V. Chatzistamou, D. Pentari, E. Paris, D. Triantis, I. Ftilis, F. Vallianatos
Materials Chemistry and Physics, 139 (2013) p.p. 169-175
 DOI: [10.1016/j.matchemphys.2013.01.016](https://doi.org/10.1016/j.matchemphys.2013.01.016) 5y Impact Factor: 2.357
- A7.** “A combined complex electrical impedance and acoustic emission study in limestone samples under uniaxial loading”
 V. Saltas, I. Ftilis, F. Vallianatos
Tectonophysics, 637 (2014) p.p. 198–206
 DOI: [10.1016/j.tecto.2014.10.011](https://doi.org/10.1016/j.tecto.2014.10.011) 5y Impact Factor: 3.130
- A8.** “The influence of the solid to plasma phase transition on the generation and the dynamics of plasma instabilities”
 E. Kaselouris, V. Dimitriou, I. Ftilis, A. Skoulakis, G. Koundourakis, E.L. Clark, M. Bakarezos, I.K. Nikolos, N.A. Papadogiannis and M. Tatarakis
Nature Communications **8** (2017) #1713.
 DOI: [10.1038/s41467-017-02000-6](https://doi.org/10.1038/s41467-017-02000-6) 5y Impact Factor: 13.092

- A9.** “Preliminary investigation on the use of low current pulsed power Z-pinch plasma devices for the study of early stage plasma instabilities”
E. Kaselouris, V. Dimitriou, I. Ftilis, A. Skoulakis, G. Koundourakis, E.L. Clark, J. Chatzakis, M. Bakarezos, I.K. Nikolos, N.A. Papadogiannis and M. Tatarakis, *Plasma Physics and Controlled Fusion* **60** (2018) #014031
DOI: [10.1088/1361-6587/aa8ab0](https://doi.org/10.1088/1361-6587/aa8ab0) Impact Factor: 2.392

B. International Conferences

- B1.** "New two-photon absorbing oligofluorene derivatives. The role of solvent-solute interactions",
I. Ftilis, I. Polyzos, M. Fakis, G. Tsigaridas, V. Giannetas, P. Persephonis, I. Mikroyiannidis,
3rd Workshop on Nanosciences & Nanotechnologies, Thessaloniki, Greece, July 10-12, 2006
- B2.** “Efficient calculation of the nonlinear absorption coefficient through open Z-scan experiments”,
G. Tsigaridas, I. Polyzos, D. Anastopoulos, I. Ftilis, V. Giannetas and P. Persephonis,
Nanotechnology in Northern Europe (NTNE 2006), Helsinki, Finland, May 16-18, 2006
- B3.** "Development of 3D Structures using the Two-photon Polymerization Technique",
I. Ftilis, M. Fakis, I. Polyzos, V. Giannetas, P. Persephonis,
5th International Conference – NN08 of Nanosciences & Nanotechnologies, Thessaloniki, Greece, July 14-16, 2008
- B4.** "Two-photon microfabrication by using a new fluorene based photoinitiator",
I. Ftilis, M. Fakis, I. Polyzos, V. Giannetas, P. Persephonis,
6th International Conference – NN09 of Nanosciences & Nanotechnologies, Thessaloniki, Greece, July 13-15, 2009
- B5.** "Comparison of two-photon polymerization with the use of two fluorene derivative photoinitiators",
I. Ftilis, M. Fakis, I. Polyzos, V. Giannetas, P. Persephonis,
ICO-PHOTONICS-DELPHI 2009, Delphi, Greece, October 7-9, 2009
- B6.** “[Electrical and Plasma Characteristics of a Pulsed Neutron Generator](#)”
S.M. Hassan, A. Skoulakis, I. Ftilis, E.L. Clark, P. Lee, J. Chatzakis, M. Bakarezos, V. Dimitriou, C. Petridis, N.A. Papadogiannis, M. Tatarakis
Symposium on Radiation Measurements and Applications (SORMA XV), Michigan, USA, June 9-12, 2014

