

CURRICULUM VITAE OF LAZAROS TZOUNIS



PERSONAL INFORMATION

Surname(s) / First name(s): **Tzounis Lazaros**

Date of Birth: 02.12.1987

Place of Birth: Volos, Greece

Nationality: Hellenic

Marital status: Married (Two children)

Academical grade: Diploma in Materials Science & Engineering and PhD in Chemistry – Physical Chemistry of Polymeric Materials.

Current Position:

Elected Associate Professor at the department of Mechanical Engineering, Hellenic Mediterranean University (HMU) Heraklion, Crete, Greece

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Contents

1. SHORT CURRICULUM VITAE	3
1.1 Education.....	3
1.2 Career History	3
1.3 Honors and Awards	6
1.4 Personal skills and competences.....	7
1.5 Computer skills and competences	7
2. Detailed teaching / administrative work.....	7
2.1 Teaching and co-teaching of undergraduate courses.....	7
2.2 Teaching of postgraduate courses.....	7
2.3 Co-Supervision of Master Theses.....	7
3. Scientific and Research achievements (Analytically)	8
3.1 Scientific Interests	8
3.2 Research experience & Characterization techniques (experience in fully operation)	8
3.3 Organization of Conferences	9
3.4 Scientific Projects (EU and National ESPA): Proposal writing, Participation and funded proposals.....	9
3.5 Scientific collaborations (International and National).....	10
3.6 Scientific positions	11
3.7 Scientific Awards	11
3.8 Reviewer services.....	11
3.9 Recognition of Work	12
α. Bibliometric data	12
4. Publications (analytically)	13
4A. Thesis (PhD and Diploma)	13
4B. Journal Publications (International peer-reviewed journals)	13
4C. Papers in Conference Proceedings.....	19
4D. Συμβολή σε Διεθνή Επιστημονικά Συνέδρια (Conference Oral & Poster Presentations)	20
4E. Books (Book Chapters).....	23

1. SHORT CURRICULUM VITAE

1.1 Education

- May 2014** **PhD thesis defense** at TUD with the degree of: "**magna cum laude**"
Title: "Glass and Jute fibers modified with CNT-based functional coatings for high performance composites"
Supervisor: Prof. Manfred Stamm
- Jan. 2011 - Apr. 2014** **PhD Candidate at the Technical University of Dresden (Dept. of Chemistry and Food Chemistry) working at the Leibniz-Institute für Polymerforschung Dresden – Dept. of Nanostructured materials (NM)** under the supervision of Prof. Manfred Stamm and Prof. Edith Mäder.
- July 2010** **Diploma of Materials Science & Engineering with the degree of "Very Good"** (7.15 in the scale of 10, Diploma with the first grade between all the students entered the school at 2005 academic year).
- Sept. 2005 - June 2010** **Studies at the Dept. of Materials Science & Engineering, University of Ioannina, Greece**, with a Diploma majored at:
"Synthesis & Characterisation of electrically conductive polymer nanocomposite films reinforced with multi-walled carbon nanotubes (MWCNTs)"
- June 2005** **Graduated from High School**, 7th public Lyceum of Volos, with the degree of "Very Good" (18.8 in the scale of 20).

1.2 Career History

- Aug. 2016 – now**
- 1. Post-doctoral researcher** at the department of Materials Science and Engineering (University of Ioannina) as Lecturer with contract under ESPA national project for post-doc researcher's academic experience (<http://www.materials.uoi.gr/>).
Description of work: academic teaching experience for doctoral graduates through the award of independent teaching - Autonomous Teaching of two elective courses in the fall and spring semesters of the academic Year 2016-2017 with titles:
« NanoMaterials, Devices and micromachines» και
«Nanotechnology»
 - 2. Post-doctoral researcher under Bodossaki Foundation Scholarship** collaborating with the Composite and Smart Materials Laboratory (CSML) and the Nanotechnology Lab of University of Ioannina.
 - 3. Participation and author of two European research programs (NMBP & ICT)** of H2020.
Role: Major researcher
- Aug 2014 – Aug. 2016**
- Post-doctoral researcher** at the Laboratory for thin films, Nanosystems and Nanometrology – LTFN), Aristotle University of Thessaloniki, Dept. of Physics under the supervision of Prof. S. Logothetidis.
- Post-doc research stay of 24 months** duration with the following activities:
- 1. Preparation of H2020 EU Proposals** (4 proposals at Energy, NMBP, ICT, FOF calls), and
 - 2. Participation and scientific contribution under the following projects:**
i) Smartonics FP7 EU Project: <http://www.smartonics.eu/>
Development of intelligent machines, tools and processes with the exact composition

of nanomaterials with controlled properties for Organic Electronics (scientific coordinator: Prof. Stergios Logothetidis, Professor of Physics, AUTH)

Description of work: Pilot production of printed organic electronics (OPVs, OLEDs, electrodes, (bio) -sensors, transistors, circuits, antennas) and perovskite photovoltaic through industrial roll-to-roll processes. Printing-2D additive manufacturing via nano-ink deposition & printing techniques (flexographic, screen printing, spray-ink-jet slot die, gravure). for printed organic electronics. Mechanical processes and hybrid roll-to-roll intelligent printers for precise printing-deposition of nano-materials with controlled properties for organic electronics. Electrical Characterization of Organic electronic devices (I-V curves, impedance), power conversion efficiency study of the devices by a solar simulator (PCE), process optimisation to enhance the production throughput and production yield, resistivity measurements 4-point, Scanning and Transmission Electron Microscopy (SEM, TEM), Atomic Force Microscopy (AFM), X-ray diffraction (XRD), Raman, spectroscopic ellipsometry, UV-Vis / fluorescence.

ii) (Plasmon Harvest Excellence ESPA project: <http://www.plasmon-harvest.gr>)

Architectures of plasmonic nanoparticles to exploit solar energy

Description of work: plasmon Architectures for harvest solar energy - "Plasmonic architectures for solar energy Harvesting" Synthesis of plasmonic nanoparticles with different sizes and architectures (spheres, rods, etc.) by wet sol-gel chemistry, appropriate surface modification and incorporation into organic photovoltaics (OPVs). Objective is the plasmon embedded nanostructures in OPVs to increase the absorption of light and improve power conversion efficiency of photovoltaic devices. Characterization of the devices by a solar simulator, resistivity measurements 4-point, SEM, TEM, AFM, XRD, Raman, spectroscopic ellipsometry, UV-Vis / fluorescence.

iii) **Multifunction coatings** with hybrid organic-inorganic interfaces (NSRF NanoHybrid Excellence project)

Description of work: "Multifunctional nanocoatings with hybrid organic-inorganic interfaces". Developing a new generation of industrial products based on multifunctional nanostructured coatings that incorporate hybrid organic-inorganic interfaces. Nanostructured coatings can be either nanocomposites or nanolaminates or a combination thereof. Specifically, nanocoatings tested for two industrial applications: 1. Metal blades with excellent hardness and wear resistance to corrosion by adhering organic lubricant coating, controlled release fertilization. 2. Ophthalmic lenses and coloring them by depositing inorganic, plasmonic nano films hard / scratch resistant coating by physical vapor deposition. Characterization with nanoindentation, AFM, XRD, spectroscopic ellipsometry, UV-Vis.

Role: Senior Researcher

iv) Rolemak FP7 project: <http://www.rolemak.eu/>.

Strengthening the prospect of the research on organic electronics in Central Macedonia

Description of work: Strategic Alliances with EU research groups with excellence in organic electronics for sharing of expertise with the AUTH group. Improving research infrastructure of Aristotle, to act as a research institution of excellence in organic electronics. Dissemination & Exploitation of results through conferences, seminars, exhibitions, meetings of stakeholders, and other promotional activities.

Role: Senior Researcher

Apr. 2014 – July. 2014

Post-doctoral researcher at Leibniz-Institute für Polymerforschung Dresden), Germany, Dept. of nanostructured materials under the supervision of Prof. M. Stamm.
Description of work: Carbon nanotube (CNT) coatings onto Glass and Carbon fibers (textiles, yarns) for reinforcing composite materials and the development of "intelligent" hierarchical, nanostructured multi-functional composite interfaces with functionality and sensor properties. SEM, TEM, AFM, spectroscopy ultraviolet UV-Vis / fluorescence and Raman, Measuring Thermal properties and sensing properties to liquids and gases (liquid & gas sensing) and different photosensing properties (photosensing; e.g. UV- and IR-sensing). Deployment of smart composites as Thermoelectric generators (TEGs)

Role: Senior Researcher

Jan. 2011 - Apr. 2014

PhD research, Technical University of Dresden (Dept. of Chemistry and Food Chemistry) working at the Leibniz-Institute für Polymerforschung Dresden – Dept. of Nanostructured materials (NM)

Major: "Glass and Jute fibers modified with CNT-based functional coatings for high performance composites".

Description of work:

A. Carbon Nanotube (MWCNT & SWCNT) coatings (thin and thick films) and other types of nanoparticles (Graphene oxide, SiO₂, Ag, Au, Fe₃O₄, Bi₂Te₃) on various substrates and mainly synthetic and natural fibers (textiles, yarns) by wet chemical deposition techniques (spray coating, dip coating, screen printing). Fabrication of nanoparticle ink on a large scale with a desired viscosity and a solvent system with desirable surface tension depending on the target substrate. Optimization of production process and study the stability of the colloidal stability of inks.

