

Kafesaki Maria - Curriculum Vitae¹

Personal data: Name: Kafesaki Maria
Nationality: Greek
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Current position:

Associate Professor at Dept. of Materials Science and Technology, University of Crete, Greece, and
Associated Researcher at Institute of Electronic Structure and Laser (IESL), Foundation of Research and Technology - Hellas (FORTH), Greece.

Education:

February 1997: Ph.D., Physics Department, University of Crete, Greece.

Dissertation title: “Acoustic and elastic wave scattering - Acoustic and elastic wave propagation in disordered media”.

Advisor: Prof. E.N. Economou.

1992: Master in Physics, University of Crete, Greece.

1990: Diploma, Physics Department, University of Crete, Greece.

Research interests:

Electromagnetic wave propagation in composite media, with emphasis on metamaterials, photonic crystals, plasmonic structures, and random dielectric and metalodielectric systems.

Acoustic and elastic wave propagation in composite ordered and disordered media (phononic crystals, random acoustic media).

Professional experience:

- **1/2012 - ...** : Associate Professor at Dept. of Materials Science and Technology, University of Crete, Greece.

¹Last update January 2012

- **7/2001 - 12/2011:** Researcher (D, C & B), Institute of Electronic Structure and Laser (IESL), Foundation of Research and Technology Hellas (FORTH), Greece.
- **7/2000 - 6/2001:** Post-doc, IESL-FORTH.
- **11/2000:** Visiting scientist, Iowa State University, Ames, Iowa, US.
- **5/1999 - 6/2000:** Post-doc, Laboratorio de Fisica de Sistemas Pequeños y Nanotecnología, Consejo Superior de Investigaciones Científicas, Madrid, Spain.
- **2/1997 - 4/1999 and 7/2000 - 12/2001:** Post-doc, IESL-FORTH, Greece.
- **11/1997:** Visiting researcher, University of Lancaster, U.K., Physics Department.
- **1/1998 - 2/1998:** Visiting scientist, Edinburgh Parallel Computing Center, University of Edinburgh, U.K. (for education in parallel programming and the use of high computing systems).

Research experience:

- Classical (electromagnetic, acoustic and elastic) wave single and multiple scattering.
- Classical wave propagation in *random* media, using multiple scattering techniques, effective medium theories and finite difference techniques.
- Electromagnetic, acoustic and elastic wave propagation in *periodic* media, including photonic crystals, phononic crystals and left-handed materials. Large experience in various techniques, like band structure calculation techniques (e.g. plane wave method and multiple scattering method) and transmission calculation techniques (e.g. finite difference time domain method).

Publications:²

Journal papers:

1. M. M. Sigalas, E. N. Economou and M. Kafesaki, *Spectral Gaps for Electromagnetic and Scalar Waves: Possible Explanation for Certain Differences*, Phys. Rev. B **50**, 3393-3396 (1994). [citations: 33]
2. M. Kafesaki, E. N. Economou, *Interpretation of the Band Structure Results for Elastic and Acoustic Waves by Analogy with the LCAO Approach*, Phys. Rev. B **52**, 13317-13331 (1995). [56]
3. M. Kafesaki, M. M. Sigalas and E. N. Economou, *Elastic Wave Band Gaps in 3-D Periodic Polymer Matrix Composites*, Sol. State. Commun. **96**, 285-289 (1995). [72]
4. M. Kafesaki, E. N. Economou, *Acoustic Waves in Random Media*, Europhys. Lett. **37**, 7-12 (1997). [7]

²The number in the brackets after each publication shows the corresponding citations (including self-citations); last citations update: 30/1/2012.

5. M. Kafesaki, E. N. Economou, *Acoustic and Elastic Waves in Random Media - CPA*, Ann. Physik (Leipzig) **7**, 383-388 (1998). [1]
6. C. M. Soukoulis, K. Busch, M. Kafesaki and E. N. Economou, *Comment on "Energy Velocity of Diffusing Waves in Strongly Scattering Media"*, Phys. Rev. Lett. **82**, 2000 (1999). [7]
7. M. Kafesaki and E. N. Economou, *Multiple Scattering Theory for 3D Periodic Acoustic Composites*, Phys. Rev. B **60**, 11993-12001 (1999). [150]
8. D. Garcia-Pablos, M. M. Sigalas, F. R. Montero de Espinosa, M. Torres, M. Kafesaki and N. Garcia, *Theory and Experiments on Elastic Band Gaps*, Phys. Rev. Lett. **84**, 4349-4352 (2000). [122]
9. M. Kafesaki, M. M. Sigalas and N. Garcia, *Frequency Modulation in the Transmittivity of Wave Guides in Elastic Band Gap Materials*, Phys. Rev. Lett. **85**, 4044-4047 (2000). [101]
10. M. Kafesaki, R. S. Penciu and E. N. Economou, *Air Bubbles in Water: a Strongly Multiple Scattering Medium for Acoustic Waves*, Phys. Rev. Lett. **84**, 6050-6053 (2000). [61]
11. M. Kafesaki, M. M. Sigalas and N. Garcia, *Wave Guides in Two-Dimensional Elastic Wave Band Gap Materials*, Physica B **296**, 190-193 (2001). [27]
12. A. Talneau, L. Le Gouezigou, N. Bouadma, M. Kafesaki, C. M. Soukoulis, M. Agio, *Photonic-crystal Ultrashort Bends with Improved Transmission and Low Reflection at 1.55 micrometer*, Applied Physics Letters **80**, 547-549 (2002). [100]
13. H. Benisty, S. Olivier, C. Weisbuch, M. Agio, M. Kafesaki, C. M. Soukoulis, M. Qiu, M. Swillo, A. Karlsson, B. Jaskorzynska, *Models and Measurements for the Transmission of Submicron-Width Waveguide Bends Defined in Two-Dimensional Photonic Crystals*, IEEE Journal of Quantum Electronics **38**, 770-785 (2002). [40]
14. R. S. Penciu, M. Kafesaki, G. Fytas, E. N. Economou, W. Steffen, A. Hollingsworth, W. B. Russel, *Phonons in Colloidal Crystals*, Europhysics Letters **58**, 699-704 (2002). [17]
15. M. Kafesaki, M. Agio, C. M. Soukoulis, *Waveguides in Finite-height Two-dimensional Photonic Crystals*, J. Opt. Soc. Am. B **19**, 2232-2240 (2002). [20]
16. P. Kramper, M. Kafesaki, C. M. Soukoulis, A. Birner, F. Mller, U. Gsele, R. B. Wehrspohn, J. Mlynek and V. Sandoghdar, *Near Field Visualization of Light-confinement in a Photonic Crystal Microresonator*, Optics Letters **29**, 174-176 (2004). [52]
17. B. C. Buchler, P. Kramper, M. Kafesaki, C. M. Soukoulis and V. Sandoghdar, *Near-field Optical Investigations of Photonic Crystal Microresonators*, IEICE TRANS. **E85-A**, 1-7 (2004). [3]
18. N. Katsarakis, T. Koschny, M. Kafesaki, E. Economou and C. M. Soukoulis, *Electric Coupling to the Magnetic Resonance of Split-ring Resonators*, Appl. Phys. Lett. **84**, 2943-2945 (2004). [192]
19. A. Talneau, M. Mulot, S. Anand, S. Olivier, M. Kafesaki, M. Agio and C. M. Soukoulis, *Modal Behavior of Single-line Photonic Crystal Guiding Structures on InP Substrates*, Photonics and Nanostructures **2**, 1-10 (2004).

