

## Short CV

<b>Name</b>	<b>KATHERINE SIAKAVARA</b> <a href="http://rcl.physics.auth.gr/En/Staff/Siakavara.htm">http://rcl.physics.auth.gr/En/Staff/Siakavara.htm</a>
<b>Position</b>	Professor, Physics Department, ARISTOTLE UNIVERSITY OF THESSALONIKI
<b>Studies</b>	<ul style="list-style-type: none"> <li>• PhD __ Physics Department, Aristotle University of Thessaloniki (1982)</li> <li>• MSc in Electronics, Physics Department, Aristotle University of Thessaloniki (1979)</li> <li>• B.Sc degree in Physics, Physics Department, Aristotle University of Thessaloniki (1977)</li> </ul>
<b>Scientific Expertise</b>	<p><b>1977-1982:</b> Teaching-research assistant at the 3<sup>rd</sup> Laboratory of Physics, at Physics Department of Aristotle University of Thessaloniki</p> <p><b>1982-1991:</b> Lecturer, Physics Department, Aristotle University of Thessaloniki</p> <p><b>1991-2010:</b> Assistant Professor, Physics Department, Aristotle University of Thessaloniki</p> <p><b>2010 – 10/2016:</b> Associate Professor, Physics Department, Aristotle University of Thessaloniki</p> <p><b>10/2016 - today:</b> Professor, Physics Department, Aristotle University of Thessaloniki</p> <p>➤ Member of the Radiocommunications' Laboratory Research Team</p> <p><b><u>Memberships</u></b></p> <ul style="list-style-type: none"> <li>_ Hellenic Physicists Society</li> <li>_ Institute of Electrical and Electronics Engineers (IEEE)</li> <li>_ European Association on Antennas and Propagation (EurAAP)</li> <li>_ Association for Computing Machinery(ACM)</li> <li>_ Applied Computational Electromagnetics Society (ACES)]</li> </ul>
<b>Research Activities</b>	<ul style="list-style-type: none"> <li>• 65 articles in peer-reviewed international journals</li> <li>• 63 articles in peer-reviewed international conference proceedings</li> <li>• Contribution to international books: a)co-author in two book chapters b) single author of one book chapter</li> <li>• More than1000 citations (without self citations)</li> <li>• 1 Workshop(national)</li> <li>• 2 Workshops (European)</li> <li>• 9 National Conferences</li> <li>• 3 educational books in Greek(co-author)</li> <li>• Lecture notes for courses of Physics Department</li> <li>• Participation in 12 research projects</li> <li>• Reviewer in 5 international journals</li> <li>• Supervision of 50 postgraduate theses</li> <li>• Supervision of 79 undergraduate theses</li> <li>• Supervisor in 4 doctoral theses (all completed)</li> <li>• Member of supervising committees of 6 doctoral theses (3 completed, 3 in progress)</li> </ul>

<p><b>Research Interests</b></p>	<p><u>Research Activities:</u></p> <p><u>Antennas for fix and mobile communication land networks and networks of satellite communications.</u></p> <ul style="list-style-type: none"> <li>• Analysis, synthesis and study of antenna arrays, of microstrip antenna and complex radiators with analytic methods of electromagnetic theory , low and high frequency techniques, fractal techniques and Neural Networks.</li> <li>• Smart antenna systems(Switched and Adaptive antenna arrays) , Algorithms of Direction of Arrival(DoA) estimation, beamforming techniques and Neural Networks</li> <li>• Synthesis and study of antenna systems for portable devices, mobile communications Base Stations</li> <li>• Hybrid antennas integrated with (Electromagnetic Band Gap_EBG structures)</li> <li>• RFID system tags</li> <li>• Ambient RF power harvesting</li> </ul> <p><u>Microwaves</u></p> <ul style="list-style-type: none"> <li>• Wave Propagation in waveguides and microstrip structures.</li> <li>• Theoretical analysis, of electromagnetic wave propagation in Double Negative(DNG) media. Synthesis of microwave arrangements employing DNG or SNG(Single Negative) loads</li> </ul> <p><u>Radiowave propagation</u></p> <p>Analysis with deterministic models and Neural Networks Algorithms</p> <p><u>Applied Electromagnetism</u></p> <p>Application of electromagnetic theory and employment of specific techniques to the analysis and synthesis of radio-communication systems.</p>