- B7.** [“Experimental and numerical study of the initial stages of explosion of thick single wire z-pinch”](#)
E. Kaselouris, V. Dimitriou, A. Skoulakis, I. Ftilis, Y. Orphanos, I.K. Nikolos, E. Bakarezos, N.A. Papadogiannis and M. Tatarakis
41st EPS Conference on Plasma Physics, Berlin, Germany, June 23-27, 2014
- B8.** [“Diagnosing the initial stages from solid to plasma phase for dense plasma explosions”](#)
I. Ftilis, A. Skoulakis, E. Kaselouris, I.K. Nikolos, E. Bakarezos, N.A. Papadogiannis, V. Dimitriou and M. Tatarakis
First EPs Conference on Plasma Diagnostics (1st ECPD), Frascati (Rome), Italy, April 14-17, 2015
- B9.** [“Study of a Miniature Plasma Focus Neutron Source”](#)
I. Ftilis, A. Skoulakis, S. M. Hassan, E.L. Clark, E. Kasselouris, V. Dimitriou, J. Chatzakis, P. Lee, T.G. Papadoulis, M. Bakarezos, C. Petridis, I. K. Nikolos, E. Drakakis, C. Kosmidis, N. A. Papadogiannis and M. Tatarakis
CRETE15 - The 2015 International Conference on Applications of Nuclear Techniques, Crete, Greece, June 14-20, 2015
- B10.** [“Experimental and numerical investigation of the early time dynamics of single wire plasma explosions”](#)
I. Ftilis, A. Skoulakis, E. Kaselouris, I.K. Nikolos, M. Bakarezos, N.A. Papadogiannis, V. Dimitriou and M. Tatarakis
42nd EPS Conference on Plasma Physics, Lisbon, Portugal, June 22-26, 2015
- B11.** [“Finite element study of the initial stages of explosion of single wire z-pinch validated by experiments”](#)
E. Kaselouris, A. Skoulakis, V. Dimitriou, I. Ftilis, I. Nikolos, E. Bakarezos, N. Papadogiannis and M. Tatarakis
8th GRACM International Congress on Computational Mechanics, Volos, Greece, July 13-15, 2015
- B12.** [“Acoustic and electrical emissions from sandstone under uniaxial compression”](#)
V. Saltas, I. Ftilis, J. P. Makris and F. Vallianatos
International Conference “Science in Technology” - SCinTE 2015, Athens , Greece, November 5-7, 2015
- B13.** [“Experimental and numerical investigation of the plasma dynamics and jet formation in low current table-top X-pinch plasma devices”](#)
G. Koundourakis, A. Skoulakis, I. Ftilis, V. Dimitriou, E. Bakarezos, N.A. Papadogiannis, E.L. Clark, N. Vlahakis and M. Tatarakis
International Conference “Science in Technology” - SCinTE 2015, Athens , Greece, November 5-7, 2015

C. National Conferences

- C1.** *Ftilis I.*, Polyzos I., Fakis M., Tsigaridas G., Giannetas V., Persaphonis P., Mikroyiannidis I., "Two-photon properties of oligofluorene trimers and the impact of physicochemical variations", XXII National Conference of Condensed Physics and Materials Science, Patras, 24-27 September 2006
- C2.** *Ftilis I.*, Fakis M., Polyzos I., Persephonis P., Giannetas V., Vellis V., Mikroyiannidis I., " Two-photon absorption spectroscopy of fluorene and carbazol derivative semiconducting-conjugating molecules", XXIII National Conference of Condensed Physics and Materials Science, Athens, 23-26 September 2007
- C3.** "Broadband dielectric spectroscopy of muscovite and biotite micas at elevated temperatures"
V. Saltas, *I. Ftilis*, F. Vallianatos, D. Pentari
30th Panhellenic Conference on Solid-State Physics and Materials Science, Heraklion, Crete, Greece, September 21-24, 2014
- C4.** "Correlation of complex electrical conductivity and acoustic emissions time-series during uniaxial compression of limestone samples"
V. Saltas, *I. Ftilis*, F. Vallianatos
30th Panhellenic Conference on Solid-State Physics and Materials Science, Heraklion, Crete, Greece, September 21-24, 2014