Polychronis Tsipas studied physics and obtained his M.Sc. in Microsystems and Nanodevices from the National Technical University of Athens (Greece) in 2005 and his Ph.D. from the National Technical University of Athens in collaboration with the Institute of Material Science of NCSR Demokritos (Greece) in 2009 on the growth and characterization of high-k dielectric thin films on Ge. From 2011 to 2012, he worked as a Post-Doctoral Researcher in the Institute of Microelectronics of NCSR Demokritos on plasma etching and characterization of Si, SiO_2 and Si_3N_4 microstructures and nanostructures for microelectronic and optoelectronic applications. The period 2012-2017 he worked at the MBE laboratory of NCSR Demokritos under the SMARTGATE (Smart Gates for the Green Transistor) EU project on search for novel 2D materials like graphene, silicene, germanene, transition metal dichalcogenides and topological insulators for low-power electronic applications. The period 2017-2019, he worked under the Greek State Scholarships Foundation (IKY) program for the strenghtening of post-doctoral research titled as "Information storage in topological (3D Dirac and Weyl) semimetals for applications in non-volatile memories". In the period 2019-2023, he worked for the SKYTOP (Skyrmion-Topological insulator and Weyl semimetal technology) EU project on the search for novel 2D ferromagnets and topological materials (topological insulators and Weyl semimetals) for skyrmionic and spintronic applications. Since 2023, he works for the FIXIT (Scaled Ferroelectric X-bars for AI-driven sensors and actuators) EU project on the fabrication of low-power memories based on ferroelectrics for the realization of electronic artificial intelligence systems. He has (co)authored more than 70 scientific publications in international peer-reviewed journals and he has received >2800 citations for his work (h-index: 28).

Research Interests:

- Germanium electronic devices (MOSFET, Schottky and p-n diodes)
- High-k dielectrics for microelectronic devices
- Ferroelectrics for embedded memories, analog synapses and steep slope switches.
- 2D materials (transition metal dichalcogenides, graphene, silicene) and their heterostructures for electronic applications
- Topological materials (topological insulators, Weyl semimetals) and 2D ferromagnets for spintronic and skyrmionic devices
- Spin-charge conversion at topological material/ferromagnet heterostructures for terahertz (THz) emission applications