



Maël Le Garrec

CS ENGINEER · ACCELERATOR PHYSICS PHD STUDENT

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Experience



KEK

Tsukuba, JP

VISITING SCIENTIST

2024

- Measurement of linear optics of SuperKEKB
- First observations of higher chromaticity non-linear orders
- First observations of sextupolar Resonance Driving Terms



CERN

Geneva, CH

PHD STUDENT - ACCELERATORS AND BEAM PHYSICS

2021 — 2024

- Measurements and corrections during LHC's commissioning
 - Linear optics: β -beating, dispersion, energy, coupling
 - Non-linear optics via chromaticity: Q'' and Q'''
- Measurement, modelling and correction of decapole fields via Chromatic Amplitude Detuning, Q''' and RDTs.
- Observation and modelling of higher order fields (dodecapole and decatetrapole).
- Measurement and correction of skew octupole fields via RDTs.
- Analytical calculations from Hamiltonians.

Geneva, CH

TRAINEE - ACCELERATORS AND BEAM PHYSICS

2019 — 2021

- Software development for Optics Measurements and Corrections for LHC Run III commissioning.
- Particle tracking simulations ; dev in Python and Java.



Scaleway

Paris, FR

DEVOPS

2018 — 2019

- Maintenance of Python APIs, server images and system software.
- Administration of thousand of hypervisors and servers.

Education

Gothé Universität Frankfurt

Frankfurt am Main, DE

DOCTORAL CANDIDATE

2021 - 2024

- Thesis: LHC Effective Model for Optics Corrections
- Under the supervision of Apl. Prof. Dr. Giuliano Franchetti and Dr. Ewen H. Maclean

CERN Accelerator School

Chavanne de Bogis, CH / Sévrier, FR

ACCELERATOR PHYSICS COURSES - [HTTPS://CAS.WEB.CERN.CH](https://cas.web.cern.ch)

2021-2022

- Introduction to Accelerator Physics, 2 weeks focused on basic accelerator physics subjects.
- Advanced Accelerator Physics, continuation of previous school, focused on advanced subjects.

EPITA

Paris, FR

COMPUTER SCIENCE ENGINEERING

2013 - 2019

- Focus on systems and network security
- Low-level development and system administration

Skills and Interests

Coding Python, C/C++, Java, bash, LaTeX, Rust

Web Flask, HTML, CSS, Apache

Others Archlinux, Debian, Git, pgSQL, Scipy, Sympy, Numpy, Pandas, Matplotlib

Languages French, English (C1), German (A2)

Interests Electronics, CAD Design & 3D Printing, Automotive Mechanics, Climbing, Paragliding

Professional Knowledge

Particle Tracking and Analysis

MAD-X, MAD-NG, OMC3, XSUITE

2019-

- LHC single particle tracking with field errors.
- Frequency and Optics analysis for beta-beating, dispersion, RDTs, etc.
- Correction of Optics based on response matrices (Chromaticity, RDTs)
- Modelling of machine errors.
- Dynamic Aperture simulations with XSuite.

Contests

FRANCE

2017 37th / 700, *Meilleur Développeur de France* (Best French Developer), algorithms contest

Paris