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**Postdoctoral Researcher**  
**Institute of Electronic Structure & Laser,**  
**Foundation for Research & Technology – Hellas**  
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### Personal Information

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### Research Experience

**2016 – ...** **Postdoctoral Researcher**  
 Institute of Electronic Structure & Laser, Foundation for Research and Technology – Hellas  
[Phononic-, Photonic-, and Meta-Materials Group](#)

Group Leaders: Prof. E. N. Economou, Prof. C. M. Soukoulis, Prof. M. Kafesaki

**Jun – Aug 2016** **Visiting Researcher**  
 Ames Laboratory–U.S. DOE and Iowa State University, Ames, IA, USA  
[Research Group](#)  
 Group Leader: Prof. C. M. Soukoulis

**2014 – 2015** **Postdoctoral Researcher**  
 Dept. of Electrical and Computer Engineering, Aristotle University of Thessaloniki  
[Photonics Group](#)  
 Group Leader: Prof. E. E. Kriezis

**2008 – 2013** **Graduate Research Assistant**  
 Dept. of Electrical and Computer Engineering, Aristotle University of Thessaloniki

### Education

**2008 – 2013** **PhD in Electrical and Computer Engineering**  
 Dept. of Electrical and Computer Engineering, Aristotle University of Thessaloniki

**2001 – 2008** **Diploma degree in Electrical and Computer Engineering**  
 Dept. of Electrical and Computer Engineering, Aristotle University of Thessaloniki

### Skills and Qualifications

**Languages**

- **English:** Certificate of Proficiency in English, University of Michigan | C2
- **German:** Zertifikat Deutsch als Fremdsprache, Goethe Institut | B1

**Programming/  
Software**

- Scientific Programming: Matlab, C/C++, Python
- Electromagnetic Analysis Software:  
COMSOL Multiphysics, CST Microwave Studio, Ansoft Designer

## Honors and Distinctions

<b>Jul 2020</b>	Three-year ELIDEK research proposal ( <b>Principal Investigator</b> ) marked with 95.7/100 in the final evaluation stage. Project starts on January 2021.
<b>Aug 2019</b>	Elevation to <b>IEEE Senior Member</b> grade. Awarded to members who have made significant contributions to the profession.
<b>Nov 2019</b>	Appointment as <b>Management Committee</b> member (2 members per participating country) for Cost Action CA18223 - Future communications with higher-symmetric engineered artificial materials
<b>Apr 2019</b>	Paper "Intelligent Metasurfaces with Continuously Tunable Local Surface Impedance for Multiple Reconfigurable Functions" (DOI: 10.1103/PhysRevApplied.11.044024) where I am equally-contributing first-author selected as " <b>Editor's Pick</b> " in Physical Review Applied and has received 70 citations as of November 2020 (Google Scholar)
<b>Mar 2019 – Feb 2020 (12 months)</b>	Stavros Niarchos Foundation – FORTH <b>Postdoctoral research fellowship</b> within project ARCHERS
<b>Jan 2014 – Dec 2014 (12 months)</b>	<b>Postdoctoral research fellowship</b> from the Research Committee of the Aristotle University of Thessaloniki for studying optical bistability with hybrid silicon-plasmonic resonators
<b>Apr 2012</b>	<b>Best student paper</b> award for the paper " <i>Hybrid silicon-plasmonics: efficient waveguide interfacing for low-loss integrated switching components</i> " presented in SPIE Photonics Europe 2012 – Nanophotonics Conference
<b>Mar 2011 – Aug 2013 (30 months)</b>	"Heracleitus II" research <b>scholarship</b> , co-financed by the European Union and Greek national funds, for studying guided-wave plasmonic components
<b>Nov 2009 – Feb 2011 (16 months)</b>	<b>Scholarship</b> from the Greek State Scholarships Foundation for postgraduate studies. Three scholarships awarded for Electrical Engineers in the entire country.

## Courses, Workshops

<b>Mar 2009</b>	COST MP0702 Training School on Nonlinear Nanophotonics, SUPELEC, Metz, France
<b>Dec 2020</b>	Online workshop on Computational Materials Science 2020, HELLENIC SOCIETY FOR THE SCIENCE AND TECHNOLOGY OF CONDENSED MATTER
<b>Apr 2021</b>	<b>Coursera Online Courses</b> <ol style="list-style-type: none"> <li>1. "Materials Science: 10 Things Every Engineer Should Know" by University of California, Davis.</li> <li>2. "Material Behavior" by Georgia Institute of Technology</li> <li>3. "Computers, Waves, Simulations: A Practical Introduction to Numerical Methods Using Python" by Ludwig-Maximilians-Universitat Munchen</li> </ol>

## Complete Publication List

I have co-authored 43 journal papers (4 under review) and 50 conference contributions, as well as 5 book chapters. As of June 2021, I have received a total of ~995 citations to my work and an h-index of 19 [Google Scholar](#)

### Doctoral Dissertation

*"Surface plasmon polariton photonic devices of subwavelength physical scale"*  
 Dept. of Electrical and Computer Engineering, Aristotle University of Thessaloniki, 2013.  
 Supervisor: Prof. Emmanouil E. Kriezis

### Book Chapters

- [1] S. Papaioannou, K. Vysokinos, G. Giannoulis, D. Apostolopoulos, H. Avramopoulos, F. Zacharatos, K. Hassan, J.-C. Weeber, L. Markey, A. Dereux, A. Kumar, S. I. Bozhevolnyi, A. Suna, O. Gili de Villasante, T. Tekin, M. Waldow, O. Tsilipakos, A. Ptilakis, E. E. Kriezis, and N. Pleros, *Merging Plasmonics and Silicon Photonics Towards Greener and Faster "Network-on-Chip" Solutions for Data Centers and High-Performance Computing Systems*, chapter 21 of *Plasmonics - Principles and Applications*, Dr. Ki Young Kim (Ed.), ISBN: 978-953-51-0797-2, InTech, 2012. DOI: 10.5772/51853 [\[link\]](#)
- [2] Anna C. Tasolamprou, Odysseas Tsilipakos, Alexey Basharin, Maria Kafesaki, Costas M. Soukoulis and Eleftherios N. Economou, *Toroidal multipoles in metamaterials*, Chapter 7 of Volume 5 in *Electromagnetic Analysis: From Electrostatics To Photonics*, Igor Tsukerman (Ed.), World Scientific, ISBN:978-981-3270-16-9.

