

ΒΙΟΓΡΑΦΙΚΟ ΣΗΜΕΙΩΜΑ

Οδυσσέας ΤΣΙΛΙΠΑΚΟΣ

Εντεταλμένος Ερευνητής Γ΄
Ινστιτούτο Θεωρητικής και Φυσικής Χημείας
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Education

Ph.D. in Electrical and Computer Engineering, Aristotle University of Thessaloniki, Greece (2013)

Diploma in Electrical and Computer Engineering, Aristotle University of Thessaloniki, Greece (2008)

Research and Teaching Appointments

- 10/2022 – present Associate Researcher (Grade C), Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Greece
- 2016 – 2022 Postdoctoral Fellow, Institute of Electronic Structure & Laser, Foundation for Research and Technology – Hellas, Greece
- 2020 – 2022 Adjunct Lecturer, Department of Materials Science and Technology, University of Crete, Greece
- 11/2021 Visiting Researcher, Istituto per la Microelettronica e Microsistemi, Consiglio Nazionale delle Ricerche, Rome, Italy
- 06/2016 – 08/2016 Visiting Researcher, Ames Laboratory–U.S. DOE and Iowa State University, Ames, IA, USA
- 2014 – 2015 Postdoctoral Fellow, School. of Electrical and Computer Engineering, Aristotle University of Thessaloniki, Greece

2008-2013 Research and Teaching Assistant, School. of Electrical and Computer Engineering, Aristotle University of Thessaloniki, Greece

Main Research Interests

- Metasurfaces, metamaterials, and photonic crystals
- Dispersive, diffractive, tunable and reconfigurable photonic components
- Integrated and guided-wave nanophotonics: silicon photonics, plasmonics
- Nonlinear optics in resonant structures and waveguides
- 2D materials for photonics, nonlinear optics, and optoelectronics
- Leaky cavities and quasi-normal modes
- Computational and theoretical electromagnetics

External Funding

- Principal investigator (HFRI)
- Researcher in 8 European (Horizon Europe, H2020, ERC, FP7) and 3 national research projects (HFRI, NSRF 2014-2020, NSRF 2007-2013)

Conferences and Invited Talks

- 62 announcements in international conferences (14 invited)
- 4 announcements in national conferences
- 5 invited seminars

Teaching activities

- (2020-2022) Adjunct Lecturer in Department of Materials Science and Technology, University of Crete: "Mechanical and Thermal Properties of Materials"; "Advanced Computational Materials Science"
- (2009-2013) Teaching Assistant in School of Electrical and Computer Engineering, Aristotle University of Thessaloniki: "Optical Communications", "Microwave Engineering I", "Microwave Engineering II", "Photonics Technology"
- Co-supervision of 2 PhD students, 14 Master-level (MSc and diploma degrees) thesis projects, and 3 Undergraduate (bachelor) thesis projects

Research Management & Evaluation

- Reviewer for over 40 journals in the fields of photonics, optics, applied physics, electrical engineering, condensed matter physics, materials science (AAAS, Nature, APS, ACS, Wiley, OSA, IEEE, IOP)
- Reviewer for national and international research proposals
- Management Committee member in EU Cost Action CA18223: Future communications with higher-symmetric engineered artificial materials

Honors and Awards

- Awarded IEEE Senior Member grade (08/2019)
- Stavros Niarchos Foundation – FORTH postdoctoral research fellowship within project ARCHERS (03/2019 – 02/2020)
- Postdoctoral excellence research fellowship from Research Committee of the Aristotle University of Thessaloniki (01/2014 – 12/2014)
- Best student paper award in the conference SPIE Photonics Europe 2012 – Nanophotonics (04/2012)
- “Heracleitus II” research scholarship for Ph.D. studies (03/2011 – 08/2013)
- Scholarship from the Greek State Scholarships Foundation (IKY) for Ph.D. studies after panhellenic exams. Three scholarships awarded nationwide for Electrical Engineering (11/2009 – 02/2011)

Professional Affiliations and Memberships

- (2005 - present) Member of Institute of Electrical and Electronics Engineers (IEEE). Awarded Senior Member grade in 2019.
- (2019 - present) Member of The Optical Society (OSA)
- (2012 - 2017) Member of the SPIE society
- (2020 - 2022) Member of the Hellenic Society for the Science and Technology of Condensed Matter (HSSTCM)

Publications

- 52 original research papers in peer-reviewed journals, 3 review articles, 34 papers in international conference proceedings, and 5 book chapters.
- Distinctions: 3 journal articles highlighted as “Editor’s Suggestion”, 1 cover page, 1 best student paper award.
- Citations: More than 1,840 citations and h-index = 25 (Google Scholar, 04/2023).

