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# Curriculum Vitae

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Panagiotis Siozos

**PhD in Chemical Physics**

## 1. Personal Information

Name: *Panagiotis Siozos*

Place of Birth: *Ioannina, Greece*

Marital status: *Married*

Institute: *Institute of Electronic Structure and Laser (IESL),  
Foundation for Research and Technology - Hellas (FORTH)*

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## 2. Academic training

BSc Physics, University of Ioannina, Greece.

PhD Molecular Physics, University of Ioannina

Thesis: *Multielectron dissociative ionization of alkyl iodides induced by intense laser pulses.*

Supervisor: Prof. Constantine Kosmidis

## 3. Work experience

2/2007 – 9/2008 Working in the R&D department of NIKI Information Technologies & Digital Engineering Ltd (<http://www.nikitec.gr>)

## 4. Current position

10/2008 – present Post-doctoral researcher, IESL-FORTH

## 5. Research Activities - Experience

- Laser based analysis of cultural heritage materials. Methodology and instrumentation
- Development of portable spectroscopic instruments
- Laser induced breakdown spectroscopy (LIBS)
- Raman micro-spectroscopy
- Pulsed laser systems, Spectroscopy and mass spectrometry detection systems
- Development of data acquisition and data analysis software

## 6. Publications in Peer Reviewed Scientific Journals

1. Hausmann N., Prendergast A., Lemonis A., Zech J., Roberts P., Siozos P., Anglos D., Extensive mapping of Mg/Ca in marine mollusc shells reveals new climate proxies, 2019, *Scientific Reports*, *accepted*
2. Tserevelakis G.J., Pozo-Antonio J.S., Siozos P., Rivas T., Pouli P., Zacharakis G., On-line photoacoustic monitoring of laser cleaning on stone: Evaluation of cleaning effectiveness and detection of potential damage to the substrate, *J. Cult. Her.* 2018, *In Press*; DOI: [10.1016/j.culher.2018.05.014](https://doi.org/10.1016/j.culher.2018.05.014)
3. Tserevelakis G.J., Tsagaraki M., Siozos P., Zacharakis G., Uncovering the hidden content of layered documents by means of photoacoustic imaging, *Strain*, 2018 e12289; DOI: [10.1111/str.12289](https://doi.org/10.1111/str.12289)
4. Siozos P., Philippidis A., Anglos D., Portable Laser-Induced Breakdown Spectroscopy-diffuse reflectance hybrid spectrometer for analysis of inorganic pigments, *Spectrochim. Acta B*, 2017 **137** 93-100; DOI: [10.1016/j.sab.2017.09.005](https://doi.org/10.1016/j.sab.2017.09.005)
5. Hausmann N., Siozos P., Lemonis A., Colonese A. C., Robson H. K., Anglos D., Elemental mapping of Mg/Ca intensity ratios in marine mollusc shells using laser-induced breakdown spectroscopy, *J. Anal. At. Spectrom.*, 2017 *J. Anal. At. Spectrom.*, 2017 **32** 1467-1472; DOI: [10.1039/C7JA00131B](https://doi.org/10.1039/C7JA00131B)
6. Brysbaert A., Siozos P., Vettters M., Philippidis A., Anglos D., Materials analyses of pyrotechnological objects from LBA Tiryns, Greece, by means of Laser-Induced Breakdown Spectroscopy (LIBS): Results and a critical assessment of the method, *J. Archaeol. Sci.*, 2017 **83** 49-61; DOI: [10.1016/j.jas.2017.06.007](https://doi.org/10.1016/j.jas.2017.06.007)
7. Tserevelakis G.J., Vrouvaki I., Siozos P., Melessanaki K., Hatzigiannakis K., Fotakis C., Zacharakis G., Photoacoustic imaging reveals hidden underdrawings in paintings, *Scientific Reports* 2017 **7**(747); DOI: [10.1038/s41598-017-00873-7](https://doi.org/10.1038/s41598-017-00873-7)
8. Baker J., Kantarelou V., Karydas A.G., Jones R.E., Siozos P., Anglos D., Derham B., The height of Denier Tournois minting in Greece (1289-1313) according to new archaeometric data, *Annu. Br. Sch. Athens* 2017 *In press*; DOI: [10.1017/S0068245416000113](https://doi.org/10.1017/S0068245416000113)
9. Banerjee S.P., Sarnet, T., Siozos P., Loulakis M., Anglos D., Sentis M., Characterization of organic photovoltaic devices using femtosecond laser induced breakdown spectroscopy, *Appl. Surf. Sci.*, 2017 **418** 542-547; DOI: [10.1016/j.apsusc.2016.11.136](https://doi.org/10.1016/j.apsusc.2016.11.136)
10. Papiakia Z.E., Philippidis A., Siozos P., Vakondiou M., Melessanaki K., Anglos D., A multi-technique approach, based on mobile/portable laser instruments, for the in-situ pigment characterization of stone sculptures on the island of Crete dating from Venetian and Ottoman period, *Herit. Sci.*, *Heritage Science* 2016 **4**(15). DOI: [10.1186/s40494-016-0085-2](https://doi.org/10.1186/s40494-016-0085-2)