- DOI: 10.1142/9789813270343\_0007 [\[link\]](#)
- [3] Sergi Abadal, Xavier Timoneda, Josep Sole-Pareta, Eduard Alarcon, Albert Cabellos-Aparicio, Anna Tasolamprou, Odyseas Tsilipakos, Christos Liaskos, Maria Kafesaki, Eleftherios N. Economou, Costas Soukoulis, Alexandros Ptilakis, Nikolaos V. Kantartzis, Mohammad Sajjad Mirmoosa, Fu Liu, Sergei Tretyakov, *Nanoscale Channel Modeling in Computing Packages*, Chapter 6 of Section II in *Nanoscale Networking and Communications Handbook*, John R. Vacca (Ed.), CRC Press, ISBN: 9781498727310. DOI: 10.1201/9780429163043 [\[link\]](#)
  - [4] Fu Liu, Xuchen Wang, Mohammad Sajjad Mirmoosa, Sergei Tretyakov, Odyseas Tsilipakos, Anna C. Tasolamprou, Maria Kafesaki, Alexandros Ptilakis, Nikolaos V. Kantartzis, Do-Hoon Kwon, chapter *Electromagnetic specifications and prototype designs of Software Defined Surfaces*, in book *Internet of Materials* (ed. Christos Liaskos), CRC Press. DOI: 10.1201/9781003043805 [\[link\]](#)
  - [5] Hamidreza Taghvaei, Sergi Abadal, Eduard Alarcon, Albert Cabellos-Aparicio, Taqwa Saeed, Andreas Pitsillides, Odyseas Tsilipakos, Christos Liaskos, Anna Tasolamprou, Maria Kafesaki, Alex Ptilakis, Nikolaos Kantartzis, Vassos Soteriou, Marios Lestas, chapter *The Scaling Laws of HyperSurfaces*, in book *Internet of Materials* (ed. Christos Liaskos), CRC Press. DOI: 10.1201/9781003043805 [\[link\]](#)

### Journal Articles

- [1] O. Tsilipakos, T. V. Yioultsis, and E. E. Kriezis, "Theoretical analysis of thermally tunable microring resonator filters made of dielectric-loaded plasmonic waveguides," *J. Appl. Phys.*, vol. 106, 093108, 2009.
- [2] O. Tsilipakos, and E. E. Kriezis, "Microdisk resonator filters made of dielectric-loaded plasmonic waveguides," *Opt. Commun.*, vol. 283, no. 15, pp. 3095-3098, 2010.
- [3] O. Tsilipakos, A. Ptilakis, A. C. Tasolamprou, T. V. Yioultsis, and E. E. Kriezis, "Computational techniques for the analysis and design of dielectric-loaded plasmonic circuitry," *Opt. Quant. Electron.*, vol. 42, no. 8, pp. 541-555, 2011.
- [4] O. Tsilipakos, E. E. Kriezis, and S. I. Bozhevolnyi, "Thermo-optic microring resonator switching elements made of dielectric-loaded plasmonic waveguides," *J. Appl. Phys.*, vol. 109, 073111, 2011.
- [5] O. Tsilipakos, E. E. Kriezis, and T. V. Yioultsis, "Boundary condition for the efficient excitation and absorption of hybrid waveguide modes in finite element formulations," *Microw. Opt. Technol. Lett.*, vol. 53, no. 11, pp. 2626-2631, 2011.
- [6] S. Papaioannou, K. Vysokinos, O. Tsilipakos, A. Ptilakis, K. Hassan, J.-C. Weeber, L. Markey, A. Dereux, S. I. Bozhevolnyi, A. Miliou, E. E. Kriezis, and N. Pleros, "A 320Gb/s-throughput capable 2x2 silicon-plasmonic router architecture for optical interconnects," *J. Lightw. Technol.*, vol. 29, no. 21, pp. 3185-3195, 2011.
- [7] K. Hassan, J.-C. Weeber, L. Markey, A. Dereux, A. Ptilakis, O. Tsilipakos, and E. E. Kriezis, "Thermo-optic plasmo-photonic mode interference switches based on dielectric loaded waveguides," *Appl. Phys. Lett.*, vol. 99, 241110, 2011.
- [8] G. Giannoulis, D. Kalavrouziotis, D. Apostolopoulos, S. Papaioannou, A. Kumar, S. I. Bozhevolnyi, L. Markey, K. Hassan, J.-C. Weeber, A. Dereux, M. Baus, M. Karl, T. Tekin, O. Tsilipakos, A. Ptilakis, E. E. Kriezis, K. Vysokinos, H. Avramopoulos, and N. Pleros, "Data transmission and thermo-optic tuning performance of dielectric-loaded plasmonic structures hetero-integrated on a silicon chip," *IEEE Photon. Technol. Lett.*, vol. 24, no. 5, pp. 374-376, Mar 2012.
- [9] D. Kalavrouziotis, S. Papaioannou, G. Giannoulis, D. Apostolopoulos, K. Hassan, L. Markey, J.-C. Weeber, A. Dereux, A. Kumar, S. I. Bozhevolnyi, M. Baus, M. Karl, T. Tekin, O. Tsilipakos, A. Ptilakis, E. E. Kriezis, H. Avramopoulos, K. Vysokinos, and N. Pleros, "0.48Tb/s (12x40Gb/s) WDM transmission and high-quality thermo-optic switching in dielectric loaded plasmonics," *Opt. Express*, vol. 20, no. 7, pp. 7655-7662, 2012.
- [10] O. Tsilipakos, A. Ptilakis, T. V. Yioultsis, S. Papaioannou, K. Vysokinos, D. Kalavrouziotis, G. Giannoulis, D. Apostolopoulos, H. Avramopoulos, T. Tekin, M. Baus, M. Karl, K. Hassan, J.-C. Weeber, L. Markey, A. Dereux, A. Kumar, S. I. Bozhevolnyi, N. Pleros, and E. E. Kriezis, "Interfacing dielectric-loaded plasmonic and silicon photonic waveguides: Theoretical analysis and experimental demonstration," *IEEE J. Quant. Electron.*, vol. 48, no. 5, pp. 678-687, 2012.
- [11] O. Tsilipakos, D. C. Zografopoulos and E. E. Kriezis, "Quasi-soliton pulse-train propagation in dispersion-managed silicon rib waveguides," *IEEE Photon. Technol. Lett.*, vol. 25, no. 8, pp. 724-727, 2013.
- [12] D. A. Ketzaki, O. Tsilipakos, T. V. Yioultsis, and E. E. Kriezis, "Electromagnetically induced transparency with hybrid silicon-plasmonic traveling-wave resonators," *J. Appl. Phys.*, vol. 114, 113107, 2013.
- [13] A. Ptilakis, O. Tsilipakos and E. E. Kriezis, "Optimizing Silicon-Plasmonic Waveguides for  $\chi^{(3)}$  nonlinear applications," *Appl. Phys. A*, vol. 115, no. 2, pp. 475-479, 2014.
- [14] O. Tsilipakos, and E. E. Kriezis, "Optical bistability with hybrid silicon-plasmonic disk resonators," *J. Opt. Soc. Am. B*, vol. 31, no. 7, pp. 1698-1705, 2014.
- [15] T. Christopoulos, G. Sinatkas, O. Tsilipakos and E. E. Kriezis, "Bistable action with hybrid plasmonic Bragg-grating resonators," *Opt. Quantum Electron.* 48 (2), 128, 2016. **[corresponding author]**
- [16] O. Tsilipakos, T. Christopoulos, and E. E. Kriezis, "Long-range hybrid plasmonic disk resonators for mW

