CURRICULUM VITAE

SOTIRIOS PSILODIMITRAKOPOULOS

PERSONAL DETAILS

First name: Sotirios
Surname: Psilodimitrakopoulos
Gender: Male
Date of birth: March 20th, 1976
Place of birth: Athens, Greece
Nationality: Greek

CONTACT ADDRESS

P.O. Box 1527, Vasilika Vouton,
711-10, Heraklion, Crete, Greece.
phone: +30 6978404616
Email: sopsilo@iesl.forth.gr

CURRENT AFFILIATION

Postdoctoral Researcher
Institute of Electronic Structure and Laser (IESL)
Foundation for Research and Technology – Hellas (FORTH)
N. Plastira 100, Vassilika Vouton,
GR – 70013, Heraklion, Crete,
Greece.
phone: +30 2810391373

EDUCATION

2012 **PhD in Photonics**, ICFO-The Institute of Photonic Sciences, Spain. Thesis entitled "Polarization Second Harmonic Generation Imaging of biological samples"

2005 **MSc in Microsystems and Nanodevices**, Faculty of Applied Mathematics & Physics, National Technical University of Athens, Greece

2003 **BSc in Physics**, University of Crete, Greece

WORK EXPERIENCE

2014-present **Postdoctoral Researcher**, Institute of Electronic Structure and Laser, Foundation for Research and Technology – Hellas, Crete, Greece

2013-2014 **Postdoctoral Researcher**, CNRS, Laboratoire d'Optique et Biosciences, Ecole Polytechnique, Palaiseau Cedex, France

2011-2013 **Research Engineer**, Super-resolution Light Microscopy & Nanoscopy Facility, ICFO-The Institute of Photonic Sciences, Spain

2005–2006 **Research Associate**, Institute of Computer Systems, Faculty of Electrical and Computer Engineering, National Technical University of Athens, Greece

PUBLICATIONS

PEER-REVIEWED JOURNALS

- A. Kourgiantaki, D. S. Tzeranis, K. Karali, S. Psilodimitrakopoulos, M. Nikou, I. V. Yannas, E. Stratakis, K. Sidiropoulou, I. Charalampopoulos, A. Gravanis, "Neural Stem Cell Delivery via Porous Collagen Scaffolds Promotes Neuronal Differentiation and Locomotion Recovery in Spinal Cord Injury", *Under Review*.
- S. Psilodimitrakopoulos, L. Mouchliadis, I. Paradisanos, A. Lemonis, G. Kioseoglou and E. Stratakis, "Ultrahigh-resolution non-linear optical imaging of the armchair orientation in 2D transition metal dichalcogenides," *Light Sci. Appl.* **7**, 18005 (2018).
- I. Konidakis, S. Psilodimitrakopoulos, K. Kosma, A. Lemonis, and E. Stratakis "Effect of composition and temperature on the second harmonic generation in silver phosphate glasses" *Optical Materials* **75**, 796-801, (2018).
- M. Oujja, S. Psilodimitrakopoulos, E. Carrasco, M. Sanz, A. Philippidis, A. Selimis, P. Pouli, G. Filippidis, M. Castillejo " Nonlinear imaging microscopy for assessing structural and photochemical modifications upon laser removal of dammar varnish on photosensitive substrates", *Physical Chemistry Chemical Physics* **19** (2017).
- B. Lynch, C. Bonod-Bidaud, G. Ducourthial, J.-S. Affagard, S. Bancelin, S. Psilodimitrakopoulos, F. Ruggiero, J.-M. Allain and M.-C. Schanne-Klein "How aging impacts skin biomechanics: a multiscale study," *Scientific Reports* **7**, 13750 (2017).