20. T. Koschny, M. Kafesaki, E. Economou and C. M. Soukoulis, *Effective Medium Theory of Left-handed Materials*, Phys. Rev. Lett. **93**, 107402 (2004). [152]
21. M. Kafesaki, C. M. Soukoulis, M. Agio, *Losses and Transmission in Two-dimensional Slab Photonic Crystals*, Journal of Applied Physics **96**, 4033-4038 (2004). [12]
22. N. Katsarakis, T. Koschny, M. Kafesaki, E. Economou, E. Ozbay and C. M. Soukoulis, *Left- and Right-handed Transmission Peaks near the Magnetic Resonance Frequency in Composite Metamaterials*, Phys. Rev. B **70**, 201101 (2004). [41]
23. K. Aydin, K. Guven, M. Kafesaki, L. Zhang, C. M. Soukoulis, E. Ozbay, *Experimental Observation of True Left-handed Transmission Peaks in Metamaterials*, Opt. Lett. **29**, 2623-2625 (2004). [111]
24. M. Kafesaki, T. Koschny, R. S. Penciu, T. F. Gundogdu, E. N. Economou and C. M. Soukoulis, *Left-handed Metamaterials: Detailed Numerical Studies of the Transmission Properties*, J. Opt. A: Pure Appl. Opt. **7**, S12-S22 (2005). [63]
25. M. Kafesaki, M. M. Sigalas, E. N. Economou, M. S. Kushwaha, I. E. Psarobas and W. Steurer, *Classical Vibrational Modes in Phononic Lattices: The Solid-State Physics Nomenclature of Formalism, Techniques and Observations Related to the Field of Phononic Crystals*, Zeitschrift fuer Kristallographie **220**, 765-809 (2005). [59]
26. N. Katsarakis, G. Konstantinidis, A. Kostopoulos, R. S. Penciu, T. F. Gundogdu, M. Kafesaki, E. N. Economou, Th. Koschny, C. M. Soukoulis, *Magnetic Response of Split-Ring Resonators in the Far-Infrared Frequency Regime*, Opt. Lett. **30**, 1348-1350 (2005). [105]
27. K. Aydin, I. Bulu, K. Guven, M. Kafesaki, C. M. Soukoulis, E. Ozbay, *Investigation of Magnetic Resonances for Different Split-Ring Resonator Parameters and Designs*, New Journal of Physics **7**, 168:1-15 (2005). [70]
28. A. Femius Koenderink, M. Kafesaki, B. C. Buchler, and V. Sandoghdar, *Controlling the Resonance of a Photonic Crystal Microcavity by a Near-field Probe*, Phys. Rev. Lett. **95**, 153904 (2005). [59]
29. A. F. Koenderink, M. Kafesaki, C. M. Soukoulis, and V. Sandoghdar, *Spontaneous Emission in the Near Field of Two-dimensional Photonic Crystals*, Opt. Lett. **30**, 3210-3212 (2005). [22]
30. J. Zhou, Th. Koschny, M. Kafesaki, E. N. Economou, J. B. Pendry and C. M. Soukoulis, *Saturation of the Magnetic Response of Split-Ring Resonators at Optical Frequencies*, Phys. Rev. Lett. **95**, 223902 (2005). [189]
31. A. F. Koenderink, R. Wuest, B. C. Buchler, S. Richter, P. Strasser, M. Kafesaki, A. Rogach, R. B. Wehrspohn, C. M. Soukoulis, D. Erni, F. Robin, H. Jackel and V. Sandoghdar, *Near-field Optics and Control of Photonic Crystals*, Photonics and Nanostr. **3**, 63-74 (2005). [13]
32. R. S. Penciu, M. Kafesaki, T. F. Gundogdu, E. N. Economou, and C. M. Soukoulis, *Theoretical Study of Left-handed Behavior of Composite Metamaterials*, Photonics and Nanostr. **4**, 12-16 (2006). [21]