- bistability and self-pulsation," *J. Lightw. Technol.* 34 (4), pp. 1333-1343, 2016.
- [17] T. Christopoulos, O. Tsilipakos, N. Grivas, and E. E. Kriezis, "Coupled-mode-theory framework for nonlinear resonators comprising graphene," *Phys. Rev. E* 94, 062219, 2016. **[co-corresponding author]**
- [18] A. C. Tasolamprou, O. Tsilipakos, M. Kafesaki, C. M. Soukoulis and E. N. Economou, "Toroidal eigenmodes in all-dielectric metamolecules," *Phys. Rev. B* 94, 205433, 2016.
- [19] T. Christopoulos, O. Tsilipakos, and E. E. Kriezis, "Low-power bistability in graphene-comprising 3D photonic resonant circuits," *J. Appl. Phys.* 122, 233101, 2017.
- [20] O. Tsilipakos, T. Koschny, C. M. Soukoulis, "Antimatched Electromagnetic Metasurfaces for Broadband Arbitrary Phase Manipulation in Reflection," *ACS Photonics* 5(3), pp. 1101-1107, 2018.
- [21] O. Tsilipakos, A. C. Tasolamprou, Th. Koschny, M. Kafesaki, E. N. Economou and C. M. Soukoulis, "Pairing toroidal and magnetic dipole resonances in elliptic dielectric rod metasurfaces for reconfigurable wavefront manipulation in reflection," *Adv. Opt. Mater.* 6, 1800633, 2018. doi: 10.1002/adom.201800633
- [22] T. Christopoulos, O. Tsilipakos, G. Sinatkas and E. E. Kriezis, "Degenerate four-wave mixing in nonlinear resonators comprising 2D materials: a coupled-mode theory approach," *Phys. Rev. B* 98, 235421, 2018.
- [23] G. Perrakis, O. Tsilipakos, G. Kenanakis, M. Kafesaki, C. M. Soukoulis, E. N. Economou, "Perfect optical absorption with nanostructured metal films: design and experimental demonstration," *Opt. Express* 27(5), pp. 6842-6850, 2019. **[corresponding author]**
- [24] F. Liu\*, O. Tsilipakos\*, A. Pitilakis, A. C. Tasolamprou, M. S. Mirmoosa, N. V. Kantartzis, D.-H. Kwon, J. Georgiou, K. Kossifos, M. A. Antoniadis, M. Kafesaki, C. M. Soukoulis, S. A. Tretyakov, "Intelligent Metasurfaces with Continuously Tunable Local Surface Impedance for Multiple Reconfigurable Functions" *Phys. Rev. Appl.* 11, 044024, 2019. **[first author equal contribution, corresponding author]** **[Editor's Pick]**
- [25] T. Christopoulos\*, O. Tsilipakos\*, G. Sinatkas and E. E. Kriezis, "On the calculation of Quality Factor in contemporary photonic resonant structures," *Optics Express* 27(10), pp. 14505-14522, 2019. **[co-corresponding author]**
- [26] E. Takou, A. C. Tasolamprou, O. Tsilipakos, and E. N. Economou, "Dynamic Anapole in Metasurfaces made of Sculptured Cylinders," *Physical Review B* 100, 085431, 2019.
- [27] G. Sinatkas, T. Christopoulos, O. Tsilipakos, and E. E. Kriezis, "Comparative study of transparent conducting oxide and graphene silicon-photonics modulators," *Physical Review Applied* 12, 064023, 2019.
- [28] A. C. Tasolamprou, A. Pitilakis, S. Abadal, O. Tsilipakos, X. Timoneda, H. Taghvaei, M. S. Mirmoosa, F. Liu, C. Liaskos, A. Tsioliaridou, N. V. Kantartzis, D. Manassis, J. Georgiou, A. Cabellos-Aparicio, E. Alarcón, A. Pitsillides, I. F. Akyildiz, S. A. Tretyakov, E. N. Economou, M. Kafesaki, and C. M. Soukoulis, "Exploration of Intercell Wireless Millimeter-Wave Communication in the Landscape of Intelligent Metasurfaces," *IEEE Access*, vol. 7, pp. 122931-122948, 2019. doi: 10.1109/ACCESS.2019.2933355.
- [29] H. Taghvaei, S. Abadal, A. Pitilakis, O. Tsilipakos, A. Tasolamprou, C. Liaskos, M. Kafesaki, N. V. Kantartzis, A. Cabellos-Aparicio, and E. Alarcon, "Scalability Analysis of Programmable Metasurfaces for Beam Steering," *IEEE Access*, vol. 8, pp. 105320-105334, 2020. doi: 10.1109/ACCESS.2020.3000424.
- [30] O. Tsilipakos, A. C. Tasolamprou, A. Pitilakis, F. Liu, X. Wang, M. S. Mirmoosa, D. C. Tzarouchis, S. Abadal, H. Taghvaei, C. Liaskos, A. Tsioliaridou, J. Georgiou, A. Cabellos-Aparicio, E. Alarcón, S. Ioannidis, A. Pitsillides, I. F. Akyildiz, N. V. Kantartzis, E. N. Economou, C. M. Soukoulis, M. Kafesaki, S. Tretyakov, "Towards Intelligent Metasurfaces: The Progress from Globally-Tunable Metasurfaces to Software-Defined Metasurfaces with an Embedded Network of Controllers," *Advanced Optical Materials* 8(17), 2000783, 2020. doi: 10.1002/adom.202000783.
- [31] T. Christopoulos, O. Tsilipakos, E. E. Kriezis, "Degenerate four-wave mixing in THz standing-wave graphene resonators," *J. Opt. Soc. Am. B* 37(9), 2626-2636, 2020.
- [32] O. Tsilipakos, M. Kafesaki, E. N. Economou, C. M. Soukoulis, T. Koschny, "Squeezing a prism into a surface: Emulating bulk optics with achromatic metasurfaces," *Advanced Optical Materials* 8(23), 2000942, 2020. doi: 10.1002/adom.202000942.
- [33] A. Pitilakis\*, O. Tsilipakos\*, F. Liu\*, K. M. Kossifos, A. C. Tasolamprou, D.-H. Kwon, M. S. Mirmoosa, D. Manassis, N. V. Kantartzis, C. Liaskos, M. A. Antoniadis, J. Georgiou, C. M. Soukoulis, M. Kafesaki, and S. A. Tretyakov, "A Multi-Functional Reconfigurable Metasurface: Electromagnetic Design Accounting for Fabrication Aspects," *IEEE Transactions on Antennas and Propagation* 69(3), pp. 1440-1454, 2020, DOI: 10.1109/TAP.2020.3016479. **[first-author equal contribution]**
- [34] K. M. Kossifos, L. Petrou, G. Varnava, A. Pitilakis, O. Tsilipakos, F. Liu, P. Karousios, A. Tasolamprou, M. Seckel, D. Manassis, N. V. Kantartzis, D.-H. Kwon, M. A. Antoniadis, and J. Georgiou, "Toward the Realization of Programmable Metasurface Absorber Enabled by Custom Integrated Circuit Technology," *IEEE Access*, vol. 8, pp. 92986-92998, 2020, doi: 10.1109/ACCESS.2020.2994469
- [35] O. Tsilipakos, A. Xomalis, G. Kenanakis, M. Farsari, C. M. Soukoulis, E. N. Economou, M. Kafesaki, "Split-cube-resonator-based metamaterials for polarization-selective asymmetric perfect absorption," *Scientific Reports* 10, 17653, 2020. DOI: 10.1038/s41598-020-74221-7
- [36] E. Takou, A. C. Tasolamprou, O. Tsilipakos, Z. Viskadourakis, M. Kafesaki, G. Kenanakis, E. N. Economou, "Anapole dissipation loss resilience in thermally tunable dielectric water-based metasurfaces," *Phys. Rev. Appl.*