- S. Psilodimitrakopoulos, E. Gavgiotaki, K. Melessanaki, V. Tsafas, G. Filippidis "Polarization second harmonic generation discriminates between fresh and aged, starch-based adhesives used in cultural heritage" *Microscopy and Microanalysis*, **22,** 1072 (2016).
- S. Bancelin, B. Lynch, C. Bonod-Bidaud, G. Ducourthial, S. Psilodimitrakopoulos, P. Dokladal, J.-M. Allain, M.-C. Schanne-Klein, and F. Ruggiero, "Ex vivo multiscale quantitation of skin biomechanics in wild-type and genetically-modified mice using multiphoton microscopy," *Scientific Reports*, **5**, 17635 (2015).
- S. Psilodimitrakopoulos, D. Artigas, and P. Loza-Alvarez, "Monitoring myosin conformational fast changes *in-vivo* with instantaneous single scan polarization – SHG microscopy," *Biomedical Opt. Express*, **5**, 4362 (2014).
- S. Psilodimitrakopoulos, V. Petegnief, N. de Vera, O. Hernandez, D. Artigas, A. M. Planas, and P. Loza-Alvarez, "Quantitative imaging of microtubule alteration as an early marker of axonal degeneration after ischemia in neurons," *Biophys. J.,* **104**, 968 (2013).
- S. I.C.O. Santos, M. Mathew, O. E. Olarte, S. Psilodimitrakopoulos, and Pablo Loza-Alvarez, "Femtosecond laser axotomy in Caenorhabditis elegans, and collateral damage assessment using a combination of linear and nonlinear imaging techniques," *PLoS ONE*, **8**, e58600 (2013).
- S. Psilodimitrakopoulos, I. Amat-Roldan, P. Loza-Alvarez, and David Artigas, "Effect of molecular organization on the image histograms of polarization SHG microscopy," *Biomedical Opt. Express*, **3**, 2681 (2012).
- E. Meulenaere, W.-Q. Chen, S. V. Cleuvenbergen, M.-L. Zheng, S. Psilodimitrakopoulos, R. Paesen, J.-M. Taymans, M. Ameloot, J. Vanderleyden, P. Loza-Alvarez, X.-M. Duan, and K. Clays, "Molecular engineering of chromophores for combined second-harmonic and two-photon fluorescence in cellular imaging," *Chem. Sci.*, **3**, 984 (2012). *Cover Page*
- J. I Iruretagoyena, I. Torre, I. Amat-Roldan, S. Psilodimitrakopoulos, F. Crispi, P. Garcia-Canadilla, A. Gonzalez-Tendero, A Nadal, E. Eixarch, P. Loza-Alvarez, D. Artigas, and E. Gratacos "Ultrastructural analysis of myocardiocyte sarcomeric changes in relation with cardiac dysfunction in human fetuses with intrauterine growth restriction,", *AJOG*, **204**, S34 (2011).
- S. Psilodimitrakopoulos, I. Amat-Roldan, P. Loza-Alvarez, and David Artigas, "Estimating the helical pitch angle of amylopectin in starch using polarization second harmonic generation microscopy," *J. Opt.*,, **12**, 084007, (2010).
- I. Amat-Roldan, S. Psilodimitrakopoulos, P. Loza-Alvarez, and D. Artigas, "Fast image analysis in polarization SHG microscopy," *Opt. Express*, **17**, 17209 (2010).

- S. Psilodimitrakopoulos, V. Petegnief, G. Soria, I. Amat-Roldan, D. Artigas, A. M. Planas, and P Loza-Alvarez, "Estimation of the effective orientation of the SHG source in primary cortical neurons," *Opt. Express*, **17**, 14418 (2009).

- S. Psilodimitrakopoulos, D. Artigas, G. Soria, I. Amat-Roldan, A. M. Planas, and P. Loza-Alvarez, "Quantitative discrimination between endogenous SHG sources in mammalian tissue, based on their polarization response," *Opt. Express*, **17**, 10168 (2009).

- S. Psilodimitrakopoulos, S. Santos, I. Amat-Roldan, A. Thayil K. N, D. Artigas, and P. Loza-Alvarez, "In vivo, pixel resolution mapping of thick Filaments' orientation in non-fibrilar muscle using polarization sensitive second harmonic generation microscopy," *J. Biomed. Opt.*, **14**, 014001 (2009).