11. Siozos P., Philippidis A., Hadjistefanou M., Gounarakis C., Anglos D. *Chemical analysis of industrial scale deposits by combined use of correlation coefficients with emission line detection of laser induced breakdown spectroscopy spectra*, Spectrochimica Acta Part B, 2013 **87** 86-91. DOI [10.1016/j.sab.2013.05.008](https://doi.org/10.1016/j.sab.2013.05.008)
12. Westlake P., Siozos P., Philippidis A., Apostolaki C., Derham B., Terlix A., Perdikatsis V., Jones R., Anglos D., *Studying pigments on painted plaster in Minoan, Roman and Early Byzantine Crete. A multi-analytical technique approach*. Anal. Bioanal. Chemistry, 2012 **402** 1413-1432. DOI [10.1007/s00216-011-5281-z](https://doi.org/10.1007/s00216-011-5281-z)
13. Vartziotis D., Poulis A., Minogiannis A., Siozos P., Goudas I., Samson J., Tossaint M., *Feasibility of a GNSS-Probe for Creating Digital Maps of High Accuracy and Integrity. Mobile Lightweight Wireless Systems*, Springer Berlin Heidelberg, 2009, 387-396.
14. Kosmidis C., Kaziannis S., Siozos P., Lyras A., Robson L., Ledingham K.W.D., McKenna P., Jaroszynski D.A., *Molecular hydrogen ion elimination from alkyl iodides under strong laser beam irradiation*. Int. J. Mass Spectrom., 2006 **248** 1-8.
15. Kosmidis C., Siozos P., Kaziannis S., Robson L., Ledingham K.W.D., McKenna P., Jaroszynski D.A., *Interaction mechanism of some alkyl iodides with femtosecond laser pulses*. J. Phys. Chem. A, 2005 **109** 1279-1285.
16. Siozos P., Kaziannis S., Kosmidis C., Lyras A., *Ionization/dissociation processes in some alkyl iodides induced by strong picosecond laser beam*. Int. J. Mass Spectrom., 2005 **243** 189-198.
17. Kaziannis S., Siozos P., Kosmidis C., *Dynamic alignment of CH<sub>3</sub>I by strong picosecond laser pulses*. Chem. Phys. Lett., 2005 **401** 115-121.
18. Siozos P., Kaziannis S., Kosmidis C., *Multielectron dissociative ionization of CH<sub>3</sub>I under strong picosecond laser irradiation*. Int. J. Mass Spectrom., 2003 **225** 249-259.