Development of bio-mimetic, hierarchical micro- and nano-structures of multi-functional coatings to the fiber surfaces introducing electrical conductivity, thermoelectric power generation, plasmon-optical, magnetic, and catalytic properties, antimicrobial properties and coloring) and characterization. Utilization of fibers to reinforce polymeric matrix composites (epoxy, thermoplastics and elastomers) and development of "intelligent" interfaces with enhanced mechanical strength and functionality (TEG, conductivity, magnetic properties, etc.). Micromechanics studies on model composites (pull-out, fragmentation) to study interfacial strength, fractography morphology by SEM. Manufacturing of composites with industrially used techniques such as hand lay-up & resin transfer moulding and further polymerization, 2-3 roll mill for elastomer micro- nanocomposites, extrusion & micro-compounding and thermopressing processes (mainly for thermoplastics). Mechanical properties investigation and study of the functionality derived from the hierarchical "Fiber" reinforcements.

Synthesis of nanoparticles (Ag, Au, Ni, ZnO) as powders or colloidal dispersions and testing over several applications: heterogeneous catalysis and environmental applications such as water purification of antibiotics and nitrates (nitrophenols, etc.), energy applications such as production of hydrogen from biomass in catalytic column reactors (renewable energy), electrodes (cathode / anode) in batteries and supercapacitors. Use of nanoparticles for sensors and Surface enhanced Raman spectroscopy substrates for detecting at ppm level chemicals in drinking water, environmentally wastes, biological applications, etc. Colloidal chemistry and processes for preparing nanoparticles (clays, silica, magnetic and plasmonic NPs for SERS, catalytic and bio-applications, nanomedicines), CNT / chalcogenide nanohybrids as efficient thermoelectrics.

Processes for preparing nanocomposite thermoplastic polymer melt (melt mixing) &

solvent mixing Fabrication of nanocomposite elastomers and epoxy with 2-roll & 3-roll mixing (Polymer processing and engineering). Study (thermo) mechanical, electrical, thermal properties, light, temperature, liquid and vapor sensing.

Synthesis of polymers (homo and block copolymers) and incorporating CNTs, Graphene, Au and Fe₃O₄ nanoparticles.

Fabrication of thin films for nanotechnology applications.

"Green" composites from natural raw materials and renewable energy sources (natural rubber, natural fibers, etc.)

B. Supervision of 2 master and 1 PhD students at the Leibniz-Institute für Polymerforschung, Dresden, Germany (IPF) with the project titles:

- "Polystyrene homo- and block-copolymer transparent thin films reinforced with natural halloysite nanotubes (HNTs) as UV-light filters" by Mrs MSc. Shreya Herlekar.

- "Thermoelectric properties of melt blended polymer composites of polycarbonate and carbon nanotubes" by Mr MSc. Titus Gärtner

- "Growth of Ag seeds onto the surface of Fe₃O₄@SiO₂ particles: Recyclable nanocomposites for SERS and catalytic applications" by Mr MSc. Diego-Mendez Gonzalez.

Dec. 2011 – Nov. 2012: **Responsible and representative for the large scale European Union Financed Programme** entitled: "Carbon Nanotube Confinement Strategies to Develop Novel Polymer Matrix Composites" (1/11/2008-30/10/2012) with short name "POCO" Project (CP-IP213939-1) under the 7th Framework Program (FP7) and call NMP-2007-LARGE-1. (7th Framework Programme, www.poco-project.org).

Job description: Synthesis of polymers by ATRP and Hierarchical fiber-CNT structures preparation and characterisation of polymer nanocomposites by SEM, TEM.

Role: Major Researcher

Dec. 2010 – Mar. 2011 **Guest Scientist at the Leibniz-Institute für Polymerforschung, Dresden, Germany** (IPF) under the supervision of Prof. Manfred Stamm working for a 4 month Grand from Leibniz-Institute für Polymerforschung Dresden.

Job description: CNT transparent and conductive thin films on glass substrates.

Role: Major Researcher

1.3 Honors and Awards

2010 **Certificate** from the Materials Science and Engineering Dept. that the student Tzounis Lazaros was admitted to Department at the academic year 2005-2006 and graduated in the academic year 2009-2010 (5 years of study). The degree mark of **7.15 ranked it first among the graduates** of the same import academic year.

2010-2014 **Scholar of the German Leibniz Institute of Polymer Research Institute (Leibniz-Institute für Polymerforschung Dresden)**, Germany, Department Nanostructured materials for the fulfillment of the doctoral thesis.

2013 **1st poster award** in the 6th International Conference on Carbon NanoParticle Based Composites in Dresden.

Title: "Hybrid nanostructured interphases of glass fiber polymer composites with unique mechanical and electrical properties" by Lazaros Tzounis, Edith Mäder and

Manfred Stamm.

July 2016

Postdoctoral scholar of the Bodossaki Foundation for conducting excellent research in Energy technology sector and new materials

1.4 Personal skills and competences

Mother tongue(s)	Greek
Other language(s)	English (Excellent Knowledge with technical and commercial terminology)
Other language(s)	German (Very Good Knowledge)

1.5 Computer skills and competences

Operating systems	Microsoft Windows Operating System, Linux Operating System
Programs	Microsoft Office, AutoCAD, MATLAB, Origin Lab, Adobe Photoshop, ImageJ
Programming languages	FORTRAN 77, C++, Pascal

2. Detailed teaching / administrative work

2.1 Teaching and co-teaching of undergraduate courses

2016-now Dept. of Materials Science and Engineering, University of Ioannina.

- *Materials for nanostructures, Devices and Micromachines*
- *Nanotechnology*

2010-2014 Dept. of Chemistry and Food Chemistry (Physical Chemistry of Polymeric materials sector) and Mechanical Engineering Department at Technical University of Dresden Germany

- *Auxiliary work in tutoring (Materials Science & Engineering, Composite Materials), Physical Chemistry and Polymer Laboratories*
- *Project & Laboratory supervision*

2.2 Teaching of postgraduate courses

2015 «Carbon allotropes for energy harvesting applications» at International Summer Schools on Nanosciences and Nanotechnologies (ISSON) at the annual Nanotechnology conference, Thessaloniki 5 July 2015

2016 «R2R printing technologies of Carbon-polymer systems for organic electronics» at International Summer Schools on Nanosciences and Nanotechnologies (ISSON) at the annual Nanotechnology conference, Thessaloniki 9 July 2016

2.3 Co-Supervision of Master Theses

1. «*Thermoelektrische Eigenschaften von schmelzegemischten Polymerkompositen aus Polycarbonat und Carbon Nanotubes Zur Erlangung des akademischen Grades Diplom-Ingenieur*», Titus Gärtner, Dept. of Mechanical Engineering, Technical; University of Dresden, 2014.
2. "*Polystyrene homo- and block-copolymer transparent thin films reinforced with natural halloysite nanotubes (HNTs) as UV-light filters*", Mrs Shreya Herlekar, Dept. of Chemistry and Food Chemistry (Physical Chemistry of Polymeric materials sector) at Technical University of Dresden Germany, 2013.

3. *"Growth of Ag seeds onto the surface of Fe₃O₄@SiO₂ particles: Recyclable nanocomposites for SERS and catalytic applications"*, by Mr MSc. Diego-Mendez Gonzalez, Pharmaceutical Dept., University of Madrid, 2014
4. *"Contribution of three-dimensional printing to manufacture surgical materials with antibacterial properties"* Diploma MasterThesis of Bangeas Petros, Physics Dept. Interdisciplinary-Graduate Program (IPP) "Nanoscience and Nanotechnology - N & N" Completed 2016.

3. Scientific and Research achievements (Analytically)

3.1 Scientific Interests

- a) **Polymer processing for CNT and graphene nanocomposites by melt-blending & solution mixing as electrically conductive materials for thermoelectric generation (TEGs) and sensor applications.**
- b) **Synthetic fibers, glass and carbon fibers (GFs, CFs) and smart textile technology (e-textiles, sensor textiles, smart textiles, energy harvesting textiles, etc.), nanostructured coated fibers and nanocomposite synthetic fibers**
- c) **Carbon nanotube / graphene based conductive and transparent thin and bulk bucky paper films for TEGs and (bio-) sensing**, i.e. light, temperature, liquid and vapor-gas sensing, biomolecules-markers.
- d) **Colloidal chemistry:** clays, silica, magnetic and plasmonic NPs for SERS, environmental, catalytic and bio-applications, nanomedicines, CNT/chalcogenide nanohybrids as efficient TEGs.
- e) **Environment:** Heterogeneous catalytic processes for water cleaning and H₂ production from biomass.
- f) **Alternative energy resources:** Thermoelectric Generators (TEGs), Photovoltaics – PVs (Perovskite and Organic PVs), and H₂ Energy production from biomass
- g) **Glass, Carbon and Natural fiber CNT-based coatings** and other textile materials; i.e. polymer synthetic fibers for interfacial strength enhancement and multi-functional composite interphases.
- h) **Characterization of composite interphases via micromechanical tests** (i.e. single fiber pull-out, fragmentation tests) and AFM (modulus, deformation, adhesion tests, conductive AFM, nanoindentation).
- i) **Composite Materials** design & manufacturing (e.g processes as hand lay-up, resin transfer processes and thermopressing).
- j) **Natural Polymers** (chitosan, natural rubber etc.) / **Natural fiber** (jute, hemp, etc.) **eco-friendly composites**
- k) **Functionalisation & Chemistry** of CNTs & colloids by ATRP/NMRP ("grafting from") and "grafting-to" methods.
- l) **Block copolymer nanocomposites** containing functional nanoparticles for nanotechnology applications.
- m) **CNT-based composite films** as electrodes in rechargeable Li/S batteries.
- n) **Printing processes for textiles and planar substrates wet deposition processes:** roll-to-roll & sheet-to-sheet printing for Organic Electronics (OPVs, OLEDs, OTEGs, (bio-)sensors, circuits) by 2D additive manufacturing techniques i.e. gravure, slot die, flexo, screen-printing, ink-jet.
- o) **Process optimization & Engineering** by real time process monitoring and experimental/analytical tools.
- p) **3D printing and rapid prototyping processes & engineering** using used materials with recyclability potential and lifecycle analysis for reduced carbon footprint and environmental benign characteristics
- q) **Smart and Hybrid materials** (sensors, data acquisition & analysis; structural health monitoring)
- r) **Nanotechnology** in Electronic devices and bulk Polymer composites.