<p><b>Most Important Publications in International peer-reviewed Journals (last 5 years)</b></p>	<ol style="list-style-type: none"> <li>1. Sotirios K. Goudos, Katherine Siakavara, Argiris Theopoulos, Elias E. Vafiadis and John N. Sahalos: ' Application of Gbest-guided artificial bee colony algorithm to passive UHF RFID tag design', <i>International Journal of Microwave and Wireless Technologies</i>, Vol. 8, No. 3, pp.537-545, 2016</li> <li>2. Peristerianos, A., Theopoulos, A., Koutinos, A.G., Kaifas, T., <u>Siakavara, K.</u> , 'Dual-Band Fractal Semi-Printed Element Antenna Arrays for MIMO Applications', <i>IEEE Antennas and Wireless Propagation Letters</i>, Vol. 15, pp.730-733, 2016 DOI: 10.1109/LAWP.2015.2470681</li> <li>3. Christos Mourtzios and Katherine Siakavara, ' A New Method of Driving Wire Dipole Antennas to Multiband Operation via Non-Uniform EBG Lattices for Employment to Wireless Communication Applications', <i>Progress In Electromagnetics Research C</i>, Vol. 67, 173–184, 2016</li> <li>4. K. Siakavara, S. Goudos, A. Theopoulos, J. Sahalos, ' Passive UHF RFID Tags with Specific Printed Antennas for Dielectric and Metallic Objects Applications', <i>Radioengineering</i>, vol. 26, no. 3, pp.735-745, Sept. 2017 DOI: 10.13164/re.2017.0735</li> <li>5. Christos Mourtzios, Katherine Siakavara, 'Contribution of Non-Uniform EBG Antenna Arrays to the Enhancement of MIMO Channel Capacity', <i>Int. J. Electron. Commun. (AEÜ)</i>, Vol. 82, pp. 334-340, 2017. <a href="https://doi.org/10.1016/j.aeue.2017.09.016">https://doi.org/10.1016/j.aeue.2017.09.016</a></li> <li>6. Athanasios Paraskevopoulos, Panagiotis I. Dallas, Katherine Siakavara, Sotirios K. Goudos, 'Cognitive Radio Engine Design for IoT Using Real-Coded Biogeography-Based Optimization and Fuzzy Decision Making', <i>Wireless Personal Communications, Wireless Pers Commun</i> , Vol. 97, pp: 1813–1833, 2017 DOI 10.1007/s11277-017-4646-9</li> <li>7. A. Karampatea and K. Siakavara, "Analysis and Synthesis of Double Negative Dielectric Media Rectenna Systems for Ambient Microwave Energy Harvesting", <i>Hindawi, International Journal of Antennas and Propagation</i>, Volume 2018, Article ID 2472738, 13 pages <a href="https://doi.org/10.1155/2018/2472738">https://doi.org/10.1155/2018/2472738</a></li> <li>8. Thomas Tegou, Antonios Tsiflikiotis, Katherine Siakavara, S. Nikolaidis, Sotirios</li> </ol>

- Goudos, Vergados Dimitrios, Panagiotis Sarigiannidis, Mohammad Obaidat, 'Spectrum Allocation in Cognitive Radio Networks using Chaotic Biogeography-based Optimization', *IET Networks*, Vol. 7, Issue: 5 , pp. 328 – 335, 2018  
DOI: 10.1049/iet-net.2017.0264
9. Konstantinos C. Fountoukidis, Christos Kalialakis, Kostas E. Psannis, Katherine Siakavara, Sotirios K. Goudos, Panagiotis Sarigiannidis, Mohammad Obaidat, 'MIMO Antenna Selection Using Biogeography Based Optimization with Non-Linear Migration Models', *International Journal of Communication Systems* , Article ID: DAC3813, Internal Article ID: 15913850, pages 17.  