Selected Recent Publications

1. “Multiresonant metasurfaces for arbitrarily broad bandwidth pulse chirping and dispersion compensation,” O. Tsilipakos and T. Koschny, [Phys. Rev. B 107, 165408, \(2023\)](#)
2. “Recent advances in strongly-resonant and gradient all-dielectric metasurfaces,” D. C. Zografopoulos and O. Tsilipakos, [Mater. Adv. 4, 11-34 \(2023\)](#)
3. “Multi-functional metasurface architecture for amplitude, polarization and wavefront control,” A. Ptilakis, M. Seckel, A. C. Tasolamprou, F. Liu, A. Deltsidis, D. Manassis, A. Ostmann, N. V. Kantartzis, C. Liaskos, C. M. Soukoulis,

- S. A. Tretyakov, M. Kafesaki, and O. Tsilipakos, [Phys. Rev. Appl. 17, 064060 \(2022\)](#)
4. "Experimental Implementation of Achromatic Multiresonant Metasurface for Broadband Pulse Delay," O. Tsilipakos, L. Zhang, M. Kafesaki, C. M. Soukoulis, T. Koschny, [ACS Photonics 8, 1649 \(2021\)](#)
 5. "Electro-optic modulation in integrated photonics," G. Sinatkas, T. Christopoulos, O. Tsilipakos, E. E. Kriezis, [J. Appl. Phys. 130, 010901 \(2021\)](#)
 6. "Squeezing a prism into a surface: Emulating bulk optics with achromatic metasurfaces," O. Tsilipakos, M. Kafesaki, E. N. Economou, C. M. Soukoulis, T. Koschny, [Adv. Optical Mater. 8, 2000942 \(2020\)](#)
 7. "Nonlinear Perturbation Theory for Leaky Cavities," T. Christopoulos, O. Tsilipakos, E. E. Kriezis, [Opt. Lett. 45, 6442 \(2020\)](#)
 8. "Toward Intelligent Metasurfaces: The Progress from Globally-Tunable Metasurfaces to Software-Defined Metasurfaces with an Embedded Network of Controllers," O. Tsilipakos, A. C. Tasolamprou, A. Ptilakis, F. Liu, X. Wang, M. S. Mirmoosa, D. C. Tzarouchis, S. Abadal, H. Taghvaei, C. Liaskos, A. Tsioliariidou, J. Georgiou, A. Cabellos-Aparicio, E. Alarcón, S. Ioannidis, A. Pitsillides, I. F. Akyildiz, N. V. Kantartzis, E. N. Economou, C. M. Soukoulis, Maria Kafesaki, S. Tretyakov, [Adv. Optical Mater. 8, 202000783 \(2020\)](#)
 9. "On the calculation of the Quality Factor in contemporary photonic resonant structures," T. Christopoulos, O. Tsilipakos, G. Sinatkas and E. E. Kriezis, [Opt. Express 27, 14505 \(2019\)](#)
 10. "Intelligent Metasurfaces with Continuously Tunable Local Surface Impedance for Multiple Reconfigurable Functions," F. Liu, O. Tsilipakos, A. Ptilakis, 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, [Phys. Rev. Applied 11, 044024 \(2019\)](#)
 11. "Antimatched Electromagnetic Metasurfaces for Broadband Arbitrary Phase Manipulation in Reflection," O. Tsilipakos, T. Koschny, C. M. Soukoulis, [ACS Photonics 5, 1101 \(2018\)](#)
 12. "Pairing toroidal and magnetic dipole resonances in elliptic dielectric rod metasurfaces for reconfigurable wavefront manipulation in reflection," O. Tsilipakos, A. C. Tasolamprou, Th. Koschny, M. Kafesaki, E. N. Economou and C. M. Soukoulis, [Adv. Optical Mater. 6, 1800633 \(2018\)](#)
 13. "Degenerate four-wave mixing in nonlinear resonators comprising 2D materials: a coupled-mode theory approach," T. Christopoulos, O. Tsilipakos, G. Sinatkas and E. E. Kriezis, [Phys. Rev. B 98, 235421 \(2018\)](#)