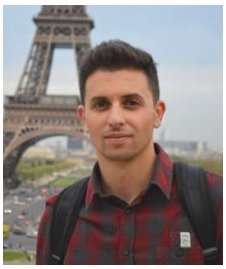
Dr. Ioannis Paradisanos



- Research Associate, Institute of Electronic Structure & Laser (I.E.S.L.), Foundation for Research & Technology – Hellas (FO.R.T.H.)
- H.F.R.I. Research Fellow - 3rd Call for H.F.R.I. Research Projects to support post-doctoral researchers
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RESEARCH INTERESTS

Optical spectroscopy of 2D semiconductors. Light-matter interactions, with a focus on phenomena such as exciton formation and relaxation, spin-valley polarization, intervalley scattering effects, and exciton-exciton interactions. Examination of Stark and Zeeman effects, interlayer coupling in 2D heterostructures, and lattice vibrations including phonons. Additional activities include near-field interactions of semiconductors on photonic nanostructures.

CAREER SUMMARY

Ioannis Paradisanos received his B.Sc. in 2012 from the Department of Materials Science at the University of Crete. In September 2014, he completed his Master's degree in Micro-Optoelectronics at the Department of Physics, University of Crete, and in March 2018, he obtained his Ph.D. from the same department. His Ph.D. dissertation focused on the physics of various excitonic species in atomically thin semiconductors. Following this, he moved to the University of Cambridge (UK) as a postdoctoral research associate, where he investigated the optical and vibrational properties of layered materials.

From October 2019 to September 2022, he served as a senior research associate in the Quantum Optoelectronics group at INSA/CNRS (France), where he studied novel quantum states in transition metal dichalcogenide monolayers and their heterostructures. In October 2022, he returned to Crete to join IESL/FORTH as a principal investigator, with funding from the Hellenic Foundation for Research and Innovation (H.F.R.I.), under the "3rd Call for H.F.R.I. Research Projects to Support Post-Doctoral Researchers." His research focuses on near-field effects in layered semiconductors on photonic nanostructures.

His expertise includes photoluminescence spectroscopy and imaging, Raman spectroscopy, time-resolved spectroscopy, differential reflectivity, nonlinear spectroscopy, magneto-optics, cryogenics, and fabrication techniques, including the assembly of 2D heterostructures and field-effect devices.

SELECTED PUBLICATIONS

- R. Rosati, **I. Paradisanos** *et al.*, *"Interface engineering of charge-transfer excitons in 2D lateral heterostructures"*, NATURE COMMUNICATIONS, 14, 2438 (2023)
- **I. Paradisanos** et al., *"Second harmonic generation control in twisted bilayers of transition metal dichalcogenides"*, PHYS. REV. B, 105, 115420 (2022)
- Z. Gan., **I. Paradisanos**, *et al.*, *"Chemical Vapor Deposition of High-Optical-Quality Large-Area Monolayer Janus Transition Metal Dichalcogenides"*, ADVANCED MATERIALS, 34 (38), 2205226 (2022)
- S. Shree, D. Lagarde, L. Lombez, C. Robert, A. Balocchi K. Watanabe, T. Taniguchi, X. Marie, I. C. Gerber, M.M. Glazov, L. E. Golub, B. Urbaszek and **I. Paradisanos**, *"Interlayer exciton mediated second harmonic generation in bilayer MoS_2"*, NATURE COMMUNICATIONS, 12, 6894 (2021)
- **I. Paradisanos** *et al.*, *"Efficient phonon cascades in WSe_2 monolayers"*, NATURE COMMUNICATIONS, 12, 538 (2021)
- T. Liu, **I. Paradisanos,** *et al.*, *"Low-loss integrated nanophotonic circuits with layered semiconductor materials"*, NANO LETTERS, 21, 7, 2709 (2021)
- N. Leisgang, S. Shree, **I. Paradisanos,** L. Sponfelder, *et al.*, *"Giant Stark splitting of an exciton in bilayer MoS_2"*, NATURE NANOTECHNOLOGY, 15, 901 (2020)
- **I. Paradisanos** *et al.*, *"Controlling interlayer excitons in MoS_2 layers grown by chemical vapor deposition"*, NATURE COMMUNICATIONS, 11, 2391 (2020)
- **I. Paradisanos** *et al.*, *"Prominent room temperature valley polarization in WS_2/graphene heterostructures grown by chemical vapor deposition"*, APPL. PHYS. LETT., 116, 203102 (2020)