

Diploma supplement

Master of Science MSc in Physics

Section:

Physics

This Diploma Supplement model was developed by the European Commission, Council of Europe and UNESCO/CEPES. The purpose of the supplement is to provide sufficient independent data to improve the international «transparency» and fair academic and professional recognition of qualifications (diplomas, degrees, certificates etc.). It is designed to provide a description of the nature, level, context, content and status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. It should be free from any value judgements, equivalence statements or suggestions about recognition. Information in all eight sections should be provided. Where information is not provided, an explanation should give the reason why.

1. Information concerning the holder of the diploma

- | | |
|---------------------------------|----------------------------|
| 1.1 Family name(s) | Gui |
| 1.2 First name | Lai |
| 1.3 Date of birth | September 3rd, 2000 |
| 1.4 Federal registration number | 24809816 |

2. Information concerning the diploma

2.1 Type of qualification and title conferred with official abbreviation (in original language)

Qualification	Master of Science MSc
MSc Title	Master of Science MSc in Physics
Swiss Professional title	Physicien (phys. dipl. EPF)

2.2 Main fields of study covered by the qualification

solid state physics, quantum mechanics, astrophysics, statistical physics, particle physics, plasma physics, nuclear physics.

The EPFL physicist is a high level scientist, with a background both in theoretical and experimental physics and having received some training in engineering and technology. She/He has experience in research, in solving technical issues and in conducting a project. Thus, the EPFL physicist is capable of performing well in fundamental and applied research or in various domains of engineering, in tertiary activities and she/he can also engage in teaching. In industry or in the public sector, the EPFL physicist contributes to the design and development of high tech products.

2.3 Name and status of the awarding institution (in original language)

École polytechnique fédérale de Lausanne, Suisse (EPFL)

EPFL - Foundation and Development

Created in 1853 as the École Spéciale de Lausanne, the institution became the Swiss Federal Institute of Technology Lausanne in 1969. EPFL has kept evolving, restructuring its programs and creating new curricula, thus anticipating the scientific and technological developments. Today, EPFL is among the world's top technological universities and a strategic center of innovation in Switzerland.

At a national level, EPFL is expanding by establishing specialized research centers, including associated campus in Neuchatel (Microcity), Sion (Energypolis), Geneva (Campus Biotech), and Fribourg (Smart Living Lab). Each of these research centers is active in a field that is of particular importance to the region where it is located.

EPFL has positioned itself as a research-intensive university of technology, where science and engineering come together to benefit education as well as fundamental and applied research.

EPFL Facts - 2025

- 14'072 students, including 2'465 doctoral students, representing over 120 nationalities
- 6'441 employees, including 378 faculty members and 3'697 scientific collaborators
- 1'370 Master and 450 Doctorate degrees were delivered
- 453 laboratories, 76 research groups
- 104 Start-ups, 27 Corporate companies, 6 SME and 19 Service providers representing a total of 2'701 employees at EPFL Innovation Park
- 1'400'000 visitors to the Library, collections with 245'000 volumes; campus-wide online access to 30 databases, over 24'000 scientific journals and over 170'000 ebooks
- a total budget in excess of CHF 1 billion

Study Programs

- School of Architecture, Civil and Environmental Engineering (ENAC): Architecture; Civil Engineering; Environmental Sciences and Engineering
- School of Engineering (STI): Electrical and Electronic Engineering; Mechanical Engineering; Materials Science and Engineering; Microengineering; Robotics; Energy Science and Technology
- School of Computer and Communication Sciences (IC): Computer Science; Communication Systems; Data Science; Cyber Security
- School of Basic Sciences (SB): Physics; Applied Physics; Mathematics; Applied Mathematics; Molecular and Biological Chemistry; Chemical Engineering and Biotechnology; Computational Science and Engineering; Nuclear Engineering; Statistics; Chemistry and Chemical Engineering
- School of Life Sciences (SV): Life Sciences Engineering
- College of Management of Technology (CDM): Management, Technology and Entrepreneurship; Financial Engineering, Sustainable Management and Technology
- College of Humanities (CDH): Digital Humanities

The EPFL programs are certified by the Swiss agency for accreditation and quality assurance (AAQ), and those in engineering have also been certified by the French Commission des Titres d'Ingénieur (CTI). Thanks to this double certification, EPFL degrees receive the label EUR-ACE and are recognized throughout Europe.

