Curriculum Vitae

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ΣΠΟΥΔΕΣ - ΕΚΠΑΙΔΕΥΣΗ

1993-1994 **Μεταδιδακτορικός ερευνητής** (junior researcher), Bell Communications Research (Belcore), Navesink Research Center, Red Bank, NJ 07701-07040, USA. (Φωτονικοί Κρύσταλλοι υπό την επίβλεψη του Dr. Eli Yablonovitch).

1993 **Ph. D.**, Physics, NYU Polytechnic Institute (former Polytechnic University, Brooklyn, NY). Thesis advisor, Prof. K. M. Leung, Title: *Morphology-dependent resonances in a large dielectric sphere: An asymptotic calculation using local coordinates*. [National Science Foundation of the US Dept. of Energy & Resources Grant #ECS-9113953].

1989 **M.S.**, Applied Physics, NYU Polytechnic Institute (former Polytechnic University, Brooklyn, NY).

1986 **B.S.**, Physics, University of Ioannina, Greece.

ΕΡΕΥΝΗΤΙΚΗ ΔΡΑΣΤΗΡΙΟΤΗΤΑ

2014- Ερευνητής, Τμήμα Μηχανικών Επιστήμης Υλικών, Παν/μιο Ιωαννίνων. Πρόγραμμα ΑΡΙΣΤΕΙΑ ΙΙ (ΕΣΠΑ-ΓΓΕΤ, κωδ. 81275): ΑΝΑΠΤΥΞΗ ΣΕΙΣΜΙΚΩΝ ΑΣΠΙΔΩΝ (DES)

2012-2013 Κύριος ερευνητής, Τομέας Φυσικής Στ. Κατάστασης, Ε.Κ.Π.Α (Φωξονικές Δομές)

2011-2012 Ερευνητής, Τμ. Επιστήμης Υλικών, Παν/μιο Πάτρας. European Community's Seventh Framework Program (FP7/2007-2013) under Grant Agreement No. 228455-NANOGOLD (Αυτοδομούμενα νανοϋλικά για τον έλεγχο οπτικών και ΗΜ ιδιοτήτων).

2009-2011 Ερευνητής, Δημόκριτος, NCSR (National Center of Scientific Research, Greece). EU FET-Open project TAILPHOX, under Grant No. 233883 (Διαμόρφωση της αλληλεπίδρασης φωτονίων-φωνονίων σε φωξονικούς κρυστάλλους πυριτίου).

2005-2011 Ερευνητής, Τομέας Φυσικής Στ. Κατάστασης, Ε.Κ.Π.Α. (Φωνονικές Δομές).

2000-2005 Ερευνητής, ΣΕΜΦΕ - ΕΜΠ. (Φωνονικές Δομές).

1995-2000 Μεταδιδακτορικός ερευνητής, Τομέας Φυσικής Στ. Κατάστασης, Ε.Κ.Π.Α (Φωτονικοί Κρύσταλλοι)

ΕΡΕΥΝΗΤΙΚΑ ΕΝΔΙΑΦΕΡΟΝΤΑ - ΕΜΠΕΙΡΙΑ

- Σκέδαση και διάδοση ελαστικών (ακουστικών) και ΗΜ κυμάτων σε ανομοιογενή μέσα, Φωτονικοί Κρύσταλλοι, Φωνονικοί Κρύσταλλοι, Φωξονικοί Κρύσταλλοι, Κλασσικά Μεταϋλικά Φασματικού Χάσματος και δομές (Φωτονικά & Φωνονικά), Θεωρητική και Υπολογιστική Μηχανική, Ακουστική και Οπτική Σκέδαση, Ακουστο-Οπτική, Οπτομηχανική.
- Φωτοφυσική υγρών μικροσωματιδίων, Μη-γραμμική Οπτική, Photonic crystals & metamaterials (Φωτονικά Μεταϋλικά), PhoXonic structures (Εφυή Φωξονικά υλικά).
- Θεωρητική και Υπολογιστική Φυσική Συμπυκνωμένης Ύλης, nanophotonics & nanophononics.
- Smart Sensors, Materials by Design, Dual Spectral-Gap Materials.

ΔΙΔΑΚΤΙΚΗ ΕΜΠΕΙΡΙΑ (in English)

2010-2011 10 hours Graduate Seminar at Division of Engineering and Applied Physics, Caltech, USA.
Part I: Multiple-Scattering Theory of Classical Waves, Green's Dyadic techniques, The layered KKR method.
Part II: Classical Spectral-Gap Materials, Photonic, Phononic & PhoXonic Crystals and applications.
Part III: Multi-scale Phononic structures, Locally Resonant Phononic structures, Engineering & Optimization of Phononic Shielding for the reduction of Industrial Noise & for Earthquake Protection.