3.2 Research experience & Characterization techniques (experience in fully operation)

Roll-to-Roll and Sheet-to-Sheet printing processes (especially for Organic Electronics): Spin coating, Dip coating, Spray, Gravure, Slot die, Flexo, Screen-printing, Ink-jet 2D additive manufacturing.

Processing: Extrusion, Injection moulding, Compression moulding, Internal mixing, 2-3-roll mixing, 3D printing, Packed Bed Reactors (PBRs), Industrial Filtration, Distillation etc.

Polymerisation Techniques: ATRP, NMRP, polycondensation in small & medium scale chemical reactors and molecular weight determination by SEC/GPC, laser scattering.

Electrical and Thermoelectric Generators characterisation: Two- and Four-probe electrical resistance measurements with various electrometers, and thermoelectric investigations using a temperature gradient stage.

Mechanical testing: Static and dynamic mechanical testing for determining stiffness of materials following different ASTM standards, Fracture mechanics using real time SEM-IR Thermography-Raman-Resistance change of materials, Non-destructive testing of materials for structural health monitoring (SHM) via Acoustic emission, Micromechanics (single fiber pull-out tests & single fiber fragmentation test), Rheology, DMTA, Hardness measurements, Scratch tests, Nanoindentation.

Thermal analysis techniques: TGA, DSC, TPO.

Electron microscopy: (cryo-)Transmission Electron Microscopy (SAED, EF-TEM, EELS, HR-TEM), Scanning Electron Microscopy (EDX), and preparation of samples by sputtering and ultra(/-cryo)microtomy.

Surface analysis techniques: AFM (mechanical and electrical properties), Contact Angle measurements, XPS, optical microscopy.

Spectroscopy techniques: FT-IR, Raman, UV-vis, Fluorescence, GCMS.

X-ray scattering techniques: Small-Angle X-ray Scattering (SAXS) and WAXS.

3.3 Organization of Conferences

2015 *International Conference on Nanosciences & Nanotechnologies (NN15),
International Symposium on Flexible Organic Electronics (ISFOE15)
International Summer Schools "N&N, OE & Nanomedicine" (ISSON15)*

Thessaloniki, Greece, July 2015, **Co-organiser**

2016 *International Conference on Nanosciences & Nanotechnologies (NN16),
International Symposium on Flexible Organic Electronics (ISFOE16)
International Summer Schools "N&N, OE & Nanomedicine" (ISSON16)*

Thessaloniki, Greece, July 2015, **Co-organiser**

3.4 Scientific Projects (EU and National ESPA): Proposal writing, Participation and funded proposals

Oct. 2016 **ESPA 2014-2020:** "Acquisition of academic teaching experience to young scientists PhD holders"

Περιγραφή εργασίας: Ensuring academic teaching experience doctoral graduates through the award of independent teaching. Autonomous Teaching two elective courses in the fall and spring semesters of the academic. Year 2016-2017 with titles: **"Materials for nanostructures, Devices and Micromachines"**
"Nanotechnology"

Sept. 2016 **DAAD bilateral project** with the University of Dresden (civil engineering department) with funding from Germany for processing research proposal and researchers exchange of a total duration of three months.

- Sept. 2016** Post-doc Scholarship from the Bodossaki foundation
- Aug. 2014- Aug. 2016** **Post-doc researcher at the** Laboratory for thin films, Nanosystems and Nanometrology – LTFN, Aristotle University of Thessaloniki, Physics Dept. Greece.
Project and Proposal related work:
1. Preparation and Submission of Scientific proposals under the framework of H2020 (4 proposals composed Energy, NMBP, ICT, FOF calls), and
2. Participation / scientific contribution at the following EU & National projects:
i) Smartonics FP7 EU Project: <http://www.smartonics.eu/>
 Development of intelligent machines, tools and processes with the exact composition of nanomaterials with controlled properties for Organic Electronics (scientific coordinator: Prof. Stergios Logothetidis, Professor of Physics, AUTH)
ii) (Plasmon Harvest Excellence ESPA project: <http://www.plasmon-harvest.gr>)
Architectures of plasmonic nanoparticles to exploit solar energy
iii) **Multifunction coatings** with hybrid organic-inorganic interfaces (NSRF NanoHybrid Excellence project)
iv) Rolemak FP7 project: <http://www.rolemak.eu/>.
 Strengthening the prospect of the research on organic electronics in Central Macedonia
- Apr. 2014 - July 2014** **Post-doc researcher at Leibniz-Institute für Polymerforschung Dresden, Germany, Dept. of Nanostructured materials**
- Dec. 2011–Nov. 2012:** **Representative for the large scale EU POCO Project** under the framework of 7th EU Programme (FP7) and the call NMP-2007-LARGE-1. (www.poco-project.org).

3.5 Scientific collaborations (International and National)

- Department of Materials Science & Engineering** (Profs. A. S. Paipetis, A. Avgeropoulos, N. Zafeiropoulos E. Lidorikis)
- Electrical Engineering Department**, Aristotle University of Thessaloniki (Prof. G. Litsardakis)
- Mechanical Engineering Department**, Aristotle University of Thessaloniki (Prof. D. Tsipas, Dr. A. Mavropoulos)
- Department of Environmental and Pollution Control Engineering**, TEI of Western Macedonia (Prod. M. Goula)
- Department of Electrical Engineering**, Polytechnic school of Thessaly (Prof. S. Lalis)
- Medicine School**, Pharmacology Department, Pharmacology Laboratory, University of Ioannina and Thessaloniki (Profs. A. Michalopoulos, M. Marselos, P. Pappas)
- Department of Chemistry**, Aristotle University of Thessaloniki (Profs. D. Bikiaris, A. Pantazaki, T. Stergiopoulos)
- Department of Physics**, Aristotle University of Thessaloniki (Profs. S. Logothetidis, G. Vourlias, K. Chrysafis, H. Pavlidou)
- Department of Chemistry, University of Patras** (Prof. I. Kallitsis)
- Department of Materials Science & Engineering**, Massachusetts Institute of Technology (MIT), USA (Prof. C. Ross)
- Liebniz-Institut für Polymerforschung, Dresden**, Germany (Prof. G. Heinrich, M. Stamm, Voit, Dr. Poetschke and Dr. A. Das)
- Institut Català di Nanotecnologia (ICN)**, Phononic and Photonic Nanostructures Group, Barcelona, Spain (Prof. C. Sotomayor, Dr. N. Kehagias, Dr. C. Delgado-Simao)
- CIDETEC**, Centre for Electrochemical Technologies, Parque Tecnológico de San Sebastian, New Materials Department, San Sebastian, Spain (Researchers Dr. P. M. Carrasco, Dr G. Cabanero).
- Federal University of Rio de Janeiro, Dept. of Materials Chemistry**, Nanotechnology, Physical Chemistry (Prof. Maria Luiza Rocco)

15. **Technische Universität Dresden, Dresden, Civil Engineering Dept.** (Dr. M. Liebscher)
16. **University of Kalyani**, Department of Chemistry (Prof. Subhas Chandra Debnath)
17. **CSIRO Australia Dept. of Natural fibre composites, interface engineering, polymer processing** (Dr. E. Petinakis).
18. **Complutense University of Madrid**, Dept. of Pharmacology (Prof. J. R. Retama)
19. **Department of Bioelectronics Ecole Nationale Supérieure des Mines**, Gardanne cedex, FRANCE (Dr. C. Pitsalidis)

3.6 Scientific positions

Co-organiser of International Conference, International Conference on Nanosciences & Nanotechnologies, International Symposium on Flexible Organic Electronics and International Summer Schools "N&N, OE & Nanomedicine" for 2014, 2015 and 2016 in Thessaloniki, Greece, July 2015, (**Co-organiser**)

3.7 Scientific Awards

- **Βεβαίωση τμ. Μηχ. Επιστήμης Υλικών** ότι ο **Τζούνης Λάζαρος** του Παναγιώτη εισήχθη στο Τμήμα το ακαδημαϊκό έτος **2005-2006** και αποφοίτησε το ακαδημαϊκό έτος **2009-2010 (5 έτη σπουδών)**. Ο βαθμός πτυχίου του είναι **7,15 κατετάγη δε πρώτος μεταξύ των πτυχιούχων του ιδίου ακαδημαϊκού έτους εισαγωγής (2005-2006)**.
- **Best Poster Award**, 6th International Conference on Carbon NanoParticle Based Composites in Dresden. June 2013
- **Υποτροφία Ιδρύματος Μποδοσάκη**, Πανεπιστήμιο Ιωαννίνων, 2016-2018
- **Invited speeches at the following international conferences:**
 - **International Conference on Nanosciences & Nanotechnologies 2016** in Thessaloniki, Greece, July 2015.
 - **International Summer Schools "N&N, OE & Nanomedicine"** in 2015 and 2016 in Thessaloniki, Greece, July 2015 and 2016.

