

Eleferios Lidorikis, B.Sc., Ph.D., Assoc. Professor

CURRICULUM VITAE

I. Personal Information

Name: Eleferios Lidorikis
Date of Birth: August 31th, 1969
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University of Ioannina, GR-45110 Ioannina, Greece
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Current Professional Position: Associate Professor of Computational Materials Science,
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II. Education

9/1994 – 9/1999 Ph.D. in Condensed Matter Physics (honours), Iowa State University, USA
10/1987 – 9/1993 B.Sc. in Physics, Aristotle University of Thessaloniki, Greece

III. Research Interests and Activities

- Computational nanophotonics, plasmonics, photonic crystals, effective medium theory.
- Enhanced light harvesting based on plasmonic nanostructures, carbon nanotube arrays, graphene.
- Enhanced Raman scattering calculations (surface enhanced and interference enhanced).
- Nanophotonic devices such as waveguides, waveguide bends, splitters, channel-drops.
- Nonlinear photonic crystals, gap solitons and bistability, all-optical switching.
- Industrial level design (optical, electrical, thermal and system/application) of high-power photonic-crystal light-emitting-diodes (PhlatLight™).
- Multiscale concurrent atomistic-continuum (MD-FEM) methodologies in materials science.
- Strain relaxation in heteroepitaxial systems, nucleation and dynamic evolution of interfacial misfit dislocations.

IV. Awards

5/2000 Iowa State University, Department of Physics and Astronomy, Research Excellence award.
12/1999 Iowa State University, Graduate College, Research Excellence award.

V. Employment History

9/2012- Assistant Professor (tenured, Reader-equivalent), University of Ioannina
9/2009-9/2012 Assistant Professor (tenured), University of Ioannina
3/2006-9/2009 Assistant Professor (tenure track), University of Ioannina
1/2004-2/2006 Computational and Design Engineer, Luminus Devices Inc., Woburn, MA, USA
11/2001-12/2004 Postdoctoral Research Fellow, RLE and Department of Physics, Massachusetts Institute of Technology, MA, USA
9/1999-10/2001 Postdoctoral Research Associate, Department of Physics & Astronomy, Louisiana State University, LA, USA
1/1996-8/1999 Research Assistant, Ames Laboratory-U.S. DOE and Department of Physics and Astronomy, Iowa State University, IA, USA
10/1997-1/1998 Intern, Schlumberger Oil-Field Services, Houston, TX, USA
9/1994-12/1995 Teaching Assistant, Department of Physics and Astronomy, Iowa State University, IA, USA

VI. Teaching Activities*

- >7 years (6 in University of Ioannina + 1.5 in Iowa State University) of teaching experience in physics and engineering. Courses included: Computer Programming I, Computer Programming II, Introduction to

Materials Science, Quantum Theory of Matter, Photonic Materials, Physics Laboratory, Introduction to Physics II.

- Supervisor of: 1 Ph.D. student and 6 M.Eng. students.

VII. External Funding*

Role	Number of Projects	Total Budget (kEuros)
Coordinator or Head of UoI Group	2 (1 EU, 1 National)	~500
Contributor to the proposal and the establishment of the consortium	2 (1 EU, 2 National)	~70
Consulting	1	Disclosed

VIII. Scientific Software Development and Computational Experience

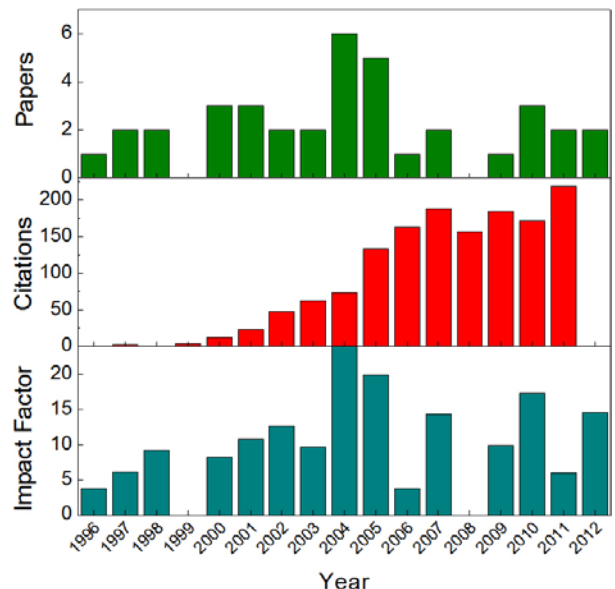
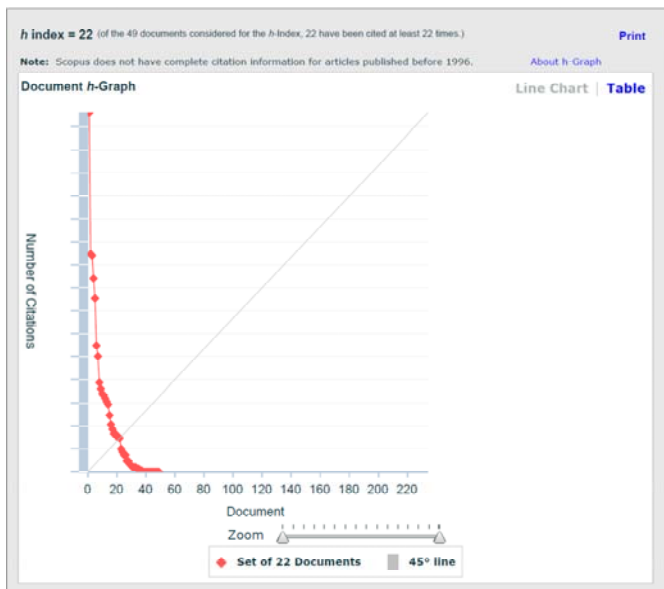
- 2008- Interpretation and Analysis software "REFL" for Optical Reflectance Spectroscopy measurements (while at UoI)
- 2005- Software "PhlatLab" for RGB module design (application driven) and spec generation of High-Power LEDs PhlatLight™ (while at Luminus Devices Inc.)
- 2004- Operating Software for an Integrating Sphere (while at Luminus Devices Inc)
- 2002- Scalable Finite-Difference-Time-Domain (FDTD) code for exact 3D simulations of light propagation in realistic material systems (includes material dispersion, nonlinearity, absorption, gain, fluorescence, saturation effects etc). Parallelized through domain decomposition using MPI (while at MIT)
- 2000- Scalable Finite Element and Molecular Dynamics codes, coupled together for 3D Continuum-Atomistic Multiscale Materials simulations. Parallelized through both task and domain decomposition using MPI (while at LSU)
- 1998- Plane Wave Expansion code for 2D Photonic Band Structure calculation (while at ISU)
- 1997- Analysis software for the RAB tools (Resistivity-At-the-Bit: resistivity-measuring tools used during oil drilling): equivalent circuit model for measurement characterization, data inversion, graphical interpretation (while at Schlumberger).