- 15, 014043, 2021. DOI: 10.1103/PhysRevApplied.15.014043
- [37] T. Christopoulos\*, O. Tsilipakos\*, E. E. Kriezis, Nonlinear Perturbation Theory for Leaky Cavities," *Opt. Lett.* 45(23), pp. 6442-6445, 2020. doi: 10.1364/OL.408336. **[co-corresponding author]**
- [38] O. Tsilipakos, L. Zhang, M. Kafesaki, C. M. Soukoulis, T. Koschny, "Experimental Implementation of Achromatic Multiresonant Metasurface for Broadband Pulse Delay," *ACS Photonics*, *accepted*. DOI: 10.1021/acsp Photonics.1c00025
- [39] V. Melissinaki, O. Tsilipakos, M. Kafesaki, M. Farsari, S. Pissadakis, "Micro-ring resonator devices prototyped on optical fiber tapers by multi-photon lithography," *IEEE Journal of Selected Topics in Quantum Electronics*, vol. 27, no. 6, pp. 1-7, Nov.-Dec. 2021, Art no. 5900107, DOI: 10.1109/JSTQE.2021.3062716.
- [40] N. Korakas, D. Vurro, O. Tsilipakos, S. Iannota, S. Pissadakis, "A study of silk fibroin photo-elasticity in whispering gallery modes cavities," *submitted*.
- [41] G. Sinatkas, T. Christopoulos, O. Tsilipakos, E. E. Kriezis, "Electro-optic modulation in integrated photonics," *Journal of Applied Physics*, *submitted*. **[invited]**
- [42] A. Xomalis, O. Tsilipakos, G. Kenanakis, M. Farsari, C. M. Soukoulis, E. N. Economou, M. Kafesaki, "Enhanced refractive index sensing with direction-selective three-dimensional infrared metamaterials," *submitted*.
- [43] K. Baskourellos, O. Tsilipakos, T. Stefański, S. F. Galata, E. N. Economou, M. Kafesaki, K. L. Tsakmakidis, "Topological Microscopy and Near-Perfect Optical Extraordinary Transmission," *submitted*.