33. M. Gokkavas, K. Guven, I. Bulu, K. Aydin, R. S. Penciu, M. Kafesaki, C. M. Soukoulis, and E. Ozbay, *Experimental Demonstration of a Left-handed Metamaterial Operating at 100 GHz*, Phys. Rev. B **73**, 193103 (2006). [58]
34. A. F. Koenderink, M. Kafesaki, C. M. Soukoulis, and V. Sandoghdar, *Spontaneous Emission Rates of Dipoles in Photonic Crystal Membranes*, J. Opt. Soc. Am B **23**, 1196 (2006). [24]
35. C. M. Soukoulis, M. Kafesaki and E. N. Economou, *Negative Index Materials: New Frontiers in Optics*, review article, Advanced Materials **18**, 1941-1952 (2006). [80]
36. T. F. Gundogdu, I. Tsiapa, A. Kostopoulos, G. Konstantinidis, N. Katsarakis, R. S. Penciu, M. Kafesaki, E. N. Economou, Th. Koschny, and C. M. Soukoulis, *Experimental Demonstration of Negative Magnetic Permeability in the Far-Infrared Frequency Regime*, Appl. Phys. Lett. **89**, 084103 (2006). [25]
37. C. M. Soukoulis, Th. Koschny, J. Zhou, M. Kafesaki, E. N. Economou, *Magnetic Response of Split-ring Resonators at Terahertz Frequencies*, Phys. Stat. Sol. (b) **244**, 1181-1187 (2007). [16]
38. M. Kafesaki, Th. Koschny, J. Zhou, N. Katsarakis, I. Tsiapa, E. N. Economou and C. M. Soukoulis, *Electromagnetic Behaviour of Left-handed Materials*, Physica B: Cond. Matt. **394**, 148-154 (2007). [7]
39. N. Katsarakis, M. Kafesaki, I. Tsiapa, E. N. Economou and C. M. Soukoulis, *High Transmittance Left-handed Materials Involving Symmetric Split-ring Resonators*, Photonics and Nanostructures, **5**, 149-155 (2007). [7]
40. M. Kafesaki, I. Tsiapa, N. Katsarakis, Th. Koschny, C. M. Soukoulis, and E. N. Economou, *Left-handed Metamaterials: The Fishnet Structure and its Variations*, Phys. Rev. B **75**, 235114-(1-9) (2007). [115]
41. S. Foteinopoulou, M. Kafesaki, E. N. Economou, and C. M. Soukoulis, *Backwards Surface Waves in Photonic Crystals*, Phys. Rev. B **75**, 245116-(1-6) (2007). [14]
42. T.F. Gundogdu, M. Gkkavas, K. Gven, M. Kafesaki, C. M. Soukoulis and E. Ozbay, *Simulation and Micro-fabrication of Optically Switchable Split Ring Resonators*, Photonics and Nanostructures **5**, 106-112 (2007). [6]
43. K. Guven, A. O. Cakmak, M. D. Caliskan, T. F. Gundogdu, M. Kafesaki, C. M. Soukoulis, and E. Ozbay, *Bilayer Metamaterial: Analysis of Left-handed Transmission and Retrieval of Effective Medium Parameters*, J. Opt. A: Pure Appl. Opt. **9**, S361-S365 (2007). [5]
44. S. Foteinopoulou, G. Kenanakis, N. Katsarakis, I. Tsiapa, M. Kafesaki, E. N. Economou, C. M. Soukoulis, *Experimental Verification of Backward Wave Propagation at Photonic Crystal Surfaces*, Appl. Phys. Lett. **91**, 214102-214104 (2007). [5]
45. J. Zhou, Th. Koschny, M. Kafesaki and C. M. Soukoulis, *Size Dependence and Convergence of the Retrieval Parameters of Metamaterials*, Photonics and Nanostructures **6**, 96-101 (2008). [17]
46. T. F. Gundogdu, N. Katsarakis, M. Kafesaki, R. S. Penciu, G. Konstantinidis, A. Kostopoulos, E. N. Economou, and C. M. Soukoulis, *Negative Index Short-slab Pair and Continuous Wires Metamaterials in the Far Infrared Regime*, Opt. Expr. **16**, 9173-9180 (2008). [17]

47. C. M. Soukoulis, J. Zhou, Th. Koschny, M. Kafesaki, and E. N. Economou, *The Science of Negative Index Materials*, J. Phys.: Condens. Matter **20**, 304217 (2008). [24]
48. R. S. Penciu, K. Aydin, M. Kafesaki, Th. Koschny, E. N. Economou, and C. M. Soukoulis, *Multi-gap Individual and Coupled Split-Ring Resonator Structures*, Opt. Expr. **16**, 18131 (2008). [21]
49. D. Guney, Th. Koschny, M. Kafesaki, and C. M. Soukoulis, *Connected Bulk Negative Index Photonic Metamaterials*, Opt. Lett. **34**, 506 (2009). [9]
50. J. Zhou, J. Dong, B. Wang, Th. Koschny, M. Kafesaki, and C. M. Soukoulis, *Negative Refractive Index due to Chirality*, Phys. Rev. B **79**, 121104(R) (2009). [61]
51. N.-H. Shen, M. Kafesaki, Th. Koschny, L. Zhang, E. N. Economou, and C. M. Soukoulis, *Broadband Blueshift Tunable Metamaterials and Dual-band Switches*, Phys. Rev. B **79**, 161102(R) (2009). [18]
52. J. Zhou, Th. Koschny, M. Kafesaki, and C. M. Soukoulis, *Negative Refractive Index Response of Weakly and Strongly Coupled Optical Metamaterials*, Phys. Rev. B **80**, 035109 (2009). [31]
53. E. N. Economou, M. Kafesaki, C. M. Soukoulis, and Th. Koschny, *The Fourth Quadrant in the epsilon-mu Plane: A New Frontier in Optics*, J. Comp. Theor. Nanoscience **6**, 1827 (2009). [2]
54. N. H. Shen, S. Foteinopoulou, M. Kafesaki, Th. Koschny, E. Ozbay, E. N. Economou, and C. M. Soukoulis, *Compact Planar Far-field Superlens Based on Anisotropic Left-handed Metamaterials*, Phys. Rev. B **80**, 115123 (2009). [8]
55. B. N. Wang, J. F. Zhou, Th. Koschny, M. Kafesaki, and C. M. Soukoulis, *Chiral Metamaterials: Simulations and Experiments*, J. Opt. A: Pure and Appl. Opt. **11**, 114003 (2009). [21]
56. N. H. Shen, G. Kenanakis, M. Kafesaki, N. Katsarakis, E. N. Economou, and C. M. Soukoulis, *Parametric Investigation and Analysis of Fishnet Metamaterials in the Microwave Regime*, J. Opt. Soc. Am B **26**, B61 (2009). [2]
57. R. H. Tarkhanyan, D. G. Niarchos, M. Kafesaki, *Influence of External Magnetic Field on Magnon-Plasmon Polaritons in Negative-index Antiferromagnet-Semiconductor Superlattices*, J. Magn. Magn. Mat. **322**, 603 (2010). [2]
58. J. M. Manceau, N. H. Shen, M. Kafesaki, C. M. Soukoulis, S. Tzortzakis, *Dynamic Response of Metamaterials in the Terahertz Regime: Blueshift Tunability and Broadband Phase Modulation*, Appl. Phys. Lett. **96**, 021111 (2010). [10]
59. V. Reboud, N. Kehagias, T. Kehoe, G. Leveque, C. Mavridis, M. Kafesaki, C. Sotomayor-Torres, *Nanoimprinted Plasmonic Crystals for Light Extraction Applications*, Microelec. Engineering **87**, 1367 (2010).
60. R. S. Penciu, M. Kafesaki, Th. Koschny, E. N. Economou, and C. M. Soukoulis, *Magnetic Response of Nanoscale Left-handed Metamaterials*, Phys. Rev. B **81**, 235111 (2010). [3]
61. Z. Li, R. Zhao, Th. Koschny, M. Kafesaki, K. Boratay Alici, E. Colak, H. Caglayan, E. Ozbay, and C. M. Soukoulis, *Chiral Metamaterials with Negative Refractive Index Based on Four "U" Split Ring Resonators*, Appl. Phys. Lett. **97**, 081901 (2010). [11]

