

Curriculum Vitae

Personal Information

Karvounis Christos

Hellenic Mediterranean University – Department of Electronic Engineering

Institute of Plasma Physics and Lasers – IPPL

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Education

09/2022- present: PhD student at Hellenic Mediterranean University/Department of Electronic Engineering with PhD dissertation: “High current generated dense plasma and secondary emission studies”

10/2020 – 07/2022: LaPIA Postgraduate MSc degree program in Laser, Plasma & Applications in Hellenic Mediterranean University/Department of Electronic Engineering. Master thesis: “Characterization of plasma focus machine as neutron source”

09/2013 – 07/2020: Bachelor in Physics in University of Ioannina/Department of Physics.

Publications

- Numerical modeling of plasma focus device dynamics using FLASH validated with shadowgrams, **C. Karvounis**, A. Skoulakis, ..., I. Ftilis, Plasma Physics and Controlled Fusion, doi: 10.1088/1361-6587/ae97b7
- Laser-driven ion acceleration in long-lived optically shaped gaseous targets enhanced by magnetic vortices, I. Tazes....., **C. Karvounis**, M. Tatarakis, Physical Review Research, doi: <https://doi.org/10.1103/v4d2-2b9j>
- Polarimetry technique in a miniature plasma focus machine, A. Skoulakis, **C. Karvounis**,..., I. Ftilis., Conference paper, IEEE, 2025 6th International Conference in Electronic Engineering & Information Technology (EEITE), doi: [10.1109/EEITE65381.2025.11165822](https://doi.org/10.1109/EEITE65381.2025.11165822)
- Efficient Magnetic Vortex Acceleration by femtosecond laser interaction with long living optically shaped gas targets in the near critical density plasma regime’ I. Tazes, ...,

C.Karvounis, M. Tatarakis, et al., Scientific Reports 14(1) (2024) [10.1038/s41598-024-54475-1](https://doi.org/10.1038/s41598-024-54475-1)

- **Karvounis C.**, Skoulakis A.,... Ftilis I., Upgrading of Mather-type dense plasma focus machine for advanced plasma dynamics studies. Athena Research Book, Volume 2, doi: <https://doi.org/10.18690/um.4.2023>
- Vrouvaki E., Tazes I.,...**Karvounis C.**,...Tatarakis M., Numerical and Experimental Study of Gas-Jet Targets for Ion Acceleration in the Near-Critical Density Regime. ATHENA Research Book , Volume 2, doi: <https://doi.org/10.18690/um.4.2023>
- Skoulakis A., Kaselouris E., Kavroulakis A., **Karvounis, C.**, Ftilis I., Chatzakis J., ... & Tatarakis M., Characterization of an X-ray Source Generated by a Portable Low-Current X-Pinch. *Applied Sciences* doi: <https://doi.org/10.3390/app112311173>

International Conferences

- **C.Karvounis**, A. Skoulakis, ... I. Ftilis, Measurement of the magnetic field in a miniature plasma focus machine ,European Conference on Plasma Diagnostics (ECPD 2025), Prague (poster session)
- **C. Karvounis**, A. Skoulakis, ... I Ftilis, Characterization of a miniature Mather-type plasma focus machine as neutron source, Conference in Electronic Engineering, Information Technology & Education (EEITE 2023), Chania (Oral)
- **C.Karvounis**, A. Skoulakis, ... I. Ftilis, High pressure miniature plasma focus characterization for efficient plasma emission ,European Conference on Plasma Diagnostics (ECPD 2023), Rethymno (poster session)

Participation in experimental campaigns

- 8/10/2025 – 17/10/2025 : “Hybrid laser-induced proton-boron fusion using nanosecond laser system: benchmark of an approach employing protons produced during thermonuclear D(d,p)T reaction” in the framework of the 4th ELI ERIC User Call at ELI Beamlines in Czech Republic.

Schools Attendance

- 18th Kudowa summer school, Kudowa-Zdroj, Poland, 8-12 June 2026 (Oral talk, student session)

- Physics and technology of Inertial Fusion Energy, Friedrich-Schiller-Universität Jena (FSU), February 2026
- Physics and technology of Inertial Fusion Energy, INO-CNR in Pisa, November 2025
- Physics and technology of Inertial Fusion Energy, University of Bordeaux, July 2025
- XXI Seminar on Software for Nuclear, Subnuclear and Applied Physics organized by INFN, June 2024.
- PowerLaPs Multiplier Event on Innovative Education & Training in High Power Laser Plasmas, University of Ioannina, Ioannina, September 2019.
- PowerLaPs IP 2 on Plasma Physics & High Power Laser Matter Interactions/High Energy Density Physics – Theory and Experiments, TEI of Crete, Rethymno, July 2019
- PowerLaPs LTT Course on Laser Plasma Diagnostics – Theory and Experiments, University of Salamanca, Salamanca, March 2019
- PowerLaPs LTT Course on Computational Modeling & Simulations in Laser Matter Interactions, Czech Technical University, Prague, January 2019
- PowerLaPs IP on Plasma Physics & High Power Laser Matter Interactions/High Energy Density Physics – Theory and Experiments, TEI of Crete, Rethymno, July 2018
- PowerLaPs LTT Course on High Power Laser Matter Interactions/High Energy Density Physics – Theory and Experiments, Queen’s University Belfast, Belfast, March 2028
- PowerLaPs LTT Course on Plasma Physics – Theory and Experiments, University of Bordeaux, Bordeaux, January 2018

Contribution in research programs

- EUROfusion project: Advancing shock ignition for direct-drive inertial fusion (ENR-IFE.01.CEA) October 2022 – present

Educational Experience

- Auxiliary teaching at Department of Electronic Engineering of the Hellenic Mediterranean University. Subject: “Optoelectronics & Laser”

Computer skills

- Software: Mathematica, SIMION
- Programming languages: Matlab, C, C++, Flash MHD code

Languages

- English: LRN Level 3 Certificate in ESOL International (CEF C2)