- A. K. N. Thayil, E. J. Gualda, S. Psilodimitrakopoulos, I. G. Cormack, I. Amat-Roldan, M. Mathew, D. Artigas, and P. Loza-Alvarez, "Starch-based backwards SHG for in- situ MEFISTO pulse characterization in multiphoton microscopy", *J. Microscopy*, **230**, 70 (2008).

CONFERENCE PROCEEDINGS

- S. Bancelin, B. Lynch, C. Bonod-Bidaud, G. Ducourthial, S. Psilodimitrakopoulos, P. Dokladal, J.-M. Allain, M.-C. Schanne-Klein, and F. Ruggiero, "Ex vivo multiscale quantitation of skin biomechanics in wild-type and genetically-modified mice using multiphoton microscopy," Proc. SPIE, 9710-2 (2016).

- S. Psilodimitrakopoulos, M. Oujja, A. Selimis, E. Carrasco, A. Philippidis, M. Sanz, M. Castillejo, P. Pouli, G. Filippidis "Non-linear imaging as a diagnostic tool for the assessment of the in-depth photochemical modifications upon laser removal of varnishes in painted artworks" 16th International Conference on Polymers and Organic Chemistry (POC-16) 145 p. 157 Crete Greece (June 2016).

- S. Psilodimitrakopoulos, E. Gavgiotaki, K. Melessanaki, V. Tsafas, D. Anglos, G. Filippidis "Polarization sensitive second harmonic generation imaging microscopy of starch based restoration adhesives" 16th International Conference on Polymers and Organic Chemistry (POC-16) 62 p. 93 Crete Greece (June 2016).

- E. Gavgiotaki, G. Filippidis, S. Psilodimitrakopoulos, H. Markomanolaki, M. Kalognomou, S. Agelaki, V. Georgoulias, I. Athanassaki, "Third Harmonic Generation microscopy as a diagnostic tool for the investigation of microglia BV-2 and breast cancer cells activation," *Proc. SPIE*, **9536**, 953614

(2015).

- I. Torre, S. Psilodimitrakopoulos, I. Iruretagoiena, A. Gonzalez-Tendero, D. Artigas, P. Loza-Alvarez, E. Gratacos, and I. Amat-Roldan, “Helical pitch angle of myosin thick filaments correlates with aging and beta myosin heavy chain isoform distribution,” *Cardiovascular Research*, **93** (Suppl. 1), S84 (2012).

- E. De Meulenaere, R. Paesen, S. Psilodimitrakopoulos, M. Ameloot, P. Loza-Alvarez, J. Vanderleyden, and K. Clays, “Probing live samples in second-harmonic generation microscopy using specific markers and fluorescent proteins,” *Proc. SPIE*, **8226**, 82263C (2012).
  SPIE Best Poster Award

- S. Psilodimitrakopoulos, I. Amat-Roldan, D. Artigas, and P. Loza-Alvarez, "Imaging amylopectin's order in starch using 3 dimensional polarization SHG," *Proc. SPIE*, ***8086***, 80860M (2011).

- E. De Meulenaere, S. Van Cleuvenbergen, S. Psilodimitrakopoulos, J. Vanderleyden, P. Loza-Alvarez, and K. Clays, “Simultaneous SHG and 2PEF imaging using a new type of selective markers,” *Proc. SPIE* **8086**, 80861B (2011).

- S. Psilodimitrakopoulos, I. Amat-Roldan, D. Artigas, and P. Loza-Alvarez, “Three-dimensional polarization second harmonic generation (3D-PSHG) imaging: the effect of the tilted-off the plane SHG active structures,” *Proc. SPIE*, **7903**, 79030H (2011).

- M. Illa, I. Iruretagoyena, E. Eixarch, I. Torres, I. Amat-Roldan, P. Garcia, F. Crispi, F. Figueras, S. Psilodimitrakopoulos, and E. Gratacós “Ultrastructural analysis of the sarcomere in relation with cardiac dysfunction in a rabbit model of intrauterine growth restriction” *Ultrasound in Obstetrics & Gynecology*, **36**, 166 (2010).