62. N. H. Shen, M. Massauti, M. Gokkavas, J. M. Manceau, E. Ozbay, M. Kafesaki, Th. Koschny, S. Tzortzakis, and C. M. Soukoulis, *Optically Implemented Broadband Blueshift Switch in the Terahertz Regime*, Phys. Rev. Lett. **106**, 037403 (2011). [6]
63. S. Foteinopoulou, M. Kafesaki, E. N. Economou and C. M. Soukoulis, *Two-dimensional Polaritonic Photonic Crystals as THz Uniaxial Metamaterials*, Phys. Rev. B **84**, 035128 (2011). [1]
64. I. Bergmair, B. Dastmalchi, M. Bergmair, A. Saeed, H. Hilber, G. Hesser, C. Helgert, E. Pshenary-Severin, T. Pertsch, N. H. Shen, R. Penciu, M. Kafesaki, C. M. Soukoulis, K. Hingerl, M. Muehlberger and R. Schoeftner, *Single and Multilayer Metamaterials Fabricated by Nanoimprint Lithography*, Nanotechnology **22**, 325301 (2011).

Book chapters:

1. M. Kafesaki, E. N. Economou and M. M. Sigalas, *Elastic Waves in Periodic Composite Materials*. In the proceedings of the NATO ARW, *Photonic Band Gap Materials*, ed. by C. M. Soukoulis (Kluwer Academic Publishers, Dordrecht, 1996).
2. M. Kafesaki, E. N. Economou and M. M. Sigalas, *Parallel Computing in the Acoustic and Elastic Wave Propagation in Periodic Media*. In the *Developments in Computational Mechanics with High Performance Computing*, edited by B.H.V. Topping (Civil-Comp Press Ltd, Edinburgh, 1999), pp.155-159.
3. M. Kafesaki, M. M. Sigalas, and N. Garcia, *The Finite Difference Time Domain Method for the Study of Two-Dimensional Acoustic and Elastic Band Gap Materials*, in *Photonic Crystals and Light localization in the 21st century*, ed. by C. M. Soukoulis (Kluwer, Dordrecht, 2001), pp. 69-82.
4. V. Sandoghdar, B. C. Buchler, P. Kramper, O. Benson and M. Kafesaki, *Scanning Near-field Optical Studies of Photonic Devices*, at *Photonic Crystals - Advances in Design, Fabrication and Characterization*, edited by K. Busch, S. Lolkes, R. Wehrspohn and H. Foll, WILEY-VCH, 2004, Weinheim, Germany.
5. M. Kafesaki and C. M. Soukoulis, *A Historical Perspective and a Review of the Fundamental Principles in Modeling 3D Periodic Structures with an Emphasis on volumetric EBGs*, in *Metamaterials: Physics and Engineering Explorations*, edited by N. Engheta and R. Ziolkowski (Wiley-VCH, July 2006).
6. M. Kafesaki, Th. Koschny, C. M. Soukoulis and E. N. Economou, *Designing One-, Two- and Three-dimensional Left-handed Materials*, Chapter in *Handbook of Artificial Electromagnetic Materials*, edited by F. Capolino (Taylor & Francis, to appear in December 2008).

Other publications:

1. W. M. Saj, S. Foteinopoulou, M. Kafesaki, C. M. Soukoulis, and E. N. Economou, *Periodically structured plasmonic waveguides*, Proc. SPIE 6987, 69870Y (2008); doi:10.1117/12.786569 (Proceedings of the SPIE-Photonics Europe Conference, 2008).
2. M. Kafesaki, *Optical Negative Index Response of Nanoscale Metamaterials*, 13 January 2011, SPIE Newsroom. DOI: 10.1117/2.1201012.003355.