### Conference Contributions

- [1] O. Tsilipakos, T. V. Yioultsis, and E. E. Kriezis, "Theoretical analysis of microring resonator filters made of plasmonic waveguides," *ICTON 2009: 11<sup>th</sup> International Conference on Transparent Optical Networks*, art. no. 5185251. **[invited]**
- [2] O. Tsilipakos, A. Ptilakis, A. C. Tasolamprou, T. V. Yioultsis, and E. E. Kriezis, "Computational techniques for the analysis and design of dielectric-loaded plasmonic circuitry," *OWTNM 2010: 18<sup>th</sup> International Workshop on Optical Waveguide Theory and Numerical Modelling* (Cambridge, UK), p. 58, 2010.
- [3] N. Pleros, K. Vyrsoinos, S. Papaioannou, D. Fitsios, O. Tsilipakos, A. Ptilakis, E. E. Kriezis, A. Miliou, T. Tekin, M. Baus, M. Karl, D. Kalavrouziotis, G. Giannoulis, H. Avramopoulos, N. Djellali, J.-C. Weeber, L. Markey, A. Dereux, J. Gosciniak, and S. I. Bozhevolnyi, "Tb/s switching fabrics for optical interconnects using heterointegration of plasmonics and silicon photonics: The FP7 PLATON approach," *IEEE Photonics Society 23<sup>rd</sup> Annual Meeting* (Denver, US), 2010. **[invited]**
- [4] A. Dereux, K. Hassan, J.-C. Weeber, N. Djellali, S. I. Bozhevolnyi, O. Tsilipakos, A. Ptilakis, E. E. Kriezis, S. Papaioannou, K. Vyrsoinos, N. Pleros, T. Tekin, M. Baus, D. Kalavrouziotis, G. Giannoulis, and H. Avramopoulos, "Parametric study of dielectric loaded surface plasmon polariton add-drop filters for hybrid silicon/plasmonic optical circuitry," in *Proceedings of SPIE Photonics West* (San Francisco, US), 7945-40, 2011.
- [5] A. Ptilakis, O. Tsilipakos, and E. E. Kriezis, "Dielectric-loaded plasmonic switching elements and circuits," *Information Photonics* (Ottawa, CA), 2011. **[invited]**
- [6] O. Tsilipakos, A. Ptilakis, and E. E. Kriezis, "Advances in the design of thermally-tunable plasmonic switching elements: resonant vs. longitudinal configurations," *NN 2011: 8<sup>th</sup> International Conference on Nanosciences & Nanotechnologies*, (12-15 July, Thessaloniki, GR), 2011. **[invited]**
- [7] D. Kalavrouziotis, G. Giannoulis, D. Apostolopoulos, S. Papaioannou, A. Kumar, S. I. Bozhevolnyi, L. Markey, K. Hassan, J.-C. Weeber, A. Dereux, M. Baus, M. Karl, T. Tekin, O. Tsilipakos, A. Ptilakis, E. E. Kriezis, H. Avramopoulos, K. Vyrsoinos, and N. Pleros, "10 Gb/s transmission and thermo-Optic resonance tuning in silicon-plasmonic waveguide platform," *ECOC 2011: 37<sup>th</sup> European Conference on Optical Communications*, (18-22 September, Geneva, CH), 2011.
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- [9] K. Hassan, J.-C. Weeber, L. Markey, A. Dereux, A. Ptilakis, O. Tsilipakos, and E. E. Kriezis, "Characterization of thermo-optical 2x2 switch configurations made of Dielectric Loaded Surface Plasmon Polariton Waveguides for telecom routing architecture," in *Proceedings Optical Fiber Communication Conference and Exposition (OFC) and The National Fiber Optic Engineers Conference (NFOEC) (OFC/NFOEC'2012)*, Los Angeles, California, USA, 4-8 March, 2012.
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- [34] F. Liu, O. Tsilipakos, X. Wang, A. Ptilakis, A. C. Tasolamprou, M. S. Mirmoosa, D.-H. Kwon, K. Kossifos, J. Georgiou, M. Kafesaki, C. M. Soukoulis, S. A. Tretyakov, “Electromagnetic Aspects of Practical Approaches to Realization of Intelligent Metasurfaces,” in *Proceedings Metamaterials 2018: 12th International Congress on Artificial Materials for Novel Wave Phenomena* (Espoo, Finland, Aug. 27th – Sept. 1st, 2018), pp. 260-262 [invited]
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- [37] Christos Liaskos, Ageliki Tsiolaridou, Alexandros Ptilakis, George Pirialakos, Odysseas Tsilipakos, Anna Tasolamprou, Nikolaos Kantartzis, Sotiris Ioannidis, Maria Kafesaki, Andreas Pitsillides and Ian Akyildiz, “Joint Compressed Sensing and Manipulation of Wireless Emissions with Intelligent Surfaces,” *DCOSS 2019: International Conference on Distributed Computing in Sensor Systems*, May 29-31, Santorini Island, Greece
- [38] T. Christopoulos, O. Tsilipakos, G. Sinatkas and E. E. Kriezis, “Single- and Multi-Channel Nonlinear Effects in Graphene-Enhanced Resonators,” *PIERS 2019: Photonics & Electromagnetics Research Symposium*, Rome, Italy, 17-20 June 2019.
- [39] T. Christopoulos, O. Tsilipakos, G. Sinatkas and E. E. Kriezis, “Wave Mixing in Graphene Nonlinear Resonators Utilizing Coupled-Mode Theory,” *CLEO/Europe-EQEC 2019*, 23-27 June 2019, Munich, Germany.
- [40] Anna Tasolamprou, Alexandros Ptilakis, Odysseas Tsilipakos, Christos Liaskos, Ageliki Tsiolaridou, Fu Liu, Xuchen Wang, Mohammad Mirmoosa, Kypros Kossifos, Julius Georgiou, Andreas Pitsillides, Nikolaos Kantartzis, Dionysios Manassis, Sotiris Ioannidis, George Kenanakis, George Deligeorgis, Eleftherios Economou, Sergei Tretyakov, Costas Soukoulis, Maria Kafesaki, “The Software-Defined Metasurfaces Concept and Electromagnetic Aspects,” *META 2019: The 10th International Conference on Metamaterials, Photonic Crystals and Plasmonics*, 23-26 July 2019, Lisbon, Portugal.
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- [42] O. Tsilipakos, Th. Koschny, M. Kafesaki, C. M. Soukoulis, “Implementation Aspects of Multiresonant Metasurfaces for Broadband Group Delay,” *13th International Congress on Artificial Materials for Novel Wave Phenomena – Metamaterials 2019*, Rome, Italy, Sept. 16th – Sept. 21st, 2019, pp. VI-318 - VI-320.
- [43] O. Tsilipakos, T. Christopoulos, G. Sinatkas, E. E. Kriezis, “Single- and Multi-Channel Nonlinear Phenomena in Resonant Structures Comprising Graphene,” *13th International Congress on Artificial Materials for Novel Wave Phenomena – Metamaterials 2019*, Rome, Italy, Sept. 16th – Sept. 21st, 2019, pp. X-435 – X-437.
- [44] O. Tsilipakos, A. Ptilakis, A. C. Tasolamprou, C. Liaskos, A. Tsiolaridou, F. Liu, M. S. Mirmoosa, X. Wang, K. Kossifos, J. Georgiou, A. Pitsillides, N. V. Kantartzis, D. Manassis, S. Ioannidis, G. Kenanakis, G. Deligeorgis, E. N. Economou, C. M. Soukoulis, S. A. Tretyakov, M. Kafesaki, “Software-Defined Metasurfaces: The VISORSURF Project Approach,” *13th International Congress on Artificial Materials for Novel Wave Phenomena – Metamaterials 2019*, Rome, Italy, Sept. 16th – Sept. 21st, 2019, VI-315 - VI-317.
- [45] C. Liaskos, G. Pirialakos, A. Ptilakis, S. Abadal, A. Tsiolaridou, A. Tasolamprou, O. Tsilipakos, N. Kantartzis, S. Ioannidis, E. Alarcon, A. Cabellos, M. Kafesaki, A. Pitsillides, K. Kossifos, J. Georgiou, “ABSense: Sensing Electromagnetic Waves on Metasurfaces via Ambient Compilation of Full Absorption,” *ACM NanoCom 2019: 6th ACM International Conference on Nanoscale Computing and Communication*, Dublin, Ireland, September 25-27, 2019.
- [46] O. Tsilipakos, “Multiresonant metasurfaces for broadband spatiotemporal wave manipulation,” *METANANO 2020 — V International Conference on Metamaterials and Nanophotonics*, 14-18 September, Tbilisi, Georgia. [invited]
- [47] T. Christopoulos, O. Tsilipakos, V. G. Ataloglou, and E. E. Kriezis, “Multi-channel Nonlinear Interactions in Practical Graphene Components,” *METANANO 2020 — V International Conference on Metamaterials and Nanophotonics*, 14-18 September, Tbilisi, Georgia.
- [48] O. Tsilipakos, M. Kafesaki, E. N. Economou, C. M. Soukoulis, T. Koschny, “Contracting 3D Optics into a Surface: Multiresonant Achromatic Gradient Metasurfaces in Transmission and Reflection,” *14th International Congress on Artificial Materials for Novel Wave Phenomena – Metamaterials 2020*, New York, USA, Sept. 28th