- S. Psilodimitrakopoulos, I. Amat-Roldan, P. Loza-Alvarez, and D. Artigas, "Optical extraction of the helical pitch angle of amylopectin in starch," *Proc. SPIE*, **7715**, 771529 (2010).

- S. Psilodimitrakopoulos, V. Petegnief, G. Soria, N. de Vera, I. Amat-Roldan, D. Artigas, A. M. Planas, and P. Loza-Alvarez, "Assessing structural characteristics of axons in cortical neurons using polarization sensitive SHG," *Proc. SPIE*, **7715**, 77152A (2010).

- S. Psilodimitrakopoulos, V. Petegnief, G. Soria, N. de Vera, I. Amat-Roldan, D. Artigas, A. M. Planas, and P. Loza-Alvarez, "Polarization second harmonic generation (PSHG) imaging of neurons: estimating the effective

orientation of the SHG source in axons," *Proc. SPIE*, **7569**, 75692W (2010).

- I. Amat-Roldan, S. Psilodimitrakopoulos, E. Eixarch, I. Torre, B. Wotjas, F. Crispi, F. Figueras, D. Artigas, P. Loza-Alvarez, and E. Gratacos, "Myosin helical pitch angle as a quantitative imaging for characterization of cardiac programming in fetal growth restriction measured by Polarization Second Harmonic Microscopy," *Proc. SPIE*, **7367**, 73670O (2009).

- S. Psilodimitrakopoulos, D. Artigas, G. Soria, I. Amat-Roldan, I. Torre, E. Gratacos, A. M. Planas, and P. Loza-Alvarez, "Contrast enhancement in second harmonic imaging: discriminating between muscle and collagen," *Proc. SPIE*, **7367**, 73670S (2009).

- D. Artigas, L. Serrado, I. G. Cormack, S. Psilodimitrakopoulos, and P. Loza-Alvarez, "Prospective and applications of two-photon fluorescence in archaeology and art conservation," *Lasers in the Conservation of Artworks*, 15 (2008).

- S. Psilodimitrakopoulos, S. Santos, I. Amat-Roldan, M. Mathew, A. Thayil K. N, D. Artigas, and P. Loza-Alvarez, "Polarization dependant in vivo second harmonic generation imaging of Caenorhabditis elegans vulval, pharynx and body wall muscles," *Proc. SPIE*, **6860**, 686008 (2008).

- S. Psilodimitrakopoulos, I. Amat-Roldan, S. Santos, M. Mathew, A. Thayil K. N, D. Zalvidea, D. Artigas and P. Loza-Alvarez, "Starch granules as a probe for the polarization at the sample plane of a high resolution multiphoton microscope," *Proc. SPIE*, **6860**, 68600E (2008).

- S. Psilodimitrakopoulos, G. Filippidis, C. Kouloumentas, E. Alexandratou, and D. Yova, "Combined Two Photon Excited Fluorescence and Second Harmonic Generation Imaging Microscopy of Collagen Structures," *Proc. SPIE*, **6089**, 291 (2006).

CONFERENCE PRESENTATIONS

- October 2018, *9th International Conference of the Hellenic Crystallographic Association*, Patras, Greece (Invited).

- September 2018, *NanoBio Conference*, Crete, Greece.

- September 2017, *International Conference on Laser Ablation*, Marseille, France.

- June 2017, *SPIE Optical Metrology*, Munich, Germany.

