

# Curriculum vitae

<b>Name:</b>	Nikolaos Aravantinos-Zafiridis
<b>Date of birth:</b>	2 May 1979
<b>Place of birth:</b>	Argostoli, Kefalonia
<b>Citizenship:</b>	Hellenic
<b>Marital status:</b>	Married, 2 children
<b>Compulsory Military Service:</b>	Fulfilled
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## UNIVERSITY EDUCATION

3/2009 – 7/2014	PhD in Materials Science, Materials Science Department, University of Patras, Greece. Title of Thesis: Photonic and Phononic Materials. Supervisor: Professor Michael Sigalas.
9/2004 – 9/2007	MSc in Applied Physics, Physics Department, University of Patras, Greece
9/1999 – 4/2004	4-year BSc (Ptyhion) in Physics, Physics Department, University of Patras, Greece (Ranked first in my year)

## EMPLOYMENT

7/5/2019-παρόν	<b>Assistant Professor</b> <i>Sound and Musical Instruments Technology Department (Former Ionian Islands Technological Educational Institute) and integration to the Department of Environment at Ionian University</i>
10/2014 – 7/05/2019	<b>Assistant Professor (fixed term)</b> <i>Sound and Musical Instruments Technology Department, Ionian Islands Technological Educational Institute, Lixouri, Greece</i>
10/2010 – 2/2011	<b>Lecturer (fixed term)</b> <i>Sound and Musical Instruments Technology Department, Ionian Islands Technological Educational Institute, Lixouri, Greece</i>
10/2009 – 7/2010	<b>Lecturer (fixed term)</b> <i>Sound and Musical Instruments Technology Department, Ionian Islands Technological Educational Institute, Lixouri, Greece</i>
10/2007 – 7/2008	<b>Lecturer (fixed term)</b>

11/2006 – 11/2007

*Sound and Musical Instruments Technology Department, Ionian Islands Technological Educational Institute, Lixouri, Greece  
Compulsory Military Service*

## **TEACHING EXPERIENCE**

I have fully taught 8 undergraduate courses at the Sound and Musical Instruments Technology Department of the Ionian Islands Technological Educational Institute.

## **MEMBER OF DEPARTMENTAL COMITEES**

1. Member of the comitee of qualitative and quantitative receipt of the project "Supply of measuring instruments and program BIAS to meet the needs of the laboratories of School of Music Technology at Lixouri" with total budget 14.268€ VAT included (2014). (Decision Number of the Governing Board of Technological Educational Institute of the Ionian Islands: 35/2014)
2. Member of the comitee of Internship Program of the Sound and Musical Instruments Technology Department of the Ionian Islands Technological Educational Institute (19/2/2016 – today). (Decision Number of the Governing Board of Technological Educational Institute of the Ionian Islands:6/2016 and 31/2016)
3. Member of the comitee of entry exams for graduates of other disciplines at the Sound and Musical Instruments Technology Department of the Ionian Islands Technological Educational Institute for the academic year 2015-2016. (Decision Number of the Governing Board of Technological Educational Institute of the Ionian Islands:39/2015)
4. Member of the comitee of entry exams for graduates of other disciplines at the Sound and Musical Instruments Technology Department of the Ionian Islands Technological Educational Institute for the academic year 2014-2015. (Decision Number of the Governing Board of Technological Educational Institute of the Ionian Islands:40/2014)

## **RESEARCH INTERESTS**

My research interests cover a wide range of issues surrounding the Theoretical and Computational Study of Electromagnetic and/or Elastic/Acoustic Propagation through Materials and Structures as well as the Interaction of Matter and Radiation. My research activity focuses more on Structures that can be directly tested and can be the basis for technological applications. More specific topics of research interest are the following:

- Computational study of Phononic and Photonic Materials.
- Metamaterials.
- Computational study of structures proper for seismic isolation.
- Optical interconnects.
- Acoustic properties of materials.
- Electromagnetically induced transparency.
- Practical systems for quantum computation.