- Oct. 3rd, 2020 (online event)
- [49] T. Christopoulos, O. Tsilipakos, V. G. Ataloglou, and E. E. Kriezis, “A Theoretical Study of Nonlinear Multi-Channel Graphene Components for the Near and Far-Infrared,” *Frontiers in Optics* 2020, 14-18 September 2020 (online event)
- [50] Manassis, Dionysios; Seckel, Manuel; Fu, Liu; Tsilipakos, Odysseas; Pitilakis, Alexandros; Tasolamprou, Anna; Kossifos, Kypros; Varnava, Giorgos; Liaskos, Christos; Kafesaki, Maria; Soukoulis, Costa M.; Tretyakov, Sergei; Georgiou, Julius; Ostmann, Andreas; Aschenbrenner, Rolf; Schneider-Ramelow, Martin; Lang, Klaus-Dieter; “Manufacturing of high frequency substrates as software programmable metasurfaces on PCBs with integrated controller nodes,” *IEEE 8th European System Technology Conference (ESTC 2020)*, 15-18 Sep 2020, DOI: 10.1109/ESTC48849.2020.9229660

### National Conference Contributions

- [1] A. Pitilakis, O. Tsilipakos, A. C. Tasolamprou and E. E. Kriezis, “Guided Wave Plasmonics: an emerging technology for nanophotonic integrated circuits with high levels of functionality,” *PACET 2012: 2<sup>nd</sup> Panhellenic Conference on Electronics and Telecommunications*, 16-18 March 2012, Thessaloniki, Greece.
- [2] T. Christopoulos, O. Tsilipakos, N. Grivas, and E. E. Kriezis, “Graphene-Based Nonlinear Resonators for Optical Bistability: A Coupled Mode Theory Approach,” *XXXII Panhellenic Conference on Solid State Physics and Materials Science*, 18-21 September 2016, Ioannina, Greece.

### Invited Seminars

- [1] O. Tsilipakos, “Functional Electromagnetic Metasurfaces: Reconfigurable Wavefront Manipulation and Dispersion Engineering Across Subwavelength Thicknesses,” Joint seminar hosted by the Institute of Electronics Structure and Laser (FORTH) & Dept of Materials Science and Technology (University of Crete), 12<sup>th</sup> December 2018, <http://www.iesl.forth.gr/news/seminars.aspx>; [https://www.materials.uoc.gr/en/talks/colloquia/2018\\_2019/colloquia\\_2018\\_2019.html](https://www.materials.uoc.gr/en/talks/colloquia/2018_2019/colloquia_2018_2019.html)
- [2] O. Tsilipakos, “Reconfigurable Wavefront Manipulation and Dispersion Control with Functional Electromagnetic Metasurfaces,” Seminar hosted by the Division of Telecommunications, School of Electrical and Computer Engineering, Aristotle University of Thessaloniki, 28<sup>th</sup> March 2019.
- [3] O. Tsilipakos, “Wavefront and Dispersion Control with Functional Electromagnetic Metasurfaces,” Condensed Matter Physics Seminar hosted by the Section of Solid State Physics, Physics Department, National and Kapodistrian University of Athens, 5<sup>th</sup> April 2019, <http://solid.phys.uoa.gr/seminario-fysikhs-sympyknwnmenhs-ylhs.html>
- [4] O. Tsilipakos, “Achromatic Metasurfaces for Temporal and Spatial Control of Electromagnetic Waves,” Stavros Niarchos Foundation — FORTH seminar series, 3<sup>rd</sup> December 2019,

### Research Interests

My main areas of expertise are (i) plasmonic and silicon photonic guided-wave circuits, (ii) metasurfaces, metamaterials and photonic crystals, (iii) nonlinear optics in nanophotonic waveguides and resonant structures with an emphasis on  $\chi^{(3)}$  phenomena, and (iv) nonlinear phenomena in resonators comprising 2D photonic materials with an emphasis on graphene. My research interests also include computational electromagnetics, emphasizing on the finite element method (FEM).