3.8 Reviewer services

Reviewer at the following scientific journals

- *Composites Part A*
- *Composites Part B*
- *Composite Science and Technology*
- *Polymer*
- *Polymers*
- *Micromachines*
- *Applied Sciences*
- *ACS Applied materials and Interfaces*
- *Carbon*
- *Nanomicroletters*
- *Journal of Physical Chemistry C*
- *Royal Society of Chemistry journals*
- *Materials Chemistry and Physics*
- *Chemical Papers*
- *Analytica Chimica Acta*
- *International Journal of Hydrogen Energy*
- *Journal of Natural Gas Science and Engineering*
- *Journal of Rare Earths*
- *Nanomaterials*
- *Sensors*

3.9 Recognition of Work

α. Bibliometric data

- **Scopus** (<https://www.scopus.com/authid/detail.uri?authorId=55337413100>) – *h-index* 28

Tzounis, Lazaros

University of Ioannina, Ioannina, Greece [Show all author info](#)

55337413100 <https://orcid.org/0000-0003-0567-3020>

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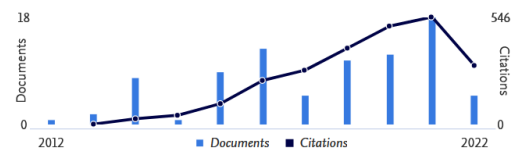
Metrics overview

85
Documents by author

2418
Citations by 1515 documents

28
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Document & citation trends



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Most contributed Topics 2016–2020

Sizing Agent; Mechanical Properties; Microbond
[12 documents](#)

Catalyst; Steam Reforming; Synthesis Gas
[6 documents](#)

Catalyst; Bio-Oil; Hydrogen Production
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85 Documents Cited by 1515 Documents 1 Preprints New 180 Co-Authors 19 Topics 0 Awarded Grants Beta

- **Google scholar** (<https://scholar.google.gr/citations?user=2Nit4PMAAAAJ&hl=en>) – *h-index* 26



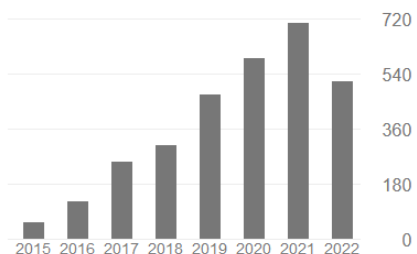
Lazaros Tzounis

Associate Professor, Mechanical Engineering Department, Hellenic Mediterranean University (HMU)

Η διεύθυνση ηλεκτρονικού ταχυδρομείου έχει επαληθευτεί στον τομέα hmu.gr

[Polymer Nanocomposites](#) [Thermoelectrics](#) [Printed Electronics](#) [Additive Manufacturing](#)
[Multifunctional Composites](#)

	Όλα	Από το 2017
Παραθέσεις	3067	2854
<i>h-index</i>	31	29
<i>i10-index</i>	63	62



4. Publications (analytically)

4A. Thesis (PhD and Diploma)

- A1. *“Glass and Jute fibers modified with CNT-based functional coatings for high performance composites”*, *PhD Thesis 2014* Technical University of Dresden TUD (Dept. of Chemistry and Food Chemistry, Physical Chemistry of Polymeric Materials) working at the Leibniz-Institute für Polymerforschung Dresden – Dept. of Nanostructured materials (NM), supervisors: Prof. Manfred Stamm and Prof. Edith Mäder.
- A2. *Synthesis & Characterisation of electrically conductive polymer nanocomposite films reinforced with multi-walled carbon nanotubes (MWCNTs)*, *Diploma thesis 2010* Dept. of Materials Science & Engin. University of Ioannina, Greece.

4B. Journal Publications (International peer-reviewed journals)

(where *appears, Tzounis L. is corresponding author)

- B1. Wode F, **Tzounis L**, Kirsten M, Constantinou M, Georgopoulos P, Rangou S, et al. Selective localization of multi-wall carbon nanotubes in homopolymer blends and a diblock copolymer. Rheological orientation studies of the final nanocomposites. *Polymer*. 2012;53(20):4438-47.
- B2. Carrasco PM, **Tzounis L**, Mompean FJ, Strati K, Georgopoulos P, Garcia-Hernandez M, et al. Thermoset Magnetic Materials Based on Poly(ionic liquid)s Block Copolymers. *Macromolecules*. 2013;46(5):1860-7.
- B3. Liebscher M, **Tzounis L**, Pötschke P, Heinrich G. Influence of the viscosity ratio in PC/SAN blends filled with MWCNTs on the morphological, electrical, and melt rheological properties. *Polymer*. 2013;54(25):6801-8.
- B4. **Tzounis L***, Contreras-Caceres R, Schellkopf L, Jehnichen D, Fischer D, Cai C, et al. Controlled growth of Ag nanoparticles decorated onto the surface of SiO₂ spheres: a nanohybrid system with combined SERS and catalytic properties. *RSC Advances*. 2014;4(34):17846-55.
- B5. **Tzounis L***, Debnath S, Rooj S, Fischer D, Mäder E, Das A, et al. High performance natural rubber composites with a hierarchical reinforcement structure of carbon nanotube modified natural fibers. *Materials & Design*. 2014;58:1-11.
- B6. **Tzounis L***, Kirsten M, Simon F, Mäder E, Stamm M. The interphase microstructure and electrical properties of glass fibers covalently and non-covalently bonded with multiwall carbon nanotubes. *Carbon*. 2014;73:310-24.
- B7. Papageorgiou DG, **Tzounis L**, Papageorgiou GZ, Bikiaris DN, Chrissafis K. β -nucleated propylene-ethylene random copolymer filled with multi-walled carbon nanotubes: Mechanical, thermal and rheological properties. *Polymer*. 2014;55(16):3758-69.
- B8. Liebscher M, Gärtner T, **Tzounis L**, Mičušík M, Pötschke P, Stamm M, et al. Influence of the MWCNT surface functionalization on the thermoelectric properties of melt-mixed polycarbonate composites. *Composites Science and Technology*. 2014;101:133-8.
- B9. **Tzounis L***, Gärtner T, Liebscher M, Pötschke P, Stamm M, Voit B, et al. Influence of a cyclic butylene terephthalate oligomer on the processability and thermoelectric properties of polycarbonate/MWCNT nanocomposites. *Polymer*. 2014;55(21):5381-8.
- B10. Pappa AM, Karagkiozaki V, Krol S, Kassavetis S, Konstantinou D, Pitsalidis C, **Tzounis L**, et al. Oxygen-plasma-modified biomimetic nanofibrous scaffolds for enhanced compatibility of cardiovascular implants. *Beilstein Journal of Nanotechnology*. 2015;6:254-62.