2005 10 hours of Graduate Seminar, titled: "Multiple-scattering formalism and computations in 3D classical spectral-gap materials". Dept. of Materials, ETH Zurich, Switzerland.

1995 Foundation preparatory courses in Physics for Universities in the UK (BS College, Greece).

1987-1990 Teaching Assistant in NYU Polytechnic Institute, Brooklyn, USA. Physics Laboratory in Mechanics, Waves, Optics & Thermodynamics. Also in courses: PH1013 Mechanics, PH 1213 Motion and Sound, PH 1223 Electricity and Light, PH2023 Electricity, Magnetism, & Fluids.

ASSOCIATIONS/SERVICES

2011-σήμερα Member of the Scientific Committee of SPIE International Conferences on Smart Sensor Phenomena, Technology, Networks, and Systems Integration.

2010-σήμερα Member of the International Scientific Committee of the International Conferences on **Phononic crystals, Metamaterials & Optomechanics**.

2009 Member of the Scientific Committee of IUTAM (International Union of Theoretical and Applied Mechanics)-Symposium on Recent Advances of Acoustic Waves in Solids, Taiwan.

2005 **Guest Editor** of the special issue of Zeitschrift für Kristallographie titled: **Phononic Crystals** - Sonic Band-gap materials.

ΔΙΑΚΕΚΡΙΜΕΝΕΣ ΟΜΙΛΙΕΣ

- **Plenary speaker**, Phononics 2013, 2nd International Conference on Phononic crystals, Metamaterials & Optomechanics, Sharm El Sheikh, Egypt (June 2-7, 2013). Title: "Topology Arguments in Engineering 3D PhoXonic Systems".
- **Invited speaker** at Division of Engineering and Applied Physics, Caltech, USA (March 14, 2012). Title: "Shaping light and sound: On the physics of Photonic, Phononic & PhoXonic structures".
- **Keynote speaker**, Phononics 2011, 1st International Conference on Phononic crystals, Metamaterials & Optomechanics, Santa Fe, New Mexico, USA (May 29 – June 2, 2011). Title: "Multi-phonon processes in PhoXonic cavities".
- **Invited speaker** at IUTAM Symposium on Recent Advances of Acoustic Waves in Solids, Taiwan (May 25-28, 2009). Title: "Versatile Phononic Slabs".
- **Invited speaker** at the Annual Meeting of the Swiss Society for Crystallography, ETH Zurich, Switzerland (September 2003). Title: "Classical Spectral-Gap Materials – Photonic and Phononic Crystals".

COMPUTER CODES (ΥΠΟΛΟΓΙΣΤΙΚΟΙ ΚΩΔΙΚΕΣ LMS)

- **MULTEL** (Fortran90 & Fortran77): Published version 1.0 for spherical scatterers in phononic 1D-3D structures (Comput. Phys. Commun. **166**, 197-240, 2005). Current version 2.6.
- **MULTEM** (Fortran77): Current version 3.6 for photonic materials with Faraday activity, chirality, birefringence, Kerr-like nonlinearity.
- **MULTEX** (Fortran 90): Current version 0.6, under development, for phoxonic materials with multiple wave interactions, suitable for Acousto-Optics, Optomechanics and Heat Management for nanodevices.

COMPUTER SKILLS

- **OS:** Unix, Linux, Windows, Vmware Esxi, Mac
- **Programming:** Fortran77,90 - C++ - Gauss - XML - LaTeX, TeX - Matlab
- **Software:** Matlab**,** Mathematica, Comsol, Originlab, Solidworks, Filemaker Databases, FrameMaker, Adobe Design & Production specialist, Dreamweaver, Flash, InDesign and AfterFX.
- **Web Design, Networks, Virtual Machines Computing.**

REFEREE (ΚΡΙΤΗΣ ΕΠΙΣΤ. ΠΕΡΙΟΔΙΚΩΝ)

- **I.O.P.:** Journal of Physics: Condensed Matter, Nanotechnology, Smart Mater. Struct.
- **A.I.P.:** Applied Physics Letters, Journal of Applied Physics.
- **A.P.S.:** Physical Review A, B, E, Physical Review Letters.
- **O.S.A. & A.S.A.:** JOSA A, B, Optics Letters, Optics Express, JASA.
- **Elsevier:** Comput. Phys. Commun., J. Sound Vibr., Ultrasonics, Int. J. Solids Struct.
- **ACS Nano, Nanoletters.**
- IEEE Trans. Ultrason. Ferroelectr. Freq. Control, Int. J. Mech. Mater. Des., J. Mech., J. Vib. Acoust., Zeitschrift für Kristallographie

ΣΤΑΤΙΣΤΙΚΑ

20 δημοσιεύσεις σε επιστημονικά περιοδικά με κριτές, υψηλού συντελεστή απήχησης.