### Appointments

Nov 2019 - ...  
(ongoing)

*Management Committee member* (2 members per participating country)

Cost Action [CA18223](#) - Future communications with higher-symmetric engineered artificial materials



## Project participation

- I have participated as a researcher in 7 European collaborative projects and 3 national projects.
- As a Principal Investigator, a three-year project (2nd Call for H.F.R.I. Post-Doctoral Researchers) started on January 2021.

<b>Jan 2021 – present (ongoing)</b>	<b>Role:</b> <u>Principal Investigator</u> <b>Funding Body:</b> Hellenic Foundation for Research & Innovation (H.F.R.I. / EL.ID.E.K.) <b>Research Program:</b> 2nd Call for H.F.R.I. Research Projects to Support Post-Doctoral Researchers. Project “Novel Multiresonant Photonic Metasurfaces for Broadband Control of Light (PHOTOSURF)”, No. 916.
<b>Sep 2020 – present (ongoing)</b>	<b>Role:</b> Researcher <b>Funding Body:</b> European Union <b>Research Program:</b> FETPROACT-EIC-06-2019 <a href="#">SMARTWAVE</a> , Project No. 952088
<b>Jul 2020 – Dec 2020</b>	<b>Role:</b> Researcher <b>Funding Body:</b> Hellenic Foundation for Research & Innovation (H.F.R.I. / EL.ID.E.K.) <b>Research Program:</b> First Call for H.F.R.I. Research Projects to support Faculty members and Researchers and the procurement of high-cost research equipment grant. Project “Graphene-enhanced on-chip nanophotonics for switching and lasing applications ( <a href="#">GRAINS</a> )”, No. HFRI-FM17- 2086.
<b>Jun 2020 – present (ongoing)</b>	<b>Role:</b> Researcher <b>Funding Body:</b> European Union <b>Research Program:</b> Graphene-based disruptive technologies (Project 696656, Graphene Flagship)
<b>Jun 2019 – present (ongoing)</b>	<b>Role:</b> Researcher <b>Funding Body:</b> European Union <b>Research Program:</b> H2020 – FET Open <a href="#">ULTRACHIRAL</a>
<b>Jan 2019 – present (ongoing)</b>	<b>Role:</b> Researcher <b>Funding Body:</b> European Union <b>Research Program:</b> H2020 – FET Open <a href="#">NANOPOLY</a>
<b>Jan 2017 – present (ongoing)</b>	<b>Role:</b> Researcher <b>Funding Body:</b> European Union <b>Research Program:</b> H2020 – FET Open <a href="#">VISORSURF</a>
<b>Jun 2018 – Sep 2019</b>	<b>Role:</b> Researcher <b>Funding Body:</b> Greece and European Union (European Social Fund- ESF) <b>Research Program:</b> EDULL34 - Supporting researchers with emphasis on new researchers <a href="#">Nonlinear Effects in Resonators Comprising Graphene</a>
<b>Jan 2016 – Feb 2019</b>	<b>Role:</b> Researcher <b>Funding Body:</b> European Research Council (ERC) <b>Research Program:</b> <a href="#">PHOTOMETA</a> , ERC Advanced Grant No. 320081
<b>Jan 2015 – Nov 2015 (11 months)</b>	<b>Role:</b> Researcher <b>Funding Body:</b> European Union (ESF) and Greek national funds (NSRF) <b>Research Program:</b> THALES – Project <a href="#">ANEMOS</a> (Analytical and numerical electromagnetism with applications in photonics and nanodevices) <b>I.D.:</b> 529
<b>Jan 2010 – Dec 2011 (24 months)</b>	<b>Role:</b> Researcher <b>Funding Body:</b> European Union

**Research Program:** FP7 project [PLATON](#) (Full Title: Merging Plasmonic and Silicon Photonics Technology towards Tb/s routing in optical interconnects)  
**Contract No.:** 249135

### Professional Activities

- Mar 2014 – Dec 2014**  
(9 months) IT support & Network Engineer  
**Hellenic Army** (obligatory service)
- Sep 2009 – Sep 2013** *Teaching Assistant*,  
 Aristotle University of Thessaloniki, Dept. of Electrical and Computer Engineering  
 Courses: Optical Communications (8<sup>th</sup> semester), Microwaves I (8<sup>th</sup> semester), Microwaves II (9<sup>th</sup> semester), Photonics Technology (9th semester)
- Sep 2009** On-site measurements and assessment of the electromagnetic power density levels in the area of Thessaloniki.  
**Funding Body:** AUTH Research Committee  
**Research Program:** Electromagnetic and acoustic power density measurements  
**Number:** 21606
- May 2009** Development of an interactive graphical user interface for the automation of electromagnetic power density measurements with the use of a portable spectrum analyzer.  
**Funding Body:** AUTH Research Committee  
**Research Program:** Electromagnetic and acoustic power density measurements  
**Number:** 21606

### Teaching/Academic Experience

- [2020-2021] Adjunct Lecturer in University of Crete, Department of Materials Science and Technology:
  - “Mechanical and Thermal Properties of Materials (ETY-349)” (5<sup>th</sup> semester)
- [2009-2013] During my PhD studies I served as a teaching assistant in three undergraduate courses in the Dept. of Electrical Engineering, Aristotle University of Thessaloniki:
  - Optical Communications (8<sup>th</sup> semester),
  - Microwaves I (8<sup>th</sup> semester),
  - Microwaves II (9<sup>th</sup> semester),
  - Photonics Technology (9th semester)
- Co-supervision of two (2) PhD students, fourteen (14) Master-level (MSc and diploma degrees) thesis projects, and three (3) Undergraduate (bachelor) projects