- May 2017, *3rd International Congress Science and Technology for the Conservation of Cultural Heritage*, Cádiz, Spain.
- September 2016, *Lasers in the Conservation of Artworks XI*, Krakow, Poland.
- June 2016, *16th International Conference on Polymers and Organic Chemistry*, Heraklion, Greece.
- July 2015, *Biophotonics and Molecular Imaging Summer School*, Heraklion, Greece.
- May 2013, *European Conferences on Biomedical Optics*, Munich, Germany.
- October 2012, *50 Years Non Linear Optics*, Barcelona, Spain.
- January 2012, *SPIE Photonics West*, San Francisco, USA.
- May 2011, *European Conferences on Biomedical Optics*, Munich, Germany.
- April, 2011, *Focus on Microscopy*, Konstanz, Germany.
- January 2011, *SPIE Photonics West*, San Francisco, USA.
- October 2010, *BioPhotonics and Imaging Conference*, Co Meath, Ireland.
- April 2010, *SPIE Photonics Europe*, Brussels, Belgium.
- June 2009, *European Conferences on Biomedical Optics*, Munich, Germany.
- April 2009, *Focus On Microscopy*, Krakow, Poland.
- January 2009, *Hot topics in molecular imaging*, Les Houches, France.
- April, 2008, *New Frontiers in Micro and Nano Photonics*, Florence, Italy.
- January 2008**,** *SPIE Photonics West***,** San Jose, USA.
- January 2006**,** *SPIE Photonics West*, San Jose, USA.

SCHOOLS – MEETINGS

- September, 2011, *Fast-Dot Summer School "Photonics meets Biology"*, Hersonissos, Greece.
- December 2010, *Photonics4Life Meeting*, Paris, France.
- July 2010, *Advanced Imaging Techniques 5th EOS Topical Meeting*, Engelberg, Switzerland.
- November 2008, *Photonics4life Meeting*, Brussels, Belgium.
- October 2008, *LASERLAB Workshop and Users Meeting*, Heraklion, Greece.
- April, 2008, *European Worm (C. elegans) Meeting*, Carmona (Seville), Spain.
- June 2005, *Biophotonics 05*, *International graduate summer school*, Ven, Sweden.

FELLOWSHIPS – AWARDS

- 2017–2018 Stavros Niarchos Foundation (SNF) Fellowship, "Advancing Young Researchers" Human Capital in Cutting Edge Technologies in the Preservation of Cultural Heritage and the Tackling of Societal Challenges – ARCHERS".
- 2007–2011 FPI Fellowship from the Spanish Ministry of Education and Culture.
- 2005–2006 Research Fellowship, Faculty of Electrical and Computer Engineering, National Technical University of Athens, Greece.
- 2005 "Thomaidio Award" for the Best Interdisciplinary MSc Research Project of National Technical University of Athens, Greece.

COMPUTER SKILLS

- Programming in Matlab and Labview

FOREIGN LANGUAGES

- English : Fluent
- Spanish : Fluent

REFERENCES

Emmanuel Stratakis PhD.
Director of Research
Institute of Electronic Structure and Laser
Foundation for Research and Technology Hellas
and University Of Crete, Hellas
Department of Materials Science and Technology
100 Nikolaou Plastira Str.
Vassilika Vouton Heraklion Crete
GR-700 13, Greece
Tel: +30-2810-391274
FAX: +30-2810-391305
e-mail: stratak@iesl.forth.gr

Professor Marie-Claire Schanne-Klein,
Laboratoire d'Optique et Biosciences
Ecole Polytechnique
CNRS UMR 7645 - INSERM U696
F-91128 PALAISEAU CEDEX, FRANCE
Tel: +33 1 69 33 5060
Fax: +33 1 69 33 50 84
e-mail: marie-claire.schanne-klein@polytechnique.edu

Professor Pablo Loza-Alvarez, Chief of ICFO-SLN Facility
ICFO-The Institute of Photonic Sciences
Mediterranean Technology Park
Av. Carl Friedrich Gauss, 3
08860 Castelldefels (Barcelona), Spain
Tel: +34 935 534075
Fax: +34 935 534000
e-mail: pablo.loza@icfo.es

Professor David Artigas,
ICFO-The Institute of Photonic Sciences
Mediterranean Technology Park
Av. Carl Friedrich Gauss, 3
08860 Castelldefels (Barcelona), Spain
Tel: +34 935 534136
Fax: +34 93 55 34 000
e-mail: david.artigas@icfo.es