



VICTOR MORENO

PhD Candidate in Physics

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Genève, Suisse [Working permit B](#)

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SUMMARY

Skilled in complex problem-solving, data analysis, data modelling and visualisation seeking opportunities in a dynamic team as a passionate scientist.

COMPUTER SKILLS

Python (Pandas, Matplotlib, LM-Fit, Astropy, OpenCV, SciKit-learn, SciPy), SQL, Excel VBA, CAO SolidWorks, Linux, Git, Latex

EDUCATION

- 2020 - Present **PhD Candidate in Physics** Université de Genève, CH
Atmospheric discharges controlled by high repetition rate laser filaments
Relevant subjects: Carried statistical analysis on terabyte-size datasets, Carried beam propagation simulations with non-linear Schrödinger equation numerisation, Lead large laser experiments with 3 people, Chased thunderstorms and lightnings on a mountain, Wrote scientific articles, Gave presentations
- 2020 **M.S. Physics for Plasma & Fusion** Université Paris-Saclay, FR
Studied theoretical calculations for plasma and carried simulations for nuclear fusion, Learnt non-linear equations and tensor description of magnetic confinement fusion, Grasped description of magneto-hydrodynamic instabilities, Theorised cold plasma processes.
- 2018 **B.S. Physics & Chemistry** Université de Bordeaux, FR
Studied models and equations for statistical physics, optics, general relativity, quantum physics, thermodynamic, fluid dynamics. Modelled organic chemistry and crystallography
- 2015 - 2017 **CPGE MPSI - MP** Sainte-Marie Grand Lebrun, Bordeaux, FR
Intensive preparatory course in Mathematics, Informatics, Physics, Chemistry, Engineering

EXPERIENCE

- 2023 **Business Program Certification** EPFL, InnoSuisse, CH
Studied financial accounting, IP protection, market analysis & strategy for risk assessment, technology transfer.
- 2020 **Simulation of laser filamentation for guiding lightnings** Université de Genève, CH
Master Thesis
With PYTHON: Carried 3D temporal simulations for the propagation of ultrashort laser pulses, Analysed data, Designed and engineered large scale laser experiments.
- 2019 **Fabrication of new silicon planar optics for millimeter waves** IRAM, Grenoble, FR
Developed a new technology and a clean room fabrication process of silicon wafers for millimeter waves for the study of black holes. Designed wafer in PYTHON and KLayout.
- 2018 **Improvements on machining composites for Automotive and Jet Fighters** Pentaxia, Derby, UK
Bachelor Thesis
Improved the quality of CNC machining for jet fighters manufacturers by searching and optimising 5-axis cutting process. Acquired and Analysed large datasets. Learnt quality control for aerospace standards with R&D methodology
- 2017 - 2018 **Private tutor in Maths & Physics** Solution Cours, Bordeaux, FR
Taught to 5 students from Middle School to High school for a total of 6h/week.

PUBLICATIONS

- 2023 **High-power sub-picosecond filamentation at 1.03 μm with high repetition rates between 10 kHz and 100 kHz**, Löscher, R., Moreno, V. et al.
APL Photonics
- 2023 **Long distance laser filamentation using Yb:YAG kHz laser**, Walch, P., Mahieu, B., Moreno, V. et al.
Scientific Reports
- 2023 **Laser-Guided Lightning**, Houard, A., Walch, P., Produit, T., Moreno, V. et al.
Nature Photonics
- 2022 **Second and third harmonic generation from simultaneous high peak- and high average-power thin disk laser**, Andral, U., Walch, P., Moreno, V. et al.,
Applied Physics B

LANGUAGES

French, Native, C2 - **English**, Fluent, TOEIC (695), C1 - **Spanish**, Fluent, C1 - **German**, Basics A1

AWARDS & INTERESTS

1st prize, 2nd prize, Artistic prize (Photography contest with UIMM-Gironde Landes)
Long distance endurance Cycling - Alpinism - Musician, Guitar, Drums, Keyboard