3. M. Kafesaki, R. Penciu, Th. Koschny, N. H. Shen, D. Guney, E. N. Economou, and C. M. Soukoulis, *Optical Metamaterials: Possibilities and Limitations*, at IESC proceedings (proceedings of the school "Mesoscopic Physics in Complex Media", Cargese, France, 12-16 July 2010). Published online: 23 December 2010. DOI: 10.1051/iesc/2010mpcm01011.
4. A. A. Basharin, M. Kafesaki, E. N. Economou, and C. M. Soukoulis, *Superlensing Effects in Anisotropic Eutectic Metamaterials in the THz Range*, AIP Conf. Proc. 1398, pp. 64-66; doi:10.1063/1.3644213 (Proceedings of the "4th International Workshop on Theoretical and Computational Nanophotonics"- TaCoNa-Photonics 2011).

Total citations: 2599 (obtained by Web of Science in January 2012). Give **h-index 26**.

Invited talks:

At Conferences/Workshops/Schools

1. **June 2004:** In "Nanoelectronic and Photonic Systems Workshop", Tarragona, Spain. (Title: *Electromagnetic Wave Propagation in Metamaterials: Photonic Crystals and Left-handed Materials*.)
2. **April 2005:** In "Seminar on Metamaterials and Circuit Design Based on Split-ring Resonators", Barcelona, Spain. (Title: *Parametric Study and Electromagnetic Response of SRR Particles*.)
3. **July 2005:** In "Summer School on Metamaterials", San Sebastian, Spain. (Title: *Left-handed materials: Detailed numerical study of their transmission properties*.)
4. **July 2006:** In "ETOPIM7: The 7th International Conference on the Electrical, Transport and Optical Properties of Inhomogeneous Media", Sydney, Australia. (Title: *Electromagnetic behaviour of left-handed materials and related metamaterials*.)
5. **September 2006:** In "Mediterranean Microwave Symposium 2006", Genova, Italy. (Title: *Transmission properties of left-handed materials and related metamaterials*.)
6. **October 2006:** In "The 5th RIKEN Nanophotonics Symposium on Plasmonics and Nanophotonics", RIKEN, Tokyo, Japan. (Title: *Left-handed materials and magnetic metamaterials towards optical regime*.)
7. **January 2007:** In "NANOMETA: The 1st European Topical Meeting on Nanophotonics and Metamaterials", Seefeld, Austria. (Title: *Left-handed metamaterial designs in microwave frequencies*.)
8. **April 2007:** In the "Workshop on Advances in Physics and Technology of Photonic Crystals", organized by the COST P11 Action, Prague. (Title: *Backwards surface waves in photonic crystals*.)
9. **July 2007:** In the "9th International Conference on Transparent Optical Networks (ICTON)", Rome, Italy. (Title: *Left-handed materials for microwave and optical frequencies*.)
10. **October 2007:** In "Metamaterials 2007 - First international congress on advanced electromagnetic materials in microwaves and optics", Rome, Italy. (Title: *Left-handed metamaterial designs in microwave and infrared frequencies*.)

11. **February 2008:** In “Metamaterials week 2008 in Barcelona”, Barcelona, Spain. (Title: *Left-handed metamaterial designs in microwave and optical frequencies.*)
12. **February 2008:** At “Nanostructured Photonics Symposium”, part of the “Annual Meeting of the German Physical Society (DPG Tagung)”, Berlin, Germany. (Title: *Scaling negative index materials toward optical frequencies.*)
13. **March 2008:** At “Progress in Electromagnetics Research Symposium (PIERS) 2008”, Hangzhou, China. (Title: *Magnetic metamaterials and left-handed materials towards optical frequencies.*)
14. **April 2008:** In SPIE conference “Photonics Europe: Matamaterials”, Strasbourg, France. (Title: *Scaling behaviour of magnetic metamaterials and left-handed materials from microwaves to optical regime.*)
15. **April 2008:** In NATO Technical Workshop on “Photonic Metamaterials for Defense and Security Applications”, Strasbourg, France. (Title: *Status of left-handed and negative index materials for applications.*)
16. **April 2008:** In “Women in Photonics School on Photonic Metamaterials”, Paris, France. (Title: *Basic electromagnetism for photonic metamaterials.*)
17. **June 2008:** In the “ 10th International Conference on Transparent Optical Networks (ICTON)”, Athens, Greece. (Title: *Left-handed materials from microwaves to optics.*)
18. **October 2008:** ”1st Mediterranean Conference on Nanophotonics”, Istanbul, Turkey. (Title: *Left-handed materials in the optical regime.*)
19. **October 2008:** The ”European Optical Society (EOS) Annual Meeting”, Paris, France. (Title: *Negative index materials towards optical frequencies.*)
20. **July 2009:** “ICMAT 2009: International Conference on Materials for Advanced Technologies 2009”, Singapore. (Title: *Optical metamaterials: Possibilities and limitations.*)
21. **August 2009:** “Metamaterials 2009”, London, UK. (Title: *Designing optical metamaterials.*)
22. **September 2009:** “25th PanHellenic Conference on Solid State Physics and Materials Science”, Thessaloniki, Greece. (Title: *Manipulating light with optical left-handed materials.*)
23. **January 2010:** Workshop on ”Metamaterials: Applications, Analysis and Modeling”, Los Angeles, USA. (Title: *Magnetic response of nanoscale left-handed metamaterials.*)
24. **February 2010:** ”2nd International Conference on Metamaterials, Photonic Crystals and Plasmonics (Meta’10)”, Cairo, Egypt. (Title: *Designing optical negative index and negative permeability metamaterials.*)
25. **April 2010:** SPIE conference “Photonics Europe: Matamaterials”, Brussels, Belgium. (Title: *Negative refractive index response of weakly and strongly coupled optical metamaterials.*)
26. **June 2010:** ”5th Forum on New Materials in CIMTEC 2010 Conference”, Florence, Italy. (Title: *Negative index metamaterials: Going from microwaves to optics.*)