600 ετεροαναφορές (με μέσο αριθμό ετεροναφορών 30 ανά δημοσίευση) [700+ αναφορές].

h-index: **14** (με βάση τις ετεροαναφορές) και **20** (με βάση τις αναφορές).

25 invited communications in International Conferences

17 publications in Conference Proceedings.

3 chapters in 3 books.

ΕΠΙΛΕΓΜΕΝΕΣ ΔΗΜΟΣΙΕΥΣΕΙΣ

1. I. E. Psarobas, N. Stefanou, and A. Modinos: *Photonic crystals of chiral spheres*, J. Opt. Soc. Am. A **16**, 343-347 (1999).
2. I. E. Psarobas: *Effective-medium description of dielectric-chiral photonic crystals*, Opt. Commun. **162**, 21-25 (1999).
3. I. E. Psarobas, N. Stefanou, and A. Modinos: *Scattering of elastic waves by periodic arrays of spherical bodies*, Phys. Rev. B **62**, 278-291 (2000). Over 200 citations.
4. I. E. Psarobas, N. Stefanou, and A. Modinos: *Phononic crystals with planar defects*, Phys. Rev. B **62**, 5536-5540 (2000).
5. A. Modinos, N. Stefanou, I. E. Psarobas, V. Yannopapas: *On wave propagation in inhomogeneous systems*, Physica B **296**, 167-173 (2001).
6. I. E. Psarobas: *Viscoelastic response of sonic band-gap materials*, Phys. Rev. B **64**, art. no. 012303 (2001).
7. I. E. Psarobas, R. Sainidou, N. Stefanou, and A. Modinos: *Acoustic properties of colloidal crystals*, Phys. Rev. B **65**, art. no. 064307 (2002).
8. R. Sainidou, I. E. Psarobas, N. Stefanou, and A. Modinos: *Scattering of elastic waves by a periodic monolayer of spheres*, Phys. Rev. B **65**, art. no. 024303 (2002).
9. I. E. Psarobas and M. M. Sigalas: *Elastic band gaps in a fcc lattice of mercury spheres in aluminum*, Phys. Rev. B **66**, art. no. 052302 (2002).
10. R. Sainidou, N. Stefanou, I. E. Psarobas and A. Modinos: *A layer-multiple-scattering method for phononic crystals and heterostructures of such,* Comput. Phys. Commun. **166**, 197-240 (2005).
11. M. Sigalas, M. S. Kushwaha, E. N. Economou, M. Kafesaki, I. E. Psarobas and W. Steurer: *Classical vibrational modes in phononic lattices: theory and experiment*, Z. Kristallogr. **220**, 765-809 (2005).
12. N. Papanikolaou, I. E. Psarobas, and N. Stefanou: *Elastic Absolute spectral gaps for infrared light and hypersound in three-dimensional metallodielectric phoXonic crystals*, Appl. Phys. Lett. **96**, art. no. 231917 (2010).
13. I. E. Psarobas, N. Papanikolaou, N. Stefanou, B. Djafari-Rouhani, B. Bonello, and V. Laude: *Enhanced acousto-optic interactions in a one-dimensional phoXonic cavity*, Phys. Rev. B **82**, art. no. 174303 (2010).
14. N. Papanikolaou, I. E. Psarobas, N. Stefanou, B. Djafari-Rouhani, B. Bonello, and V. Laude: *Light modulation in phoxonic cavities*, Microelectronic Engineering **90**, 155-158 (2012).
15. V. Yannopapas and I. E. Psarobas: *Lasing action in multilayers of alternating monolayers of metallic nanoparticles and dielectric slabs with gain*, J. Opt. **14**, 035101 (2012).
16. V. Yannopapas and I. E. Psarobas: *Ordered arrays of metal nanostrings as broadband super absorbers*, J. Phys. Chem. C **116**, 15599, (2012).

ΚΕΦΑΛΑΙΑ ΣΕ ΒΙΒΛΙΑ

1. I. E. Psarobas, N. Stefanou, and A. Modinos, NATO-ASI Science Series: Photonic crystals and light localization in the 21st Century, ed. by C. M. Soukoulis, *Band Structure and Transmittance Calculations for Phononic Crystals by the LKKR Method* pgs. 519-526, Kluwer Academic, Dordrecht-Netherlands (APR 2001).
2. I. E. Psarobas, *Versatile phononic slabs* pgs. 175-185, IUTAM Bookseries Volume **26**, Recent Advances of Acoustic Waves in Solids, Part 3, Springer (2010).
3. B. Assouar, R. Sainidou, and I. E. Psarobas, Ch. 7: *The Three-dimensional Phononic Crystals*. PHONONIC CRYSTALS: FUNDAMENTALS & APPLICATIONS, eds. A. Khelif and A. Adibi (GeorgiaTech, U.S.A.), Kluwer Academic Publishers, Boston (in press).

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