- B11.** Kapnopoulos C, Mekeridis ED, **Tzounis L***, Polyzoidis C, Zachariadis A, Tsimikli S, et al. Fully gravure printed organic photovoltaic modules: A straightforward process with a high potential for large scale production. Solar Energy Materials and Solar Cells. 2016;144:724-31.
- B12.** Papageridis KN, Siakavelas G, Charisiou ND, Avraam DG, **Tzounis L**, Kousi K, et al. Comparative study of Ni, Co, Cu supported on γ -alumina catalysts for hydrogen production via the glycerol steam reforming reaction. Fuel Processing Technology. 2016;152:156-75.
- B13.** **Tzounis L***, Liebscher M, Tzounis A, Petinakis E, Paipetis AS, Mader E, et al. CNT-grafted glass fibers as a smart tool for epoxy cure monitoring, UV-sensing and thermal energy harvesting in model composites. RSC Advances. 2016;6(60):55514-25.
- B14.** Charisiou ND, Siakavelas G, Papageridis KN, Baklavaridis A, **Tzounis L**, Avraam DG, et al. Syngas production via the biogas dry reforming reaction over nickel supported on modified with CeO₂ and/or La₂O₃ alumina catalysts. Journal of Natural Gas Science and Engineering. 2016;31:164-83.
- B15.** Tsirka K, Foteinidis G, Dimos K, **Tzounis L**, Gournis D, Paipetis AS. Production of hierarchical all graphitic structures: A systematic study. Journal of Colloid and Interface Science. 2017;487:444-57.
- B16.** Charisiou ND, Papageridis KN, Siakavelas G, **Tzounis L**, Goula MA. Effect of Active Metal Supported on SiO₂ for Selective Hydrogen Production from the Glycerol Steam Reforming Reaction. Bioresources 11(4), 10173-10189, 2016.
- B17.** Borges BGAL, Veiga AG, **Tzounis L**, Laskarakis A, Logothetidis S, Rocco MLM. Molecular Orientation and Ultrafast Charge Transfer Dynamics Studies on the P3HT:PCBM Blend. The Journal of Physical Chemistry C. 2016;120(43):25078-82.
- B18.** N.D. Charisiou, G. Siakavelas, K.N. Papageridis, A. Baklavaridis, **L. Tzounis**, K. Polychronopoulou, M.A. Goula*. Hydrogen production via the glycerol steam reforming reaction over nickel supported on alumina and lanthana-alumina catalysts. International Journal of Hydrogen Energy, 42(18):13039-13060, 2017.
- B19.** Marcos Felisberto, **Lazaros Tzounis**, Leandro Sacco, Roberto Candal, Gerardo H. Rubiolo, Silvia Goyanes. Carbon Nanotubes Grown on Carbon Fiber Yarns by a Low Temperature CVD Method: A Significant Enhancement of the Interfacial Adhesion Between Carbon Fiber/Epoxy Matrix Hierarchical Composites. Composite Communications. 3, 33-37, 2017.
- B20.** **Lazaros Tzounis***, Shreya Herlekar, Antonios Tzounis, Nikolaos D. Charisiou, Maria Goula, Manfred Stamm. Halloysite nanotubes non-covalently functionalised with SDS anionic surfactant and PS-b-P4VP block copolymer for their effective dispersion in Polystyrene as UV-blocking nanocomposite films. Journal of Nanomaterials. Volume 2017 (2017), Article ID 3852310, 11 pages.
- B21.** P. N.D. Charisiou, K.N. Papageridis, G. Siakavelas, **L. Tzounis**, K. Kousi, M.A. Baker, S.J. Hinder, K. Polychronopoulou, M.A Goula*. Glycerol steam reforming for hydrogen production over nickel supported on alumina, zirconia and silica catalysts. Topics in Catalysis. 1-25, 2017.
- B22.** M.A Goula, N.D. Charisiou, G. Siakavelas, **L. Tzounis**, I. Tsiaoussis, P. Panagiotopoulou, G. Goula, I.V. Yentekakis. Syngas production via the biogas dry reforming reaction over Ni supported on zirconia modified with CeO₂ or La₂O₃ catalysts. International Journal of Hydrogen Energy. 42(19):13724-13740, 2017.
- B23.** Zoi Terzopoulou, Dimitra Patsiaoura, Dimitrios G. Papageorgiou, Eleni Pavlidou, Konstantinos Chrissafis, **Lazaros Tzounis**, George Z. Papageorgiou, Dimitrios N. Bikiaris. Effect of MWCNTs and their modification on crystallization and thermal degradation of poly(butylene naphthalate). Thermochimica Acta. 656:59-69, 2017.
- B24.** Nikolaos D. Charisiou, Georgios Siakavelas, Kyriakos N. Papageridis, Apostolos Baklavaridis, **Lazaros Tzounis**, Matina Goula, Ioannis V Yentekakis, Kyriaki Polychronopoulou, Maria A. Goula. The effect of WO₃ modification of ZrO₂ support on the Ni-catalysed dry reforming of biogas reaction for syngas production. Frontiers in Environmental Science, section Wastewater Management. 5:66, 2017.
- B25.** **L. Tzounis***, S. Pegel, N. E. Zafeiropoulos, A. Avgeropoulos, A. Paipetis, M. Stamm. Shear alignment of a Poly(styrene-butadiene-styrene) triblock copolymer/MWCNT nanocomposite. Polymer. 131:1-9, 2017.

- B26.** L. Tzounis*, M. Hegde, M. Liebscher, T. Dingemans, A. S. Paipetis, N. Zafeiropoulos, M. Stamm, P. Pötschke**. Polyetherimide/SWCNT all-aromatic high-performance nanocomposites for thermal energy harvesting applications: Effect of crystallinity on the performance. Composites Science and Technology. 156:158-165, 2018.
- B27.** B.G.A.L. Borges, A.G. Veiga, M. Gioti, A. Laskarakis, L. Tzounis, S. Logothetidis, M.L.M. Rocco. Surface, interface and electronic properties of F8:F8BT polymeric thin films used for OLED applications. Polymer International. 67:691-699, 2018.
- B28.** Tsirka K., Tzounis L., Liebscher M., Paipetis A. S. Optimal synergy between micro and nano scale: Hierarchical all carbon composite fibers for enhanced stiffness, interfacial shear strength and Raman strain sensing. Composites Science and Technology. 165:240-249, 2018.
- B29.** C. Pitsalidis, M. Ferro, D. Iandolo, L. Tzounis, S. Inal, R. M. Owens. Transistor in a tube: A route to three-dimensional bioelectronics. Science Advances. 4:10, 2018.
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- B32.** P. Bangeas, K. Drevelegas, C. Agorastou, L. Tzounis, A. Horti, D. Paramythiotis, A. Michalopoulos, G. Tsoulfas, V. N. Papadopoulos, A. Exadaktylos, J. S. Suri. Three-dimensional printing as an educational tool in colorectal surgery. Frontiers In Bioscience - Elite. Landmark. 11(1):29-37, 2019.
- B33.** ND Charisiou, KN Papageridis, L Tzounis, V Sebastian, SJ Hinder, MA Baker, M AlKetbi, K Polychronopoulou, MA Goula. Ni supported on CaO-MgO-Al₂O₃ as a highly selective and stable catalyst for H₂ production via the glycerol steam reforming reaction. International Journal of Hydrogen Energy. 44(1):256-273, 2019.
- B34.** ND Charisiou, L Tzounis, V Sebastian, SJ Hinder, MA Baker, K Polychronopoulou, MA Goula. Investigating the correlation between deactivation and the carbon deposited on the surface of Ni/Al₂O₃ and Ni/La₂O₃-Al₂O₃ catalysts during the biogas reforming reaction. Applied Surface Science. 474, 42-56, 2019.
- B35.** L. Tzounis, M. Zappalorto, L. Maragoni, F. Panozzo, K Tsirka, A.S. Paipetis, M. Quaresimin. Highly conductive ultra-sensitive SWCNT-coated glass fiber reinforcements for laminate composites structural health monitoring. Composites Part B: Engineering. 169, 37-44, 2019.
- B36.** L. Tzounis*, M. Liebscher, R. Fuge, A. Leonhardt, V. Mechtecherine. P- and n-type thermoelectric cement composites with CVD grown p- and n-doped Carbon nanotubes: Demonstration of a structural thermoelectric generator. Energy and Buildings. 191, 151-163, 2019.
- B37.** Huanyu Li, Marco Liebscher, Majid Ranjbarian, Simone Hempel, Lazaros Tzounis, Christof Schröfl, Viktor Mechtecherine. Electrochemical modification of carbon fiber yarns in cementitious pore solution for an enhanced interaction towards concrete matrices. Applied Surface Science. 487, 52-58, 2019.
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- B39.** Lazaros Tzounis, Manolo Doña, Manuel Lopez-Romero, Andreas Ferry*, Rafael Contreras-Caceres**. Temperature controlled catalysis by core-shell-satellite AuAg@pNIPAM@Ag hybrid microgels: A highly efficient catalytic thermo-responsive nanoreactor. ACS Appl. Mater. and Interfaces. 11, 32, 29360–29372, 2019.
- B40.** Nikolaos D. Charisiou, Savvas L. Douvartzides, Georgios I. Siakavelas, Lazaros Tzounis, Victor Sebastian, Vlad Stolojan, Steven J. Hinder, Mark A. Baker, Kyriaki Polychronopoulou, Maria A. Goula.

The relationship between reaction temperature and carbon deposition on nickel catalysts based on Al₂O₃, ZrO₂ or SiO₂ supports during the biogas dry reforming reaction. Catalysts. 9(8), 676, 2019.