IX. Senior level administration*

- Participated or chaired 5 administration committees within the Department and the University, regarding research, educational and infrastructure planning.
- Participated in numerous evaluation boards for recruitment of academic personnel, in two of which as principal evaluator.

X. Publications, Patents and Conferences Summary*

Publications in peer-reviewed journals:	37
Publications in peer-reviewed proceedings volumes	6
Issued Patents (US):	17
International conference participations/presentations:	27
Member in Journal Editorial Boards:	1
Citations (source: www.scopus.com , 7/9/2012):	1566 (h-index=22)
Conference Organizer:	3
Invited Talks:	12



XI. Representative publications

- E. Lidorikis, Modeling of Enhanced Absorption and Raman Scattering Caused by Plasmonic Nanoparticle Near Fields, *J. Quant. Spectr. Rad. Transf.* (2012) in press.
- M. Lagos, M.M. Sigalas and E. Lidorikis, Theory of Plasmonic Near-Field Enhanced Absorption in Solar Cells, *Appl. Phys. Lett.* 99, 063304 (2011).
- F. Schedin, E. Lidorikis, A. Lombardo, V.G. Kravets, A.K. Geim, A. N. Grigorenko, K.S. Novoselov, and A.C. Ferrari, Surface Enhanced Raman Spectroscopy of Graphene, *ACS Nano* 4, 5617 (2010).
- N.T. Panagiotopoulos, P. Patsalas, C. Prouskas, G. Dimitrakopoulos, P. Komninou, T. Karakostas, A.P. Tighe, and E. Lidorikis, Bare eye view of the nanoscale: a new Visual Interferometric Multi-Indicator, *ACS Appl. Mater. Inter.* 2, 3052 (2010).
- E. Lidorikis and A.C. Ferrari, Photonics with Multi-Wall Carbon Nanotube Arrays, *ACS Nano* 3, 1238 (2009).
- C. Casiraghi, A. Hartschuh, E. Lidorikis, H. Qian, H. Harutyunyan, T. Gokus, K. S. Novoselov, and A. C. Ferrari, Rayleigh Imaging of Graphene and Graphene Layers, *Nano Lett.* 7, 2711 (2007).
- P. Bermel, E. Lidorikis, Y. Fink, and J.D. Joannopoulos, Active Materials Embedded in Photonic Crystals and Coupled to Electromagnetic Radiation, *Phys. Rev. B* 73, 165125 (2006).
- E. Lidorikis, M.E. Bachlechner, R.K. Kalia, A. Nakano, and P. Vashishta, Coupling Atomistic and Continuum Length Scales in Heteroepitaxial Systems: Multiscale Molecular Dynamics/Finite/Element Simulations of Strain Relaxation in Si/Si₃N₄nanopixels, *Phys. Rev. B* 72, 115338 (2005).
- Minghao Qi, E. Lidorikis, P.T. Rakich, S.G. Johnson, J.D. Joannopoulos, and H. I. Smith, A three-dimensional optical photonic crystal with designed point defects, *Nature* 429, 6991 (2004).

XII. Personal Interests

- Ice skating, skiing.

XIII. References

- Prof. Andrea C. Ferrari, University of Cambridge, Engineering Department, Cambridge, UK; e-mail: acf26@hermes.cam.ac.uk; tel:+44-1223-748351.
- Prof. John D. Joannopoulos, Massachusetts Institute of Technology, Department of Physics, Cambridge, MA, USA; e-mail: joannop@mit.edu; tel: +1-617-253-4806.
- Dr. Alexei Erchak, Chief Technology Officer and Founder of Luminus Devices Inc., Woburn, MA, USA; e-mail: aerchak@luminus.com; tel: +1-978-528-8000.
- Prof. Priya Vashishta, University of Southern California, Department of Physics & Astronomy, Los Angeles, CA, USA; e-mail: priyav@usc.edu; tel: +1-213-821-2663.
- Prof. Costas M. Soukoulis, Iowa State University, Department of Physics & Astronomy, Ames, IA, USA; e-mail: soukoulis@ameslab.gov; tel: +1-515-294-2816.

*For details regarding these fields refer to the Supporting Document.