## 7. Contributions to Scientific Conferences

1. P. Siozos, M. Andrianakis, T. Magana, D. Anglos, E. Hontzopoulos, *Study of the optical emission during Cu-Al and Al-Al laser spot welding for manufacturing of solar heat absorbers*, Oral, European Congress and Exhibition on Advanced Materials and Processes, Thessaloniki, Greece, 17 - 22 September, 2017.
2. P. Siozos, S.P. Banerjee, N. Giannakaris, T. Sarnet, M. Sentis, D. Anglos, *Laser Induced Breakdown Spectroscopy for rapid characterization of nanometer scale thin multilayer samples*, Oral, 10th International Conference on Instrumental Methods of Analysis: Modern Trends and Applications, Heraklion, Greece, 17 - 21 September, 2017.
3. P. Siozos, S.P. Banerjee, N. Giannakaris, T. Sarnet, D. Konios, M. Krassas, E. Stratakis, E. Kymakis, M. Sentis, D. Anglos, *poster, Substrate effect on the LIBS emission of nanometer scale thick layers*, poster, 9th Euro-Mediterranean Symposium on LIBS, Pisa, Italy, 11-16 June 2017.
4. P. Siozos, A. Philippidis, Z.E. Papliaka, D. Anglos, *A multi-technique approach, based on mobile laser instruments, for the in-situ, integrated study of artworks*, Oral, Technart 2015, Catania Italy, 27-30 April 2015.
5. P. Siozos, V. Kantarelou, B. Derham, A.G. Karydas, R.E. Jones, D. Anglos, *Analysis of Frankish silver coins in Greece by portable XRF and LIBS instruments*, Oral, 7<sup>th</sup> Euro-Mediterranean Symposium on Laser Induced Breakdown Spectroscopy, Bari Italy, 16-20 September 2013.

6. P. Siozos, A.D. Zervaki, H. Kamoutsi, G.N. Haidemenopoulos, D. Anglos, T. Magana, E. Hontzopoulos, *Time resolved and spectral analysis of solar absorber Cu-Al and Al-Al laser weld emission*, Poster, Lasers and Electro-Optics Europe (CLEO EUROPE/IQEC), 2013 Conference on and International Quantum Electronics Conference , Munich Germany, 12-16 May 2013, doi: 10.1109/CLEOE-IQEC.2013.6801579.
7. D. Anglos, P. Siozos, P. Westlake, A. Philippidis, Ch. Apostolaki, V. Perdikatsis, B. Derham and R. Jones, *Studying pigments on painted plaster in Minoan, Roman and Byzantine Crete*, Poster Presentation (P27), TECHNART 2011, Berlin Germany, April 26 - 29, 2011.
8. P. Siozos, P. Westlake, R. Jones, B. Derham, D. Anglos, *Analytical studies of painted plaster based on LIBS and micro-Raman*, Poster Presentation (P33) in 5th Euro Mediterranean Symposium on Laser Induced Spectroscopy, Tivoli Terme, Rome Italy, September 28 - October 1 2009.
9. P. Siozos, G. Kordatzaki, A. Yangaki , O. Gratziou, D. Anglos, *Study of pigments and glazes on Byzantine pottery sherds (12-19th C AD)*, Poster Presentation (P34) in 5th Euro Mediterranean Symposium on Laser Induced Spectroscopy, Tivoli Terme, Rome Italy, September 28 - October 1 2009.
10. Giakoumaki A., Siozos P., Hatziyannakis K., Petrakis A. Anglos D., *A new portable libs system (LMNTII) in the analysis of Cultural heritage objects*. Non-destructive and Microanalytical Techniques in Art and Cultural Heritage TECHNART 2009, Athens Greece, 27 - 30 April, 2009.
11. Vartziotis D., Poulis A., Minogiannis A., Siozos P., Goudas I., Samson J., Tossaint M., *ROADSCANNER, Feasibility of a GNSS-Probe for Creating Digital Maps of High Accuracy and High Integrity*. 1st International Conference on Mobile Lightweight Wireless Systems, Athens, Greece, May 18-20, 2009.
12. Siozos P., Kaziannis S., Kosmidis C., Robson L., Ledingham K.W.D., McKenna P., Jaroszynski D.A., *A comparison of the interaction of alkyl iodides with strong femtosecond and picosecond laser fields*. 8<sup>th</sup> European Conference on Atomic and Molecular Physics. Rennes, France, 6-10 July, 2004.
13. Siozos P., Kaziannis S., Kosmidis C., Robson L., Ledingham K.W.D., McKenna P., Jaroszynski D.A., *A comparison of the interaction of alkyl iodides with strong picosecond and femtosecond laser fields*. *Laser Olympics*. Athens, Greece, 15-17 October, 2004.
14. Kaziannis S., Siozos P., Kosmidis C., *On the angular distribution arising from the interaction of strong laser fields of Alkyl Halides*. 8<sup>th</sup> European Conference on Atomic and Molecular Physics. Rennes, France, 6-10 July, 2004.
15. Siozos P., Kaziannis S., Kosmidis C., *Multielectron dissociative ionisation of CH<sub>3</sub>I induced by strong picosecond laser pulses*. International Conference on Laser Probing. Leuven Flanders, Belgium, 7-12 July, 2002.