- B41.** Georgios Foteinidis, Kyriaki Tsirka, **Lazaros Tzounis**, Dimitrios Baltzis, Alkiviadis S. Paipetis. Electrical impedance and mechanical study in nano-modified resin for various dispersion protocols. Applied Sciences. 9(18), 3757, 2019.
- B42.** Nikolaos D Charisiou, Georgios Siakavelas, **Lazaros Tzounis**, Binlin Dou, Victor Sebastian, Steven J Hinder, Mark A Baker, Kyriaki Polychronopoulou, Maria Goula. Ni/Y₂O₃-ZrO₂ catalyst for hydrogen production through the glycerol steam reforming reaction. International Journal of Hydrogen Energy. 45 (17), 10442-10460, 2020.
- B43.** Kumarjyoti Roy, Subhas Chandra Debnath, **Lazaros Tzounis**, Aphiwat Pongwisuthiruchte, Pranut Potiyaraj. Effect of various surface treatments on the performance of jute fibres filled natural rubber (NR) composites. Polymers. 12, (2), 369, 2020.
- B44.** George Karalis, Christos Mytafides, Anastasia Polymerou, Kyriaki Tsirka, **Lazaros Tzounis**, Leonidas N Gergidis, Alkiviadis S. Paipetis. Hierarchical Reinforcing Fibers for Energy Harvesting Applications-A Strength Study. Key Engineering Materials 827. 252-257, 2020
- B45.** **Lazaros Tzounis***, Petros I. Bangeas, Aristomenis Exadaktylos, Markos Petousis, Nektarios Vidakis**. Three-dimensional printed Polylactic acid (PLA) surgical retractors with sonochemically immobilized silver nanoparticles: The next generation of low-cost antimicrobial surgery equipment. Nanomaterials. 10(5): 985, 2020.
- B46.** **Lazaros Tzounis***, Markos Petousis, Marco Liebscher**, Sotirios Grammatikos, Nektarios Vidakis. Three-dimensional (3D) conductive network of CNT-modified short jute fibers reinforced natural rubber: Hierarchical CNT-enabled thermoelectric and electrically conductive composite interfaces. Materials. 13(11), 2668, 2020.
- B47.** Nektarios Vidakis, Markos Petousis*, Emmanouel Velidakis and **Lazaros Tzounis**. The Response of the Hellenic 3D-Printing Community over the COVID-19 Pandemics: The Success Story of the Hellenic Mediterranean University. American Journal of Biomedical Science & research. Pages: 199-203, 2020 - 9(3). AJBSR.MS.ID.001386. DOI:10.34297/AJBSR.2020.09.
- B48.** **Lazaros Tzounis***, Markos Petousis, Nektarios Vidakis. 3D printed thermoelectric polyurethane/multiwalled carbon nanotube nanocomposites: A novel approach towards the fabrication of flexible and stretchable organic thermoelectrics. Materials, 13(12), 2879, 2020.
- B49.** Nektarios Vidakis, Markos Petousis, Athena Maniadi, Emmanuel Koudoumas, Marco Liebscher, **Lazaros Tzounis**. Mechanical properties of 3D-Printed Acrylonitrile-Butadiene-Styrene TiO₂ and ATO nanocomposites. Polymers 12 (7), 1589, 2020.
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- B51.** Nektarios Vidakis, Markos Petousis*, Emmanouel Velidakis, Marco Liebscher and **Lazaros Tzounis**. Three-Dimensional Printed Antimicrobial Objects of Polylactic Acid (PLA)-Silver Nanoparticle Nanocomposite Filaments Produced by an In-Situ Reduction Reactive Melt Mixing Process. Biomimetics 5(3), 42, 2020.
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- B57.** Nectarios Vidakis, Markos Petousis, **Lazaros Tzounis**, Athena Maniadi, Emmanuil Velidakis, Nikolaos Mountakis, John Kechagias. Sustainable Additive Manufacturing: Mechanical Response of Polyamide 12 over Multiple Recycling Processes. *Materials* 14 (2), 466, 2021.
- B58.** Christos K. Mytafides*, **Lazaros Tzounis ****, George Karalis, Petr Formanek, Alkiviadis S. Paipetis***. High power all-carbon fully printed and wearable SWCNT-based organic thermoelectric generator. *ACS Appl. Mater. Interfaces* 2021, 13, 9, 11151–11165
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- B61.** George Karalis, **Lazaros Tzounis***, Christos Mytafides, Kyriaki Tsirka, Petr Formanek, Minas Stylianakis, Emmanuel Kymakis, Alkiviadis Paipetis**. A high performance flexible and robust printed thermoelectric generator based on hybridized Te nanowires with PEDOT:PSS. *Applied Energy*, 294, 117004. 2021.
- B62.** George Karalis, **Lazaros Tzounis***, Kyriaki Tsirka, Christos K. Mytafides, Angelos Voudouris Itskaras, Marco Liebscher, Eleftherios Lambrou, Leonidas N. Gergidis, Nektaria-Marianthi Barkoula, Alkiviadis S. Paipetis**. Advanced Glass Fiber Polymer Composite Laminate Operating as a Thermoelectric Generator: A Structural Device for Micropower Generation and Potential Large-Scale Thermal Energy Harvesting. *ACS Appl. Mater. and Interfaces*, 13,20, 2021.
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- B74.** Ioanna Vareli, **Lazaros Tzounis***, Kyriaki Tsirka, Ioannis E. Kavvadias, Marco Liebscher, Anaxagoras Elenas, Leonidas N. Gergidis, Nektaria M. Barkoula, Alkiviadis S. Paipetis**. High performance cement/SWCNT thermoelectric nanocomposites: Fabrication of a structural thermoelectric generator device towards large scale thermal energy harvesting and future green buildings. Journal of Materials Chemistry C 9 (40), 14421-14438, 2021.
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- B77.** Carraro P.A., Paipetis A.S., Pontefisso A., Quaresimin M., **Tzounis L.***, Zappalorto M. Modelling the in-plane thermoelectric properties of fibre-reinforced multi-directional laminates. Composites Science and Technology 218, 109130, 2022.
- B78.** John D. Kechagias; Aristeidis Tsiolikas; Markos Petousis; Konstantinos Ninikas; Nectarios Vidakis; **Lazaros Tzounis**. A robust methodology for optimizing the topology and the learning parameters of an ANN for accurate predictions of laser-cut edges surface roughness. Simulation Modelling Practice and Theory 114, 102414, 2022.
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- B81.** Nectarios Vidakis*, Markos Petousis, Emanuel Velidakis, Nikolaos Mountakis, Peder Erik Fischer-Griffiths, Sotirios A Grammatikos**, **Lazaros Tzounis*****. Fused Filament Fabrication 3D printed polypropylene/alumina nanocomposites: Effect of filler loading on the mechanical reinforcement. Polymer Testing 109, 107545, 2022.

B82. Nectarios Vidakis, Markos Petousis*, Emmanouil Velidakis, **Lazaros Tzounis**, Nikolaos Mountakis, Orsa Boura, Sotirios A Grammatikos**. Multi-functional polyamide 12 (PA12)/ multiwall carbon nanotube 3D printed nanocomposites with enhanced mechanical and electrical properties. *Advanced Composite Materials* 2022, Ahead-of-print, 1-25.

(Submitted/ under review)

B83. Christos K. Mytafides*, **Lazaros Tzounis****, Kyriaki Tsirka, George Karalis, Marco Liebscher, Eleftherios Lambrou, Leonidas N. Gergidis, Alkiviadis S. Paipetis***. The functionalization of hierarchical glass fiber polymer-matrix composite as organic thermoelectric generator (*under review in Materials Today*)

B84. Christos K. Mytafides*, William J. Wright, Raden Gustinvil, **Lazaros Tzounis**, George Karalis, Alkiviadis S. Paipetis, Emrah Celik**. Additive manufacturing of highly conductive single-walled carbon nanotube microarchitectures towards all-carbon flexible thermoelectric generators. (*under review in ACS Appl. Mater. Int.*)

(under preparation)

B85. Marco Liebscher*, **Lazaros Tzounis****, Viktor Mechtecherine. CNT coated basalt fiber yarns as smart reinforcements for crack monitoring and moisture sensing of cementitious matrices (*to be submitted in Cement and Concrete Composites*).

B86. Katsipis G., **L. Tzounis***, Tsirka K., Paipetis A. S, Litsardakis G., Tsolaki M., Pantazaki A.A. Fabrication of a low-cost SWCNT based resistive biosensor for the detection of GFAP protein and early diagnosis of Alzheimer disease (*submitted in Analytica Chimica Acta*)

4C. Papers in Conference Proceedings

C1. He G, **Tzounis L**, Stamm M, Voit B, Pospiech D, Janke A, et al. Controlled synthesis of block copolymers for hybrid thin films with modified Au NPs. 3rd International Conference on Multifunctional, Hybrid and Nanomaterials: Injektion.

C2. **Tzounis L***, Liebscher M, Mäder E, Pötschke P, Stamm M, Logothetidis S. Thermal energy harvesting for large-scale applications using MWCNT-grafted glass fibers and polycarbonate-MWCNT nanocomposites. *AIP Conference Proceedings*. 2015;1646(1):138-48.

C3. Gioti M, Pitsalidis C, Andreopoulou AK, Mparmpoutsis E, **Tzounis L***, Kallitsis JK, et al. Synthesis, characterization and properties of yellow-light-emitting polyethers containing bis(styryl)anthracene units. *AIP Conference Proceedings*. 2015;1646(1):129-37.

C4. Polyzoidis CA, Kapnopoulos C, Mekeridis ED, **Tzounis L**, Tsimikli S, Gravalidis C, et al. Improvement of Inverted OPV Performance by Enhancement of ZnO Layer Properties as an Electron Transfer Layer1. *Materials Today: Proceedings*. 2016;3(3):758-71.

C5. Kapnopoulos C, Mekeridis ED, **Tzounis L***, Polyzoidis C, Tsimikli S, Gravalidis C, et al. Gravure Printed Organic Photovoltaic Modules Onto Flexible Substrates Consisting of a P3HT:PCBM Photoactive Blend1. *Materials Today: Proceedings*. 2016;3(3):746-57.

C6. **Tzounis L***, Gravalidis C, Papamichail A, Logothetidis S. Enhancement of P3HT:PCBM Photovoltaic Shells Efficiency Incorporating Core-shell Au@Ag Plasmonic Nanoparticles1. *Materials Today: Proceedings*. 2016;3(3):832-9.

C7. Goula M, Charisiou N, Siakavelas G, Papageridis K, Avraam D, Baklavaridis A, **Tzounis L**, et al. An experimental and theoretical investigation of the biogas dry reforming reaction over Ni supported on modified with CeO₂ or La₂O₃ zirconia catalysts.

C8. M. D. Perli, V. Karagkiozaki, F. Pappa, I. Moutsios, **L. Tzounis**, A. Zachariadis, C. Gravalidis, A. Laskarakis, S. Logothetidis. Synthesis and Characterization of Ag Nanoparticles for Orthopaedic applications. *Materials Today: Proceedings*. 2017;4(7):6889-6900.

- C9. **L. Tzounis***, C. Gravalidis, S. Vassiliadou, S. Logothetidis. Fiber yarns/CNT hierarchical structures as thermoelectric generators. Materials Today: Proceedings. 2017;4(7):7070-7075.
- C10. **L. Tzounis***, S. Logothetidis. Fe₃O₄@SiO₂ core shell particles as platforms for the decoration of Ag nanoparticles. Materials Today: Proceedings. 2017;4(7):7076-7082.
- C11. **L. Tzounis***, T. Stergiopoulos, A. Zachariadis, C. Gravalidis, A. Laskarakis, S. Logothetidis. Perovskite solar cells from small scale spin coating process towards roll-to-roll printing: Optical and Morphological studies. Materials Today: Proceedings. 2017;4(4):5082-5089.
- C12. Ioannis Tsiaoussis, Nikos D. Charisiou, Maria A. Goula, **Lazaros Tzounis**, George Vourlias, Ioannis V. Yentekakis, Remi Chassagnon, Valerie Potin, Bruno Domenichini. Structural investigation of carbon morphology on Ni/Cerium-Zirconium oxide catalysts used for the biogas dry reforming reaction. Advanced Materials Proceedings. 2017, 2(12), 807-812.
- C13. P. Bangeas, **L. Tzounis**, I. Karolos, E. Stavrides, D. Paramythiotis, A. Michalopoulos, V. Tsioukas, G. Tsoufias, V. Papadopoulos, A. Exadaktylos. Evaluation of three-dimensional printed models in surgical education: a paradigm of a new educational method for the simulation of surgery environment. HPB. 20, Supplement 2, Page S779, 2018.