## **REFEREEING SERVICES**

Scientific Journals:

- Journal of Applied Physics
- Journal of Optics and Laser Technology

## RESEARCH PROJECTS

16/07/2019 – present

Research Project *RESEARCH – CREATE – INNOVATE*. Title: **“Applications of Phononic Materials and Metamaterials in Earthquake Engineering”** (PHoMEE), which is co-financed by the European Union and Greek national funds through the Operational Program Competitiveness, Entrepreneurship and Innovation (project code:TIEDK-00185). Member of the proposal submission and research team member. Project leader Professor C. C. Spyrakos

1/3/2011 – 31/12/2013

Research Project **“Support of Research, Technology and Innovation Services of University of Patras: Photonic materials and Structures for Optical Interconnects”**. Regional Administration of West Greece and Ionian Islands. Research team member. Project leader Associate Prof. M. Sigalas. Budget 33.000€.

1/4/2005 – 31/12/2005

Research Project Pythagoras II **“Controlled Dynamics of Nanostructures and Applications in Quantum Computation”**. Ministry of Education and Religion. Research team member. Project leader Associate Prof. E. Paspalakis. Budget 84.900€.

1/1/2005 – 30/4/2005

Research Project Arhemedes II **“Optical Transparency and Applications in Systems of Semiconductor Quantum Wells and Quantum Dots”**, Ministry of Education and Religion. Research team member. Project leader Prof. J. Boviatsis. Budget 60.000€.

## PUBLICATIONS IN INTERNATIONAL REFEREED SCIENTIFIC JOURNALS

1. **N. Aravantinos-Zafiris** and E. Paspalakis, ‘*Influence of the asymmetry of the potential in the dynamics of a two-level SQUID qubit*’, *Physical Review A* **72**, 014303 (2005). Selected at:
  - *Virtual Journal of Quantum Information* **5** (7), 128 (2005).
  - *Virtual Journal of Nanoscale Science and Technology* **12** (4), 120 (2005).
  - *Virtual Journal of Applications of Superconductivity* **9** (2), 4 (2005).
2. **N. Aravantinos-Zafiris** and M.M. Sigalas, “Band gaps in phononic strip waveguides”, *Journal of Applied Physics* **111**, 123516 (2012)
3. **N. Aravantinos-Zafiris** and M.M. Sigalas, “Band gaps in 3D layer-by-layer phononic crystal”, *Journal of Vibration and Acoustics* **135**, 041003 (2013)
4. **N. Aravantinos-Zafiris** and M.M. Sigalas, “Phononic Band Gaps in Graphene-Like Materials and Nanotubes”, *Journal of Surfaces and Interfaces of Materials* **1**, 184 (2013)
5. **N. Aravantinos-Zafiris** and M.M. Sigalas, “Light Confinement in Low Index Nanometer Areas”, *World Academy of Science Engineering and Technology* **6**, (2012)
6. **N. Aravantinos-Zafiris**, M.M. Sigalas and E.N. Economou, “Elastodynamic behavior of the three dimensional layer-by-layer metamaterial structure”, *Journal of Applied Physics* **116**, 133503 (2014)
7. Aris P. Sgouros, Mahesh R. Neupane, M. M. Sigalas, **N. Aravantinos-Zafiris** and Roger K. Lake, “Nanoscale Phononic Interconnects in THz frequencies”, *Physical Chemistry Chemical Physics* **16**, 23355 (2014)
8. **N. Aravantinos-Zafiris**, M. M. Sigalas, M. Kafesaki and E. N. Economou, “Phononic crystals and elastodynamics: Some relevant points”, *AIP Advances* **4**, 124203 (2014)
9. **N. Aravantinos-Zafiris** and M.M. Sigalas, “Large scale phononic metamaterials for seismic isolation”, *Journal of Applied Physics* **118**, 064901 (2015)
10. A.Konstantopoulou, **N. Aravantinos-Zafiris** and M.M. Sigalas, “The Yablonovite Structure as a Three-Dimensional Phononic Crystal”, *Advanced Science Engineering and Medicine* **11**, 198-203 (2019)
11. A.Konstantopoulou, **N. Aravantinos-Zafiris** and M.M. Sigalas, “Wide Phononic Band Gaps in the Yablonovite structure with spheres”, *Acta Acustica united with Acustica* **105**, 326-333 (2019)