#### **8. Recent participation in research projects:**

1. POLITEIA II (Politismos-Technologia, New Technologies in the Research, Study, Documentation and Access to the Information for Cultural Heritage Objects and Monuments II; MIS 5002478), which is implemented under the "Action for the Strategic Development on the Research and Technological Sector," funded by the Operational Programme "Competitiveness, Entrepreneurship and Innovation" (NSRF 2014-2020) and co-financed by Greece and the European Union (European Regional Development Fund).

2. IPERION-CH: Integrated Platform for the European Research Infrastructure ON Cultural Heritage, Duties: Perform analysis of various types of cultural heritage materials. The project was funded by the European Commission, H2020-INFRAIA-2014-2015, under Grant No. 654028. Working period: 1/2016-12/2016.
3. PARTHENOS: Pooling Activities, Resources and Tools for Heritage E-research Networking, Optimization and Synergies, Duties: To define and prepare protocols and procedures that will be applied to different techniques for the characterization of cultural heritage materials (Task 4.4). The project is funded by EU within the Research and Innovation action Programme GA No: H2020-654119. Duration: 5/2015-present.
4. POLITEIA: New Technologies in the Research, Study, Documentation and Access to the Information for Cultural Heritage Objects and Monuments, Duties: Perform analysis of various types of cultural heritage materials. The project was funded by the General Secretariat for Research and Technology, Greece No MIS-448300 (2013SE01380035). Duration: 1/2012-7/2015.
5. Spectroscopic techniques for the Analysis of Scale Deposits. Duties: Developing a methodology for on-site, real-time monitoring of scale cleaning processes. Design of the laboratory prototype. The project was funded by the EuroCorpex Ltd. Duration: 1/2013-5/2015.
6. SUNLASER: Optimization of the production process of solar thermal panels. Duties: Development of an optical system to observe and characterize the optical emission during welding process. The project was funded by the General Secretariat for Research and Technology, Greece (No 09ΣΥΝ-32-772). Duration: 11/2010-1/2013.
7. CHARISMA: Cultural Heritage Advanced Research Infrastructures – Synergy for a Multidisciplinary Approach to Conservation Restoration. Duties: Development of compact/portable laser-based analytical instrumentation for in-situ and field applications. Organize and contact field campaigns. Perform analysis of various types of cultural heritage materials. Project co-funded by the European Commission within the action 'Research Infrastructures' of the 'Capacities' Programme GA No. FP7- 228330. Duration: 9/2009-8/2013.
8. ROADSCANNER: Feasibility of a GNSS-Probe for Creating Digital Maps of High Accuracy and High Integrity. European Space Agency (ESA), Contract No: 20911/07/NL/GLC, Duration 10/2007 – 6/2008.

## **9. Programming languages**

LabVIEW (Advanced), Matlab/Octave (Intermediate), Zemax (Beginner), R (Beginner)

## **10. Languages**

Greek, English

## **11. Schools / Workshops Attended**

1. Training on maintenance and alignment of high energy femtosecond laser systems in Amplitude Technologies facilities in France (22- 25 June 2010).

## **12. Other Activities and Skills**

1. During working in NIKI Ltd (2/2007 – 9/2008) extended knowledge on GNSS was obtained.
  - GNSS seminar attended, National GPS Seminars. Cork, Ireland, 21 – 25 October, 2007

2. Qualified to the final stage of the competition "Greece Innovates: 2<sup>nd</sup> Competition for Applied Research & Innovation", 2013, presented the LMNT II portable laser device for rapid and direct identification of chemical elements in solid materials.  
[http://www.kainotomeis.gr/App\\_Upload/En-Lefkoma.pdf](http://www.kainotomeis.gr/App_Upload/En-Lefkoma.pdf), page 12.

For more information please visit IESL-FORTH website:

<http://www.iesl.forth.gr/people/person.aspx?id=228>