4D. Conference Oral & Poster Presentations

- D1. **L. Tzounis**, M. Kirsten, E. Mäder, M. Stamm. Study of the surface morphology and electrical properties of glass fibers covalently and non-covalently bonded with MWCNTs. 7th International Conference on nanostructured polymers and nanocomposites. Prague, Czech Republic, 2012 (poster presentation).
- D2. **L. Tzounis**, E. Mäder, M. Stamm. Surface morphologies and interfacial characteristics of glass fibers covalently and non-covalently bonded with MWCNTs. Decoration of SiO₂ nanoparticles onto the grafted CNT-networks. International Workshop on nanocarbon composites - From fundamental to industrial applications. Valencia, Spain, 2012 (poster presentation).
- D3. L. Casaban, **L. Tzounis**, M. Kirsten, P. M. Carrasco, I. Garcia, M. Stamm, J. M. Kenny. Orientation and alignment of Block Copolymers (BCPs)/Carbon nanotubes (CNTs) in thermosetting epoxy resins. International Workshop on nanocarbon composites - From fundamental to industrial applications. Valencia, Spain, 2012 (poster presentation).
- D4. **L. Tzounis**, M. Stamm. Transparent and electrically conductive MWCNT thin films grafted to SiO₂ substrates for sensoric applications. 10th IPF Colloquium on Functional Polymers and Composites for Applications in Organic Electronics and Sensorics (combined with the Industrial Workshop of the European Centre for Nanostructured Polymers, ECNP). Dresden, Germany, 2012 (poster presentation).
- D5. G. He, D. Pospiech, D. Jehnichen, A. Janke, **L. Tzounis**, M. Stamm, B. Voit. Controlled synthesis of block copolymers for hybrid thin films with modified Au NPs. 3rd International Conference on Multifunctional, Hybrid and Nanomaterials, Hybrid Materials 2013, Sorrento, Italy, 03/03/2013 - 03/07/2013 (oral presentation).
- D6. **L. Tzounis**, F. Simon, E. Mäder, M. Stamm. CNT-based nanostructured glass fiber coatings for novel composites with multi-functional interphases. Eurofillers 2013 – 10th anniversary meeting. Bratislava, Slovakia, 2013 (oral presentation).
- D7. M. Liebscher, **L. Tzounis**, W. Jenschke, M. T. Müller, M. Stamm, P. Pötschke. Thermoelectric energy harvesting with highly conductive CNT-filled polycarbonate composites prepared by melt-mixing. 6th International Conference on Carbon Nanoparticle Based Composites (CNPComp2013). Dresden, Germany, 2013 (poster presentation).
- D8. D. Fischer, H. Kreyenschulte, M. Liebscher, V. S. Raman, A. Das, **L. Tzounis**. Raman spectroscopy and Raman imaging applications for the investigation of carbon based polymer composites. 6th International Conference on Carbon Nanoparticle Based Composites (CNPComp2013). Dresden, Germany, 2013 (oral presentation).
- D9. M. Liebscher, **L. Tzounis**, P. Pötschke. Variation of the viscosity ratio of PC / SAN blends with MWCNTs: Investigation on morphology, electrical and rheological properties. 6th International

Conference on Carbon Nanoparticle Based Composites (CNPComp2013). Dresden, Germany, 2013 (oral presentation).

- D10.** L. Tzounis, E. Mäder, M. Stamm. Hybrid nanostructured interphases of glass fiber polymer composites with unique mechanical and electrical properties. 6th International Conference on Carbon Nanoparticle Based Composites (CNPComp2013). Dresden, Germany, 2013 (poster presentation; **winner of the first poster award**).
- D11.** M. Liebscher, L. Tzounis, P. Pötschke. Variation of the viscosity ratio of PC / SAN blends with MWCNTs: Investigation on morphology, electrical and rheological properties. 6th International Conference on Carbon Nanoparticle Based Composites (CNPComp2013). Dresden, Germany, 2013 (oral presentation).
- D12.** G. He, L. Tzounis, M. Stamm, B. Voit, D. Pospiech, A. Janke, D. Jehnichen. Controlled synthesis of block copolymers for hybrid thin films with modified Au NPs. Injektion, 2013 (oral presentation).
- D13.** D. G. Papageorgiou, E. Roumeli, L. Tzounis, E. Pavlidou, D. N. Bikiaris, K. Chrissafis. Effect of MWCNTs on thermal degradation kinetics of a propylene-ethylene random copolymer matrix. International Conference on thermal stability of polymer materials. Germany, 2014 (oral presentation).
- D14.** L. Tzounis, M. Liebscher, E. Mäder, P. Pötschke, M. Stamm. Thermal energy harvesting for large-scale applications using CNT-grafted glass fibers and Polycarbonate/MWCNT nanocomposites. INTERNATIONAL CONFERENCES AND EXHIBITION ON NANOTECHNOLOGIES AND ORGANIC ELECTRONICS (NANOTEXNOLOGY 2014). Thessaloniki, Greece, 2013 (oral presentation).
- D15.** L. Tzounis, M. Liebscher, E. Mäder, P. Pötschke, M. Stamm, S. Logothetidis. Thermal energy harvesting for large-scale applications using MWCNT-grafted glass fibers and polycarbonate-MWCNT nanocomposites. INTERNATIONAL CONFERENCES AND EXHIBITION ON NANOTECHNOLOGIES AND ORGANIC ELECTRONICS (NANOTEXNOLOGY 2014): Proceedings of NN14 and ISFOE14, vol. 1646: AIP Publishing, 2015. pp. 138-148.
- D16.** M. Gioti, C. Pitsalidis, A. Andreopoulou, E. Mparmpoutsis, L. Tzounis, J. Kallitsis, S. Logothetidis. Synthesis, characterization and properties of yellow-light-emitting polyethers containing bis (styryl) anthracene units. INTERNATIONAL CONFERENCES AND EXHIBITION ON NANOTECHNOLOGIES AND ORGANIC ELECTRONICS (NANOTEXNOLOGY 2014): Thessaloniki, Greece, 2013 (oral presentation).
- D17.** M. Gioti, C. Pitsalidis, A. Andreopoulou, E. Mparmpoutsis, L. Tzounis, J. Kallitsis, S. Logothetidis. Synthesis, characterization and properties of yellow-light-emitting polyethers containing bis (styryl) anthracene units. INTERNATIONAL CONFERENCES AND EXHIBITION ON NANOTECHNOLOGIES AND ORGANIC ELECTRONICS (NANOTEXNOLOGY 2014): Proceedings of NN14 and ISFOE14, vol. 1646: AIP Publishing, 2015. pp. 129-137.
- D18.** M. Gioti, C. Pitsalidis, C. Koidis, C. I. Chaidou, L. Tzounis, S. Tsimikli, C. Kapnopoulos, C. Polizoidis, C. Gravalidis, A. Laskarakis, S. Logothetidis. Gravure printed green emitting polymer on PET/ITO flexible substrates for OLED applications. EMRS 2015 Lille France: SPRING 15 I Semiconductor nanostructures towards electronic & opto-electronic device applications V (oral presentation).
- D19.** E. Chatzigeorgiou, A. Papamichail, N. Kalfagiannis, L. Tzounis, M. Seitanidou, S. Logothetidis. Comparison of Silver Nanoparticles from LASER annealing and polyol synthesis embedded in PEDOT:PSS matrix for light harvesting and memory applications. EMRS 2015 Lille France: SPRING 15 H Nanoparticles in dielectric matrix for electronics and optics: from the fabrication to the devices (poster presentation).
- D20.** L. Tzounis, C. Gravalidis, A. Papamichail, I. Tsiaousis, C. Haidou, M. Gioti, A. Laskarakis, S. Logothetidis. Extensive morphological and structural studies of perovskite based thin films for photovoltaic applications. EMRS 2015 Lille France: Materials design and processing concepts for efficient and stable organic, hybrid, perovskite and dye solar cells (poster presentation).
- D21.** L. Tzounis, C. Gravalidis, P. Pötschke, E. Mäder, M. Stamm, S. Logothetidis. Thermal energy harvesting for large-scale applications using polymer/CNT nanocomposites and fiber/CNT hierarchical structures. EMRS 2015 Lille France: SPRING 15 A: Materials, mechanisms and devices in nano energy (poster presentation).