## POSTER PRESENTATIONS

1. **N. Aravantinos-Zafiris** and E. Paspalakis, “Dynamics of a two-level SQUID qubit: effects of the asymmetry of the potential”, Workshop on Quantum Probability and Information, Patras May 20-21 2005
2. **N. Aravantinos-Zafiris** and E. Paspalakis, “Effects of the asymmetry of the potential on the dynamics of a two-level SQUID qubit”, *21<sup>st</sup> Panhellenic Conference on Solid State Physics and Materials Science*, Nicosia, Cyprus, August 28-31 2005
3. A.Konstantopoulou, **N. Aravantinos-Zafiris** and M.M. Sigalas, “Applications of Phononic Materials in Vibration Control”, COST Action CA15125 Workshop 6 “Industrial days on new acoustic treatments, acoustic metamaterials and sonic crystals”, Athens, Greece (2019)

## PUBLICATIONS IN EXTENDED REFEREED CONFERENCE PROCEEDINGS

1. **N. Aravantinos-Zafiris** and M.M. Sigalas, “Phononic crystal sensors”, *1st International Conference on Phononic Crystals, Metamaterials & Optomechanics, Phononics 2011*, Santa Fe, New Mexico USA
2. **N. Aravantinos-Zafiris** and M.M. Sigalas, “Phononic band gaps in grapheme with germanium defects”, *XXVIII Panhellenic Conference on Solid State Physics and Materials Science*, Patras 2012
3. **N. Aravantinos-Zafiris** and M.M. Sigalas, “Light Confinement in Low Index Nanometer Areas”, *International Conference on Optics and Photonics, World Academy of Science Engineering and Technology*, Venice (2012)
4. **N. Aravantinos-Zafiris** and M.M. Sigalas, “Bandgaps in phononic strip waveguides with defects”, *2nd International Conference on Phononic Crystals/Metamaterials, Phonon Transport & Optomechanics, Phononics 2013*, Sharm El-Sheikh, Egypt
5. **N. Aravantinos-Zafiris** and M.M. Sigalas, “Phononic Band Gaps in Graphene-Like Materials and Nanotubes”, *2nd International Conference on Phononic Crystals/Metamaterials, Phonon Transport & Optomechanics, Phononics 2013*, Sharm El-Sheikh, Egypt
6. **N. Aravantinos-Zafiris**, “Applications of large scale phononic metamaterials for seismic isolation”, *International Conference and School of Seismology*, Lixouri Kefalonia, Greece (2016)

7. A.Konstantopoulou, **N. Aravantinos-Zafiris** and M.M. Sigalas, “Phononic Vibration Absorber on a parallel level set-up”, *9<sup>th</sup> Panhellenic Conference “Acoustics 2018”*, Patras, Greece
8. A.Konstantopoulou, **N. Aravantinos-Zafiris** and M.M. Sigalas, “Applications of Phononic Materials in Vibration Absorption”, *9<sup>th</sup> Panhellenic Conference “Acoustics 2018”*, Patras, Greece
9. A.Konstantopoulou, **N. Aravantinos-Zafiris**, E. N. Economou and M.M. Sigalas, “Defects in the 3D Yablonovite Structure with Spheres”, *Phononics 2019: 5th International Conference on Phononic Crystals/Metamaterials, Phonon Transport, Topological Phononics*, Tucson, Arizona, USA (2019)
10. A.Konstantopoulou, A. P. Sgouros, **N. Aravantinos-Zafiris**, G. Kalosakas and M.M. Sigalas, “Phononic Band Gaps and Thermal Conductivity in Monolayer MoS<sub>2</sub> under pressure”, *Phononics 2019: 5th International Conference on Phononic Crystals/Metamaterials, Phonon Transport, Topological Phononics*, Tucson, Arizona, USA (2019)
11. **N. Aravantinos-Zafiris** and M.M. Sigalas, “The Yablonovite three dimensional phononic crystal. Study of potential applications and perspectives”, *XXVIII Panhellenic Conference on Solid State Physics and Materials Science*, Patra (2019)