27. **June 2010:** "12th International Conference on Transparent Optical Networks (ICTON)", Munich, Germany. (Title: *Designing left-handed metamaterials for the optical regime.*)
28. **July 2010:** Summer school on "Mesoscopic Physics in Complex Media", Cargese, Corse. (Title: *Optical metamaterials: Possibilities and limitations.*)
29. **August 2010:** SPIE Optics and Photonics conference on "Nanoscienc+Engineering", San Diego, USA. (Title: *Optical negative index response of nanoscale metamaterials.*)
30. **September 2010:** "Metamaterials 2010", Karlsruhe, Germany. (Title: *Planar far field superlens based on anisotropic left-handed metamaterials.*)
31. **October 2010:** "3rd Mediterranean Conference on Nanophotonics" (Medi-Nano 3), Belgrade, Serbia. (Title: *Designing left-handed metamaterials for the optical regime.*)
32. **March 2011:** "Progress In Electromagnetics Research Symposium 2011" (PIERS 2011), Marrakesh, Morocco. (Title: *Optimizing left-handed metamaterials for the optical regime.*)
33. **May 2011:** Annual international conference "Days of Diffraction" (Metamaterials Workshop), St. Petersburg, Russia. (Title: *Anisotropic left-handed metamaterials for imaging.*)
34. **June 2011:** "International Conference for Materials for Advanced Technologies (ICMAT) 2011 - Symposium S: Metamaterials", Singapore. (Title: *Anisotropic left-handed metamaterials for imaging.*)
35. **August 2011:** "Moscow International Symposium on Magnetism" (MISM), Moscow, Russia. (Title: *Magnetic response of nanoscale left-handed metamaterials.*)
36. **September 2011:** "Nanoscience and Nanotechnology 2011", Frascati, Italy. (Title: *Magnetic response of optical left-handed metamaterials.*)
37. **October 2011:** "Metamaterials 2011", Barcelona, Spain. (Title: *THz manipulation and superlensing using polaritonic metamaterials.*)
38. **October 2011:** W&E Heraeus-Seminar "Quantum and Nano Plasmonics", Bad Honnef, Germany. (Title: *THz manipulation and superlensing using polaritonic metamaterials.*)

At Universities/Institutes

1. **February 2010:** Sandia National Labs, Albuquerque, New Mexico, USA.
2. **May 2010:** Wright-Patterson Air Force Base, Dayton, Ohio, USA.
3. **November 2010:** FORTH - Institute of Chemical Engineering and High Temperature Chemical Processes, Patras, Greece.

Conferences organization/co-organization:

- The "1st Annual Workshop on Advances in Nanophotonics", October 10-11, 2005, Heraklion, Crete, Greece.
- "Women in Photonics (WiP) School on Photonic Metamaterials", April 13-18, 2008, Paris, France.

- The first “International Workshop on Computational and Theoretical Nano-Photonics (TaCoNa-Photonics 2008)”, December 3-5, 2008, Bad-Honnef, Germany.
- “XXIV Panhellenic Conference on Solid State Physics and Materials Science”, September 21-24, 2008, Heraklion, Crete, Greece.
- The 8th international conference on “Electrical Transport and Optical Properties of Inhomogeneous Media (ETOPIM8)”, June 7-12, 2009, Rethymnon, Crete, Greece.
- School on “Optical Properties of Nanostructured Metamaterials”, June 12-13, 2009, Rethymnon, Crete, Greece.
- “2nd Mediterranean Conference on Nanophotonics”, October 2009, Athens, Greece.
- The second “International Workshop on Computational and Theoretical Nano-Photonics (TaCoNa-Photonics 2009)”, October 28-30, 2009, Bad-Honnef, Germany.
- Organization of a special session ”Optical Metamaterials” in Metamaterials 2010 Conference, September 13-16, Karlsruhe, Germany.
- ”3rd Mediterranean Conference on Nanophotonics” (Medi-Nano 3), October 18-19, 2010, Belgrade, Serbia.
- ”International Workshop on Theoretical and Computational Nanophotonics 2010” (TaCoNa-Photonics2010), November 3-5, 2010, Bad Honnef, Germany.
- School on “Experimental characterization of electromagnetic metamaterials”, December 13-17, 2010, Heraklion (FORTH), Crete, Greece.
- International conference ”Wave Propagation: From Electrons to Photonic Crystals and Metamaterials”, on the occasion of C. Soukoulis’ 60th birthday, June 8-11, 2011, Rethymnon, Crete.

Commitees:

- Program Commitee in the SPIE conference *Optics and Optoelectronics: Metamaterials*, 16-18 April 2007, Prague, Czech Republic.
- Founding Commitee of the *ETOPIM* (Electrical, Transport and Optical Properties of Inhomogeneous Media) Association.
- Program Commitee in the SPIE conference *Photonics Europe: Matamaterials*, 7-11 April 2008, Strasbourg, France.
- Program Commitee in the topical meeting *Nanophotonics, Photonic Crystals and Metamaterials* of the European Optical Society Annual Meeting, September 29 - October 2, 2008, Paris, France.
- Program Commitee in the SPIE conference *Optics and Optoelectronics Symposium 2009: Metamaterials*, 20-24 April 2009, Prague, Czech Republic.
- Program Commitee in the SPIE conference *Photonics Europe 2010: Metamaterials*, 12-16 April 2010, Brussels, Belgium.