- D22.** C. Kapnopoulos, E. D. Mekeridis, **L. Tzounis**, C. Polyzoidis, S. Tsimikli, C. Gravalidis, A. Zachariadis, A. Laskarakis, S. Logothetidis. Gravure printed organic photovoltaic modules onto flexible substrates consisting of a P3HT:PCBM photoactive blend. 12th International Conference on Nanosciences & Nanotechnologies & 8th International Symposium on Flexible Organic Electronics (NN15) (oral presentation).
- D23.** **L. Tzounis**, C. Gravalidis, A. Papamichail, S. Logothetidis. Enhancement of P3HT:PCBM photovoltaic shells efficiency incorporating core-shell Au@Ag plasmonic nanoparticles. 12th International Conference on Nanosciences & Nanotechnologies & 8th International Symposium on Flexible Organic Electronics (NN15) (oral presentation).
- D24.** **L. Tzounis**, C. Gravalidis, A. Papamichail, I. Tsiaousis, M. Gioti, A. Laskarakis, S. Logothetidis. Extensive morphological and structural studies of perovskite based thin films for photovoltaic applications. 8th International Symposium on Flexible Organic Electronics (ISFOE15) 6-9 July 2015, Thessaloniki, Greece (poster presentation).
- D25.** **L. Tzounis**, C. Polizoidis, C. Kapnopoulos, S. Logothetidis. SWCNT electrodes printed by gravure on PET flexible foils and optimisation of the coating parameters. 12th International Conference on Nanosciences & Nanotechnologies & 8th International Symposium on Flexible Organic Electronics (NN15) (poster presentation).
- D26.** C. Polizoidis, **L. Tzounis**, C. Kapnopoulos, A. Laskarakis, S. Logothetidis. Improvement of inverted OPV performance by enhancement of ZnO layer properties as an electron transfer layer. 12th International Conference on Nanosciences & Nanotechnologies & 8th International Symposium on Flexible Organic Electronics (ISFOE15) (oral presentation).
- D27.** D. Arvaniti, V. Karagkiozaki, A. Papamichail, D. G. Fatouros, **L. Tzounis**, Th. Choli-Papadopoulou, S. Logothetidis. Synthesis and functionalization of Gold Nanoparticles. 12th International Conference on Nanosciences & Nanotechnologies & 8th International Symposium on Flexible Organic Electronics (ISFOE15) (poster presentation).
- D28.** **L. Tzounis**, C. Gravalidis, S. Logothetidis. Thermal energy harvesting for large-scale applications using fiber/CNT hierarchical structures. 12th International Conference on Nanosciences & Nanotechnologies & 8th International Symposium on Flexible Organic Electronics (NN15) (oral presentation).
- D29.** **L. Tzounis**, A. S. Paipetis, E. Mäder, M. Stamm. Multifunctional Composite Interphases with SiO₂ and Fe₃O₄ magnetic nanoparticles attached onto MWCNT-grafted Glass Fibers: A total enhancement of interfacial adhesion strength studied by single fiber pull-out tests. 17th International Conference on Experimental Mechanics (ICEM 17) July 3-7, 2016, Rhodes, Greece (oral presentation).
- D30.** **L. Tzounis**, A. S. Paipetis, E. Mäder, M. Stamm. Glass fibers grafted with carbon nanotubes as a smart tool for the epoxy cure monitoring, UV-sensing and thermal energy harvesting of model composites. 17th International Conference on Experimental Mechanics (ICEM 17) July 3-7, 2016, Rhodes, Greece.
- D31.** **L. Tzounis**, T. Stergiopoulos, A. Zachariadis, C. Gravalidis, A. Laskarakis, S. Logothetidis. Perovskite solar cells from small scale spin coating process towards roll-to-roll printing: Optical and Morphological studies. 13th International Conference on Nanosciences & Nanotechnologies & 9th International Symposium on Flexible Organic Electronics, July 2016 (oral presentation).
- D32.** **L. Tzounis**, C. Gravalidis, S. Vassiliadou, S. Logothetidis. Fiber yarns/CNT hierarchical structures as thermoelectric generators 13th International Conference on Nanosciences & Nanotechnologies & 9th International Symposium on Flexible Organic Electronics, July 2016 (oral presentation).
- D33.** **L. Tzounis**, S. Logothetidis. Fe₃O₄@SiO₂ core shell particles as platforms for the decoration of Ag nanoparticles. 13th International Conference on Nanosciences & Nanotechnologies & 9th International Symposium on Flexible Organic Electronics, July 2016 (oral presentation).
- D34.** **L. Tzounis**, S. Herlekar, A. Tzounis, C. Gravalidis, S. Logothetidis. Halloysite nanotubes dispersed in Polystyrene as UV-blocking nanocomposite films. 13th International Conference on Nanosciences & Nanotechnologies & 9th International Symposium on Flexible Organic Electronics, July 2016 (poster presentation).
- D35.** **L. Tzounis**, C. Polizoidis, S. Vassiliadou, C. Gravalidis, S. Logothetidis. Ultrathin SWCNT electrodes printed by gravure on PET flexible foils and optimisation of the coating parameters. 13th International

Conference on Nanosciences & Nanotechnologies & 9th International Symposium on Flexible Organic Electronics, July 2016 (poster presentation).

- D36.** C. Kapnopoulos, D. Pappas, E. Mekeridis, A. Zachariadis, **L. Tzounis**, V. Matskos, A. Laskarakis and S. Logothetidis. Roll-to-Roll manufacturing of Organic Photovoltaics in pilot line with laser patterning and optical metrology for quality control. 13th International Conference on Nanosciences & Nanotechnologies & 9th International Symposium on Flexible Organic Electronics, July 2016 (oral presentation).
- D37.** P. Bangeas, **L. Tzounis**, V. Karagkiozaki, S. Logothetidis. 3D printed PLA surgery equipment with enhanced antimicrobial properties. 13th International Conference on Nanosciences & Nanotechnologies & 9th International Symposium on Flexible Organic Electronics, July 2016 (oral presentation).
- D38.** M.A. Goula, N.D. Charisiou, G. Siakavelas, K.N. Papageridis, D.G. Avraam, A. Baklavaridis, **L. Tzounis**, P. Panagiotopoulou, I.V. Yentekakis. An experimental and theoretical investigation of the biogas dry reforming reaction over Ni supported on modified with La₂O₃ or CeO₂ zirconia catalysts. 3rd International Symposium on Catalysis for Clean Energy and Sustainable Chemistry, Madrid (Spain) 7th to 9th September, 2016 (oral presentation).
- D39.** Katsipis G, **Tzounis L.**, Litsardakis G., Tsolaki M., Pantazaki A.A. Immunosensor Construction for Detection of Glial Fibrillary Acidic protein (GFAP) in Alzheimer's disease patients' biological fluids. 10th Panhellenic Conference of Alzheimer's Disease and Related Disorders (PICAD) and 2nd Mediterranean Conference of Neurodegenerative Diseases (MeCOND) (oral presentation).
- D40.** N.D. Charisiou, G. Siakavelas, K. Papageridis, D.G Avraam, **L. Tzounis**, K. Polychronopoulou, M.A. Goula. Hydrogen production from the steam reforming of glycerol over Ni catalysts supported on Al₂O₃ and AlCeO₃. Europacat, Florence (Italy) 27th to 31st August, 2017
- D41.** I .Tsiaoussis*, N.D. Charisiou, M.A. Goula, **L. Tzounis**, I.V. Yentekakis, Bruno Domenichini. Structural investigation of carbon morphology on Ni/Cerium-Zirconium oxide catalysts used for the biogas dry reforming reaction. European Advanced Materials Congress, Stockholm, Sweden, 2017 (oral presentation).
- D42.** N. D. Charisiou, K. Papageridis, S. Stavrou, **L. Tzounis**, I.V. Yentekakis, M.A Goula. Hydrogen rich mixtures via the dry reforming of biogas over La₂O₃-modified Ni/Al₂O₃ catalysts: Insights into the formation of carbon. Conference: AEM 2017 (3rd International conference on Hydrogen Energy), At Guilford Surrey, England (oral presentation).
- D43.** N. D. Charisiou, K. Papageridis, **L. Tzounis**, M. A. Baker, S. J. Hinder, K. Polychronopoulou, M.A Goula. Hydrogen production via the glycerol steam reforming reaction over Ni catalyst supported on CaO-MgO-Al₂O₃. Conference: AEM 2017 (3rd International conference on Hydrogen Energy), At Guilford Surrey, England (oral presentation).
- D44.** I. Tsiaoussis*, N. D. Charisiou, M. A. Goula, **L. Tzounis**, I. V. Yentekakis, G. Vourlias, R. Chassagnon, B. Domenichini. Structural investigation of carbon morphology on Ni/Lanthanum-Zirconium oxide catalysts used for the biogas dry reforming reaction. 14th International Conference on Nanosciences & Nanotechnologies (NN17), At Thessaloniki, Greece (oral presentation).

4E. Books (Book Chapters)

- E1.** **Tzounis L.** (2019), "Synthesis and Processing of Thermoelectric Nanomaterials, Nanocomposites and Devices". Book chapter under review. Book title: Nanomaterials Synthesis: Design, Fabrication and Applications" **Sabu Nanomaterials Book**, published by Elsevier
- E2.** **Tzounis L.*** (2019), "Organic Thermoelectrics and Thermoelectric Generators (TEGs)". Book chapter accepted. Book title: Advanced Thermoelectric Materials for Energy Harvesting Applications" **Saim Memon**, published by IntechOpen.
- E3.** KE Giannoulis, **L Tzounis***, P Bangeas. "3D printing and pancreatic surgery", Book title: 3D Printing: Applications in Medicine and Surgery Volume 2, 101-127, 2022.
- E4.** **L Tzounis***, P Bangeas. "3D printing and nanotechnology", Book title: 3D Printing: Applications in Medicine and Surgery Volume 2, 7-26, 2022.