



Nikos Lazarides is Research Assistant Professor at the Physics Department of the University of Crete, and Collaborating Researcher at the Institute of Electronic Structure and Laser, Foundation for Research and Technology – Hellas.

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Current Research Interests

Theoretical understanding through analytical techniques and numerical approaches of complex systems, with emphasis on localization, nonlinear and superconducting metamaterials, wave propagation, transition metal oxide interfaces, nonlinear and disordered optical lattices, and graphene-like structures.

Short Curriculum Vitae

Education-Previous Employment: Nikos Lazarides received his B. Sc. in Physics from University of Crete in 1989, and his M. Sc. in Physics from the University of Crete in 1991. He obtained his Ph. D. in Applied Mathematical Physics from the Technical University of Denmark in 1995. After serving in the Greek military (compulsory, 1995-1996), he joined the Department of Physics of the University of Crete as a Post-Doctoral Researcher (1997-2001). From 2001 to 2004 he was Adjunct Professor at the Department of Physics (2001-2002) and at the Department of Materials Science and Technology (2002-2004) of the University of Crete. During the academic years 2001-2011 he has also been part time Collaborating Scientist for teaching and research in the Technological Educational Institute of Crete. Since 2004 he has been Research Assistant Professor at the Department of Physics of the University of Crete and since 2009 has been Collaborating Researcher at the Institute of Electronic Structure and Laser, Foundation for Research and Technology – Hellas (IESL-FORTH). He is currently a member of the Crete Center for Quantum Complexity and Nanotechnology (<http://qcn.physics.uoc.gr>).

Scientific activities: He has 43 publications in refereed international journals (+1 submitted article), 1 (+1 submitted) invited chapter in a Collective volume, and 5 articles in Conference Proceedings volumes. He has participated in 17 international (4 invited lectures +1 session chaired) and 5 national conferences. His work has approximately 480 citations in Scopus and an h-index of 12. He is Reviewer for several scientific journals including Physical Review A, B, & E, Physical Review Letters, Applied Physics Letters, and Journal of the Optical Society of America B, Journal of Modern Optics, and Optics Express. He is also a member of the editorial board of Universal Journal of Physics and Application (2013-2016, Horizon Research Publishing). He has participated in several research projects. He is currently an External Research Team member in the Thales projects “MACOMSYS” and “ANEMOS”, co-financed by the European Union (European Social Fund – ESF) and Greek national funds.

Google Scholar Profile at:

<http://scholar.google.gr/citations?user=WmQosyYAAAAJ&hl=el&oi=ao>

Recent scientific achievements.- Nikos Lazarides and his collaborators have calculated a general expression for the Josephson current in double-barrier superconductor-ferromagnet junctions by solving analytically the corresponding Bogoliubov – de Gennes equations (2003). They demonstrated theoretically the existence of solitons (2005) and dissipative discrete breathers (2006,2008) in nonlinear and superconducting metamaterials. They have suggested a novel metamaterial based on superconducting quantum interference devices (2007) which has initiated experimental activity in this field. They demonstrated theoretically a novel, parity-time symmetric metamaterial that supports breather-like localized modes (2013) and moreover provides loss compensation.

Recent selected references:

1. N. Lazarides, G. P. Tsironis, "Gain-Driven Discrete Breathers in PT –Symmetric Nonlinear Metamaterials", Physical Review Letters **110**, 053901 (2013).
2. N. Lazarides, G. Tsironis, "Intrinsic localization in nonlinear and superconducting metamaterials", Proceedings of SPIE Vol. **8423**, art. no. 84231K (2012).
3. N. Lazarides, V. Paltoglou, P. Maniadis, G. P. Tsironis, and C. Panagopoulos, "Strain-induced interface reconstruction in epitaxial heterostructures", Physical Review **B 84**, 245428 (2011).
4. N. Lazarides, M. I. Molina, G. P. Tsironis, Yu. S. Kivshar, "Multistability and localization in coupled nonlinear split-ring resonators", Physics Letters A 374, pp. 2095-2097 (2010).
5. M. I. Molina, N. Lazarides, G. P. Tsironis, "Bulk and surface magnetoinductive breathers in binary metamaterials", Physical Review **E 80 (4)**, art. no. 046605 (2009).
6. N. Lazarides, G. P. Tsironis, Yu. S. Kivshar, "Surface breathers in discrete magnetic metamaterials", Physical Review **E 77 (6)**, art. no. 065601(R) (2008).
7. N. Lazarides, G. P. Tsironis, "rf superconducting quantum interference device metamaterials", Applied Physics Letters **90 (16)**, art. no. 163501 (2007).
8. N. Lazarides, M. Eleftheriou, G. P. Tsironis, "Discrete Breathers in Nonlinear Magnetic Metamaterials", Phys. Rev. Lett. **97**, 157406 (2006). [cited by 50 in Scopus]
9. N. Lazarides, G. P. Tsironis, "Coupled Nonlinear Schroedinger Field Equations for Electromagnetic Wave Propagation in Nonlinear Left-Handed Materials", Phys. Rev. **E 71**, 036614 (2005). [cited by 113 in Scopus]
10. Z. Radovic, N. Lazarides, N. Flytzanis, "Josephson effect in double-barrier superconductor-ferromagnet junctions", Phys. Rev. **B 68**, 014501 (2003). [cited by 76 in Scopus].