- Program Committee in the conference *Metamaterials 2010*, 13-16 September 2010, Karlsruhe, Germany.
- Program Committee in the topical meeting *Nanophotonics and Metamaterials* of the European Optical Society Annual Meeting, 26-29 October, 2010, Paris, France.
- Program Committee in the SPIE conference *Photonics Europe 2011: Matamaterials*, April 12-16, Brussels, Belgium.
- Organizing committee of the EUPROMETA school on *Engineering applications of metamaterials*, October 14-15, 2011, Barcelona, Spain.
- Organizing Committee in the *4th Mediterranean Conference on Nanophotonics (Medi-Nano4)*, October 24-25, 2011, Rome, Italy.
- Organizing Committee in the *International Workshop on Theoretical and Computational Nanophotonics 2011 (TaCoNa-Photonics2011)*, October 26-28, 2011, Bad Honnef, Germany.
- Committee of honor, *9th Conference on Electrical, Transport and Optical Properties of Inhomogeneous Media (ETOPIM 9)*, September 2-7, 2012, Marseille, France.
- Organizing committee of the conference *Metamaterials 2012*, September 17-22, 2012, St. Petersburg, Russia.
- Program committee in the topical meeting *Nanophotonics and Metamaterials* of the European Optical Society Annual meeting 2012, September 25-28, 2012, Aberdeen, Scotland.
- Management committee of the Metamorphose Virtual Institute of Metamaterials, 2011-2012.
- Management committee of the COST Action MP0803 "Plasmonic Components and Devices".

Editorial activities:

- Guest editor at *Physica B*, Vol. 405, No. 14-15, 2010 (special issue for Proceedings of ETOPIM8 conference).
- Guest editor at *Metamaterials*, Vol. 5, Issues 2-3, 2011 (special issue for Proceedings of Metamaterials 2010 - Karlsruhe conference).
- Guest editor at *Physica B* (special issue for Proceedings of WavePro conference), to appear in 2012.

Research programmes:

2000-2002: *Photonic Crystal Integrated Circuits (PCIC)*, FP5 EU-IST Programme. *Coordinator:* Ecole Polytechnique, France. *Role:* Researcher.

2002-2006: *Development and Analysis of Left-Handed Materials (DALHM)*, FP5 EU-IST Programme. *Coordinator:* FORTH. *Role:* Researcher.

2004-2008: *Metamaterials Organized for Radio, Millimeter Wave and Photonic Superlattice Engineering (METAMORPHOSE)*, FP6 EU-NoE Programme.

Coordinator: Helsinki University of Technology, Finland. *Role:* Researcher.

2004-2008: *Nanophotonics to Realize Molecular Scale Technologies (PHOREMOST)*. FP6 EU-NoE Programme. *Coordinator:* University of Cork, Ireland. *Role:* Researcher.

2004-2007: *Development and Study of Left-Handed Materials*. Pythagoras Programme, Greek Ministry of National Education and Religion Affairs. *Role:* Researcher.

2008-2011: *Photonic Metamaterials (PHOME)*. FP7 EU-ICT-FET Programme. *Coordinator:* FORTH. *Role:* Researcher.

2008-2012: *Engineered Self-Organized Multicomponent Structures with Novel Controllable Electromagnetic Functionalities (ENSEMBLE)*. FP7 EU-NMP Programme. *Coordinator:* Institute of Electronic Materials Technology (ITME), Warsaw, Poland. *Role:* Prime Investigator.

2008-2011: *Electromagnetic Characterization of Nanostructured Materials (ECONAM)*. FP7 EU-NMP-CA Programme. *Coordinator:* Helsinki University of Technology, Finland. *Role:* Prime Investigator.

2009-2012: *Large Area Fabrication of 3D Negative Index Materials by Nanoimprint Lithography (NIMNIL)*. FP7 EU-NMP Programme. *Coordinator:* Profactor GmbH, Austria. *Role:* Researcher.

2007-2012: COST Action MP0702, *Towards Functional Sub-Wavelength Photonic Structures*. *Role:* Member.

2007-2012: COST Action MP0803, *Plasmonic Components and Devices*. *Role:* Member.

2010-... : *Belarus in ERA Widening (By-Nanoera)*. FP7 INCO Programme. *Coordinator:* Belarusian State University. *Role:* Associated Researcher.

Teaching experience:

2004 - 2011: Adjunct Associate Professor, Material Sciences Department, University of Crete. Courses:

- Modern Physics - Introduction to Quantum Mechanics
- Applied Mathematics (Complex Analysis, Linear Algebra, Probability Theory)

1989 - 1996: Teaching Assistant, Physics Department, University of Crete.

Assistant at the courses

- General Mathematics (2 semesters)
- Ordinary Differential Equations (2 semesters)
- Partial Differential Equations (2 semesters)
- Modern Physics I [Quantum Physics] (3 semesters)
- Modern Physics II [Statistical Physics, Special Relativity, Particle Physics] (3 semesters)

Assistant at the laboratory courses

- Electricity and Magnetism (1 semester)
 - Mechanics (1 semester)
 - Modern Physics (2 semesters)
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Computational experience:

- *Operational systems:* Good knowledge of Unix and of Windows.
 - *Programming languages:* Large experience with Fortran 77 and knowledge of Fortran 90.
 - Knowledge of Parallel Programming with Message Passing Interface (MPI).
 - Knowledge of the use of high computing systems, such as Cray T3D, J90, etc.
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Other science-related activities:

External collaborator of the Crete University Press:

- Editing and revision of the book *Mathematical Methods of Physics*, Vol. 1, by I. D. Vergados, 2004.
 - Translation (from English to Greek) of the scientific dictionary *McMillan Dictionary of the History of Science* (Physics, Astronomy and Geology entries), 2004.
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Languages:

Greek (native language), English, Spanish (spoken).

Schools and conferences:

September 1993: “Quantum Coherence in Microstructures”, Hersonisos, Crete, Greece.

June-July 1994: Erasmus school in Heraklion, Crete, Greece on

- Wave propagation in Disordered Media.
- Nonlinear phenomena in Condensed Matter Physics.

June 1995: NATO ASI on “Photonic Band Gap Materials”, Elounta, Crete, Greece.

May 1996: “Interdisciplinary School on Wave Propagation in Random Media”, Cargese, Corsica, France.

March 1998: “School on Diffuse Waves in Complex Media”, Les Houches, France.

October 1998: “Percolation, Interaction, Localization: Simulations of Transport in Disordered Systems”, Berlin, Germany.

