



Vlachos Christos




Ph.D. student

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Employment History

- 2018 – 2019  **Internship Agreement-LAPHIA** (Laser and Photonics in Aquitaine)
Centre Lasers Intenses et Applications-CELIA, Bordeaux, France
Participated in ion acceleration from ultra-intense laser pulses interaction with dense gas jets experiments .
- 2020 – present  **Ph.D. student.** French Alternative Energies and Atomic Energy Commission (CEA).

Education

- 2010 – 2016  **B.Sc., Physics Department**, University of Ioannina, Greece
- 2017 – 2019  **M.Sc. Plasma Physics & Applications**, Hellenic Mediterranean University, Greece
Institute for Plasma Physics & Laser, Rethymno, Greece
Thesis title: *Use of Faraday rotation in paramagnetic crystals to characterise magneto-static fields in coil targets driven by lasers.*
- 2020 – present  **Ph.D. Cotutelle - University of Bordeaux, France & Hellenic Mediterranean University, Greece**, Plasma Physics & Lasers
Thesis title: *Experimental studies of high-energy-density magnetized plasmas: in route to magneto-inertial fusion.*






Research Publications

Journal Articles

- 1 Pisarczyk, T., Renner, O., Dudzak, R., Chodukowski, T., Rusiniak, Z., Dostal, J., Krupka, M., Klir, D., Domański, J., Krasa, J., Singh, S., Cikhardt, J., Batani, D., Santos, J., Burian, T., Ehret, M., Gajdos, P., Zaras-Szydłowska, A., Rosinski, M., ... Juha, L. (2023). Strongly magnetized plasma produced by interaction of nanosecond kj-class laser with snail targets. *Plasma Physics and Controlled Fusion*, 65(5), 055015. <https://doi.org/10.1088/1361-6587/acc421>
- 2 Bailly-Grandvaux, M., Florido, R., Pérez-Callejo, G., Walsh, C. A., McGuffey, C., Santos, J. J., Suzuki-Vidal, F., Saret, J., Gigosos, M. A., Bradford, P., **Vlachos, C.**, Mancini, R. C., & Beg, F. N. (2022). Characterizing the effect of magnetization at >10 kt in cylindrically imploded hot dense plasmas using dopant spectroscopy techniques and benchmarked simulations. *2022 IEEE International Conference on Plasma Science (ICOPS)*, 1–2. <https://doi.org/10.1109/ICOPS45751.2022.9813122>
- 3 Perez-Callejo, G., Bailly-Grandvaux, M., Florido, R., Walsh, C. A., Gigosos, M. A., Beg, F. N., McGuffey, C., Mancini, R. C., Suzuki-Vidal, F., **Vlachos, C.**, Bradford, P., & Santos, J. J. (2022). X-ray imaging and radiation transport effects on cylindrical implosions. *Review of Scientific Instruments*, 93(11), 113542. <https://doi.org/10.1063/5.0099180>
- 4 Perez-Callejo, G., **Vlachos, C.**, Walsh, C. A., Florido, R., Bailly-Grandvaux, M., Vaisseau, X., Suzuki-Vidal, F., McGuffey, C., Beg, F. N., Bradford, P., Ospina-Bohórquez, V., Batani, D., Raffestin, D., Colaitis, A., Tikhonchuk, V., Casner, A., Koenig, M., Albertazzi, B., Fedosejevs, R., ... Santos, J. J. (2022). Cylindrical implosion platform for the study of highly magnetized plasmas at laser megajoule. *Phys. Rev. E*. <https://doi.org/10.1103/PhysRevE.106.035206>







- 5 Pisarczyk, T., Renner, O., Dudzak, R., Chodukowski, T., Rusiniak, Z., Domanski, J., Badziak, J., Dostal, J., Krupka, M., Singh, S., Klir, D., Ehret, M., Gajdos, P., Zaras-Szydłowska, A., Rosinski, M., Tchorz, P., Szymanski, M., Krasa, J., Burian, T., ... Juha, L. (2022). Influence of the magnetic field on properties of hot electron emission from ablative plasma produced at laser irradiation of a disc-coil target. *Plasma Physics and Controlled Fusion*, 64(11), 115012. <https://doi.org/10.1088/1361-6587/ac95c4>
- 6 Walsh, C., Florido, R., Bailly-Grandvaux, M., Suzuki-Vidal, F., Chittenden, J. P., Crilly, A., Gigosos, M. A., Mancini, R., Perez-Callejo, G., **Vlachos, C.**, McGuffey, C., Beg, F. N., & Santos, J. J. (2021). Exploring extreme magnetization phenomena in directly-driven imploding cylindrical targets. *Plasma Physics and Controlled Fusion*. <https://doi.org/https://doi.org/10.1088/1361-6587/ac3f25>
- 7 Pisarczyk, T., Santos, J. J., Dudzak, R., Zaras-Szydłowska, A., Ehret, M., Rusiniak, Z., Dostal, J., Chodukowski, T., Renner, O., Gus'kov, S. Y., Korneev, P., Burian, T., **Vlachos, C.**, Kochetkov, I., Makaruk, D., Rosinski, M., Kalal, M., Krupka, M., Pfeifer, M., ... Skala, J. (2019). Elaboration of 3-frame complex interferometry for optimization studies of capacitor-coil optical magnetic field generators. *Journal of Instrumentation*, 14, C11024. <https://doi.org/10.1088/1748-0221/14/11/C11024>

Skills

- Languages  Greek, English, French (basics), German (basics).
- Coding  Python, Matlab, C, L^AT_EX
- Codes  Flash (MHD), Multi, Pafin, Prorad, 3D Radia (Magnetostatic), ChoCoLat.
- Software  Mathematica, Linux, Microsoft Office.
- Lab  **Laser matter interaction:** of high intensity fs pulses with solid and gas targets.
Optical probing techniques: Experience on setting up laser pump-probe diagnostics for plasma characterization by shadowgraphy, interferometry, Faraday rotation and Schlieren methods.
Ion acceleration: Experience in setting up and performing ion acceleration via TNSA technique experiments.

Conferences

Orals and Posters

- 2021  **American Physical Society Division of Plasma Physics Conference**, virtual(hybrid), held in Pittsburgh, Pennsylvania, November 8-12 (poster presentation)
-  **NIF-JLF USERS GROUP MEETING**, virtual, February 9-10 (poster presentation)
- 2022  **Association of Asia Pacific Physical Societies Division of Plasma Physics Conference** virtual, October 9-14 (oral presentation)
-  **ECLIM conference**, held in Frascati, Italy, September 19-23 (oral presentation)
- 2023  **ECPD conference**, held in Rethymno, Greece, April 24-28 (oral presentation)
-  **Optica Imaging Congress**, held in Boston, Massachusetts, United States, August 14-17 (invited talk)