DOI: 10.1002/dac.3813, 2018
  10. Panagiotis Gkonis , Dimitra Kaklamani, Iakovos Venieris, Constantine Dervos, Michael Chrysomallis, Katherine Siakavara, George Kyriakou, 'On the Reduction of Transmission Complexity in MIMO-WCDMA Frequency Selective Fading Orientations via Eigenvalue Analysis', *Electronics*, 7, 239 , 2018  
doi:10.3390/electronics7100239
  11. Sotirios K. Goudos , Traianos V. Yioultis , Achilles D. Boursianis, Kostas E. Psannis , Katherine Siakavara, 'Application of New Hybrid Jaya Grey Wolf Optimizer to Antenna Design for 5G Communications Systems', *IEEE Access*, Vol. 7, pp. 71061 – 71071, 8723127, 2019
  12. A. Karampatea, K. Siakavara, 'Hybrid rectennas of printed dipole type on Double Negative Dielectric Media for powering sensors via RF ambient energy harvesting', *Int. J. Electron. Commun. (AEÜ)* 108 (2019) 242–250 *International Journal of Electronics and Communications(AEÜ)* , Vol. 108, pp. 242–250, 2019.  
<https://doi.org/10.1016/j.aeue.2019.06.023>
  13. Apostolia Karampatea and Katherine Siakavara, 'Synthesis of Rectenna for Powering Micro-Watt Sensors by Harvesting Ambient RF Signals' Power', *MDPI-Electronics* 8(10), 1108, 2019  
<https://doi.org/10.3390/electronics8101108>
  14. Sotirios P. Sotiroudis, Sotirios K. Goudos and Katherine Siakavara, 'Feature Importances: A Tool to Explain Radio Propagation and Reduce Model Complexity', 'MDPI *Telecom*, 1, pp. 114–125. 2020  
[doi:10.3390/telecom1020009](https://doi.org/10.3390/telecom1020009)
  15. Sotiroudis, S.P., Goudos, S.K., Siakavara, K., 'Deep learning for radio propagation: Using image-driven regression to estimate path loss in urban areas', *ICT Express*, 6(3), pp. 160–165, 2020
  16. S. P. Sotiroudis, P. Sarigiannidis, S. K. Goudos and K. Siakavara, "Fusing Diverse Input Modalities for Path Loss Prediction: A Deep Learning Approach", *IEEE Access*, vol. 9, pp. 30441-30451, 2021, doi: 10.1109/ACCESS.2021.3059589
  17. Sotiroudis, S., Siakavara, K., Koudouridis, G., Sarigiannidis, P., Goudos, S., 'Enhancing Machine Learning Models for Path Loss Prediction Using Image Texture Techniques', *IEEE Antennas and Wireless Propagation Letters*, Vol. 20, No 8, pp. 1443-1447, August 2021  
DOI :10.1109/LAWP.2021.3086180
  18. Christos Mourtzios, Katherine Siakavara, 'Synthesis of a printed loop rectenna using metamaterials for effective RF energy harvesting', *International Journal of Engineering Research and Development*, e- ISSN: 2278-067X, p-ISSN: 2278-800X, Volume 17, Issue 4 (Jul. – Aug. 2021), PP. 51-62  
[www.ijerd.com](http://www.ijerd.com)
  19. Christos Mourtzios, Katherine Siakavara, 'Non Uniform Electromagnetic Band Gap Lattices: a rectenna application', (paper ID:73, <https://sched.co/ICZ3>) in 5th World Conference on Smart Trends in Systems, Security and Sustainability (WorldS4 2021), London, United Kingdom, 29-30 July, 2021IEEE Xplore,  
DOI: [10.1109/WorldS451998.2021.9514034](https://doi.org/10.1109/WorldS451998.2021.9514034)
  20. Sotirios P. Sotiroudis, Achilles D. Boursianis, Sotirios K. Goudos, Katherine Siakavara, 'From Spatial Urban Site Data to Path Loss Prediction: An Ensemble Learning Approach', *IEEE Transactions on Antennas and Propagation*, Vol. 70, No 7, pp. 6101-6105, July 2022 DOI: 10.1109/TAP.2021.3138257