March 1999: “The third Euroconference on Parallel and Distributed Computing for Computational Mechanics”, Weimar, Germany.

June 2000: NATO ASI on “Photonic Crystals and Light Localization”, Hersonisos, Crete, Greece.

April 2001: “Optical Waveguide Theory and Numerical Modelling”, Paderborn, Germany.

April 2002: “European Symposium on Photonic Crystals”, Warsaw, Poland.

June 2002: NATO ASI “Wave Scattering in Complex Media”, Cargese, Corse.

March 2004: “Progress in Electromagnetism (PIERS)”, Piza, Italy.

June 2004: “Nanoelectronic and Photonic Systems Workshop”, Tarragona, Spain.

April 2005: “Seminar on Metamaterials and Circuit Design Based on Split-ring Resonators”, Barcelona, Spain.

May 2005: “Microtechnologies for the New Millenium”, SPIE Conf., Seville, Spain.

June 2005: “Photonic and Electromagnetic Crystal Structures (PECS) VI”, Agia Pelagia, Crete, Greece.

July 2005: “Summer School on Metamaterials”, San Sebastian, Spain.

October 2005: “1st annual workshop on Advances in Nanophotonics”, Heraklion, Crete, Greece.

July 2006: In “ETOPIM7: The 7th International Conference on the Electrical, Transport and Optical Properties of Inhomogeneous Media”, Sydney, Australia.

September 2006: “Mediterranean Microwave Symposium 2006”, Genova, Italy.

September 2006: “2nd annual workshop on Advances in Nanophotonics”, Vilnius, Lithuania.

October 2006: “The 5th RIKEN Nanophotonics Symposium on Plasmonics and Nanophotonics”, RIKEN, Tokyo, Japan.

January 2007: “NANOMETA: The 1st European Topical Meeting on Nanophotonics and Metamaterials”, Seefeld, Austria.

April 2007: “SPIE conference on Optics and Optoelectronics 2007”, Prague, Czech Republic.

April 2007: “Workshop on Advances in Physics and Technology of Photonic Crystals”, organized by the COST P11 Action, Prague, Czech Republic.

July 2007: The “9th International Conference on Transparent Optical Networks (ICTON)”, Rome, Italy.

September 2007: “XXIII Panhellenic Conference of Solid State Physics and Materials Science”, Athens, Greece.

October 2007: “Metamaterials 2007 - First international congress on advanced electromagnetic materials in microwaves and optics”, Rome, Italy.

October 2007: School on “The role of metamaterials in cloaking technology”, Rome, Italy.

February 2008: “Metamaterials week 2008 in Barcelona” (school and workshop), Barcelona, Spain.

February 2008: “Nanostructured Photonics Symposium”, part of the “Annual Meeting of the German Physical Society (DPG Tagung)”, Berlin, Germany.

March 2008: “Progress in Electromagnetics Research Symposium (PIERS) 2008”, Hangzhou, China.

April 2008: SPIE conference “Photonics Europe: Matamaterials”, Strasbourg, France.

April 2008: NATO Technical Workshop on “Photonic Metamaterials for Defense and Security Applications”, Strasbourg, France.

April 2008: “Women in Photonics School on Photonic Metamaterials”, Paris, France.

May 2008: “META08 - Metamaterials for Secure Information and Communication Technologies”, NATO Advanced Research Workshop, Marrakesh, Morocco.

July 2008: The “10th International Conference on Transparent Optical Networks (ICTON)”, Athens, Greece.

October 2008: ”1st Mediterranean Conference on Nanophotonics”, Istanbul, Turkey.

October 2008: The ”European Optical Society (EOS) Annual Meeting”, Paris, France.

July 2009: “ICMAT 2009: International Conference on Materials for Advanced Technologies 2009”, Singapore.

August 2009: “Metamaterials 2009”, London, UK.

September 2009: “25th PanHellenic Conference on Solid State Physics and Materials Science”, Thessaloniki, Greece.

October 2009: “Emerging Trends and Novel Materials in Photonics”, Delphi, Greece.

January 2010: Workshop on ”Metamaterials: Applications, Analysis and Modeling”, Los Angeles, USA.

February 2010: ”2nd International Conference on Metamaterials, Photonic Crystals and Plasmonics (Meta’10)”, Cairo, Egypt.

April 2010: SPIE conference “Photonics Europe: Matamaterials”, Brussels, Belgium.

June 2010: ”5th Forum on New Materials in CIMTEC 2010 Conference”, Florence, Italy.

June 2010: ”12th International Conference on Transparent Optical Networks (ICTON)”, Munich, Germany.

July 2010: Summer school on ”Mesoscopic Physics in Complex Media”, Cargese, Corse.

August 2010: SPIE Optics and Photonics conference on “Nanoscienc+Engineering”, San Diego, USA.

September 2010: “Metamaterials 2010”, Karlsruhe, Germany.

October 2010: ”3rd Mediterranean Conference on Nanophotonics” (Medi-Nano 3), Belgrade, Serbia.

December 2010: School on “Experimental characterization of electromagnetic metamaterials”, Heraklion (FORTH), Crete, Greece.

March 2011: ”Progress In Electromagnetics Research Symposium 2011” (PIERS 2011), Marrakesh, Morocco.

May 2011: Annual international conference ”Days of Diffraction” (Metamaterials Workshop), St. Petersburg, Russia.

June 2011: ”International Conference for Materials for Advanced Technologies (ICMAT) 2011 - Symposium S: Metamaterials”, Singapore.

August 2011: ”Moscow International Symposium on Magnetism” (MISM), Moscow, Russia.

September 2011: ”Nanoscience and Nanotechnology 2011”, Frascati, Italy.

October 2011: ”Metamaterials 2011”, Barcelona, Spain.

October 2011: School on ”Engineering Applications of Metamaterials”, Barcelona, Spain.

October 2011: W&E Heraeus-Seminar ”Quantum and Nano Plasmonics”, Bad Honnef, Germany.