<i>Student</i>	<i>Year</i>	<i>Subject</i>	<i>Institution</i>	<i>Main Supervisor</i>
<b>Doctoral Dissertations</b>				
Anna Theodosi	ongoing	Optical Metamaterials for Advanced Wave Propagation Control	Department of Materials Science, University of Crete	Maria Kafesaki
Thomas Christopoulos	2019	Plasmonic and Graphene Nonlinear Nanophotonic Resonant Structures: Optical Bistability and Four Wave Mixing	School of Electrical and Computer Engineering, Aristotle University of Thessaloniki	Emmanouil E. Kriezis
<b>Master-level Dissertations</b>				
Alexandros Deltsidis	2019	Metasurfaces for advanced wave control	Department of Materials Science, University of Crete	Maria Kafesaki
Evaggelia Takou	2019	Dynamic Anapole: Realization by Metasurfaces made of Sculptured Cylinders and Water-based Metasurfaces	Department of Physics, University of Crete	Eleftherios N. Economou
Konstantinos Othon Chatzimpalogue	2017	Metasurfaces for control of electromagnetic waves	Department of Materials Science, University of Crete	Maria Kafesaki
Nikolaos Grivas	2016	Nonlinear phenomena in graphene-based resonators: Optical bistability at THz	School of Electrical and Computer Engineering, Aristotle University of	Emmanouil E. Kriezis

Thomas Christopoulos	2014	frequencies Optical bistability in photonic structures with third-order nonlinearity	Thessaloniki School of Electrical and Computer Engineering, Aristotle University of Thessaloniki	Emmanouil E. Kriezis
Georgios Sinatkas	2013	Coupling of silicon photonic waveguides with plasmonic metal-insulator-metal waveguides	School of Electrical and Computer Engineering, Aristotle University of Thessaloniki	Emmanouil E. Kriezis
Dimitrios Chatzidimitriou	2013	Study of nonlinear phenomena in nanophotonic waveguides with the vector nonlinear Schrodinger equation	School of Electrical and Computer Engineering, Aristotle University of Thessaloniki	Emmanouil E. Kriezis
Michalis Symeonidis	2013	Theoretical and experimental study of four wave mixing and stimulated Raman scattering in optical fibers	School of Electrical and Computer Engineering, Aristotle University of Thessaloniki	Emmanouil E. Kriezis
Evi Zdrali	2013	Study of stimulated Raman scattering in optical fibers and integrated silicon waveguides	School of Electrical and Computer Engineering, Aristotle University of Thessaloniki	Emmanouil E. Kriezis
Eleni Liaska	2012	Nonlinear pulse propagation in silicon waveguides: The effect of free carriers	School of Electrical and Computer Engineering, Aristotle University of Thessaloniki	Emmanouil E. Kriezis
Dimitrios Alanis	2012	Erbium doped fiber amplifiers: characterization and analysis	School of Electrical and Computer Engineering, Aristotle University of Thessaloniki	Emmanouil E. Kriezis
Antigone Frida	2010	Study of nonlinear pulse propagation in silicon waveguides with the nonlinear Schrodinger equation	School of Electrical and Computer Engineering, Aristotle University of Thessaloniki	Emmanouil E. Kriezis
Dimitrios Skouras	2010	Dispersion diagram calculation of one- and two-dimensional plasmonic waveguides	School of Electrical and Computer Engineering, Aristotle University of Thessaloniki	Emmanouil E. Kriezis
Georgios Skolianos	2010	All optical frequency conversion via four wave mixing in dispersion shifted optical fibers	School of Electrical and Computer Engineering, Aristotle University of Thessaloniki	Emmanouil E. Kriezis
<b>Bachelor Dissertations</b>				
Varvara Mouzi	ongoing	3D printed metamaterials for microwave energy harvesting devices	Department of Materials Science, University of Crete and IESL-FORTH	George Kenanakis
Evaggelos Tamiolakis	2020	3D polymeric metamaterial structures for energy harvesting in microwave frequencies	Department of Materials Science, University of Crete and IESL-FORTH	George Kenanakis
Evaggelia Takou	2018	Mie-modes in all-dielectric metamaterials and toroidal dipole moment	Department of Physics, University of Crete	Eleftherios N. Economou

## Refereeing

### • Journals (32):

- Science Advances (AAAS),
- Scientific Reports (Nature),
- Physical Review Letters, Physical Review B, Physical Review Applied, Physical Review A, Physical Review Research (APS),
- Nano Letters (ACS),
- Advanced Functional Materials, Laser & Photonics Reviews, Advanced Optical Materials, Advanced Intelligent Systems, Advanced Photonics Research (Wiley),
- Optics Letters, Optics Express, Journal of the Optical Society of America B, Optical Materials Express, Applied Optics (OSA),
- Journal of Applied Physics (AIP),
- IEEE Transactions on Antennas and Propagation, IEEE Journal of Selected Topics in Quantum Electronics, IEEE/OSA Journal of Lightwave Technology, IEEE Photonics Technology Letters, IEEE Photonics Journal, IEEE Journal on Emerging Topics in Circuits and Systems, IEEE Access
- New Journal of Physics, Journal of Optics, Semiconductor Science and Technology (IOP),
- Photonics, Nanomaterials (MDPI),
- Optical and Quantum Electronics (Springer)

- Member of the Reviewer Board of the journal Photonics (MDPI)  
[https://www.mdpi.com/journal/photonics/submission\\_reviewers](https://www.mdpi.com/journal/photonics/submission_reviewers)

### • Funding Agencies

- Reviewer for proposals submitted to HFRI (EL.ID.E.K.)
- Reviewer for the Research Foundation - Flanders (Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO)
- Inclusion in the pool of remote expert evaluators of the Research Executive Agency of the European Commission
- Pool of experts of Greek General Secretariat for Research and Technology <https://registry.gsrt.gr/>

### Memberships

- [2019 - ...] The Optical Society (OSA)
- [2005 - ...] Institute of Electrical and Electronics Engineers (IEEE). *Awarded Senior Member grade in 2019.*
- [2020 - ...] Hellenic Society for the Science and Technology of Condensed Matter (HSSTCM), member society of the Federation of European Materials Societies (FEMS)
- [2012 - 2017] SPIE society
- [2008 - ...] Technical Chamber of Greece (TEE)