Technology transfer

EPFL acts as a business incubator, ensuring the transfer of academic results to industrial developments. In recent years, EPFL scientists have launched an average of one new company every fortnight. EPFL Innovation Park, which is home to a community of start-ups, scale-ups and innovation units from large companies, is expanding to new sites in order to meet the changing needs of companies. The campuses in Ecublens, Geneva (Campus Biotech EPFL Innovation Park) and Prilly (Unlimitrust) are home to more than 200 companies, including around thirty major international groups and more than 170 start-ups, SMEs and service companies.

International Relations

While preserving the coherence of rigorous scientific training, EPFL offers its students exchange possibilities thanks to agreements with more than 200 carefully selected partner universities worldwide. EPFL is also a member of several academic networks, such as EuroTech, RESCIF and CESAER, which promote scientific collaborations as well as student and faculty mobility.

2.4 Name and status of institution (if different from 2.3) administering studies

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2.5 Languages of instruction/examination

Courses are given in English.

3. Information concerning the level of qualification**3.1 Level of qualification**

Master: Academic degree obtained after the second cycle of studies.

3.2 Official duration of studies

The Master comprises two stages:

- a. Master cycle of 3 semesters = 90 ECTS credits
- b. Master project of 1 semester = 30 ECTS credits

1 credit = 25-30 hours of workload

3.3 Admission requirements

Bachelor's Degree in the corresponding field of studies awarded by a Swiss University or an École Polytechnique Fédérale (EPF) or according to qualifications, for other diplomas considered equivalent.

4. Information concerning programme content and results gained**4.1 Mode of study**

Full-time

4.2 Programme requirements

The Master project is carried out after the 90 ECTS credits have been obtained in the Master cycle. A specialisation semester, a minor or Options courses accounting for 30 ECTS should be chosen within these 90 credits.

4.3 Programme details and individual grades/marks/credits obtained

The marks and the credits obtained appear in the grade sheet.

4.4 Grading system and if available information concerning allocation of grades

Marking system EPFL

Excellent	6.0
Very good	5.5
Good	5.0
Satisfactory	4.5
Pass	4.0
Fail	3.5
Poor	3.0
Poor to very poor	2.5
Very poor	2.0
Not measurable	1.0

4.5 Overall classification of the qualification**Final Master grade: 5.43 / 6****5. Information concerning the function of the qualification****5.1 Access to further studies**

Allows application for specialised Master and other higher education programmes, in particular Doctoral programmes.

5.2 Professional status

There are no specific regulations bound to this profession

6. Additional information**6.1 Additional details on the individual course of the studies:**

Title of the Master project in the original language:

**Quantitative Characterisation of SiPM Radiation Damage
using Emission Microscopy**

6.2 Others sources of information

Physics Section

EPFL Faculté SB
Bâtiment PH
Station 3
CH-1015 Lausanne
Tel: + 41 (0)21 6933300
Web: <http://sph.epfl.ch/>
E-mail: sph@epfl.ch

Registrar's office

EPFL AVP-E SAC
Bâtiment polyvalent (BP)
Station 16
CH-1015 Lausanne
Tél: + 41 (0)21 693 43 45
Web: <https://www.epfl.ch/education/studies/>
E-mail: student.services@epfl.ch

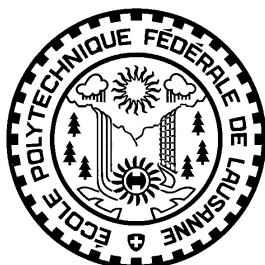
ENIC network: <http://www.enic.ch>
swissuniversities: <http://www.swissuniversities.ch>

7. Endorsement of the Diploma Supplement

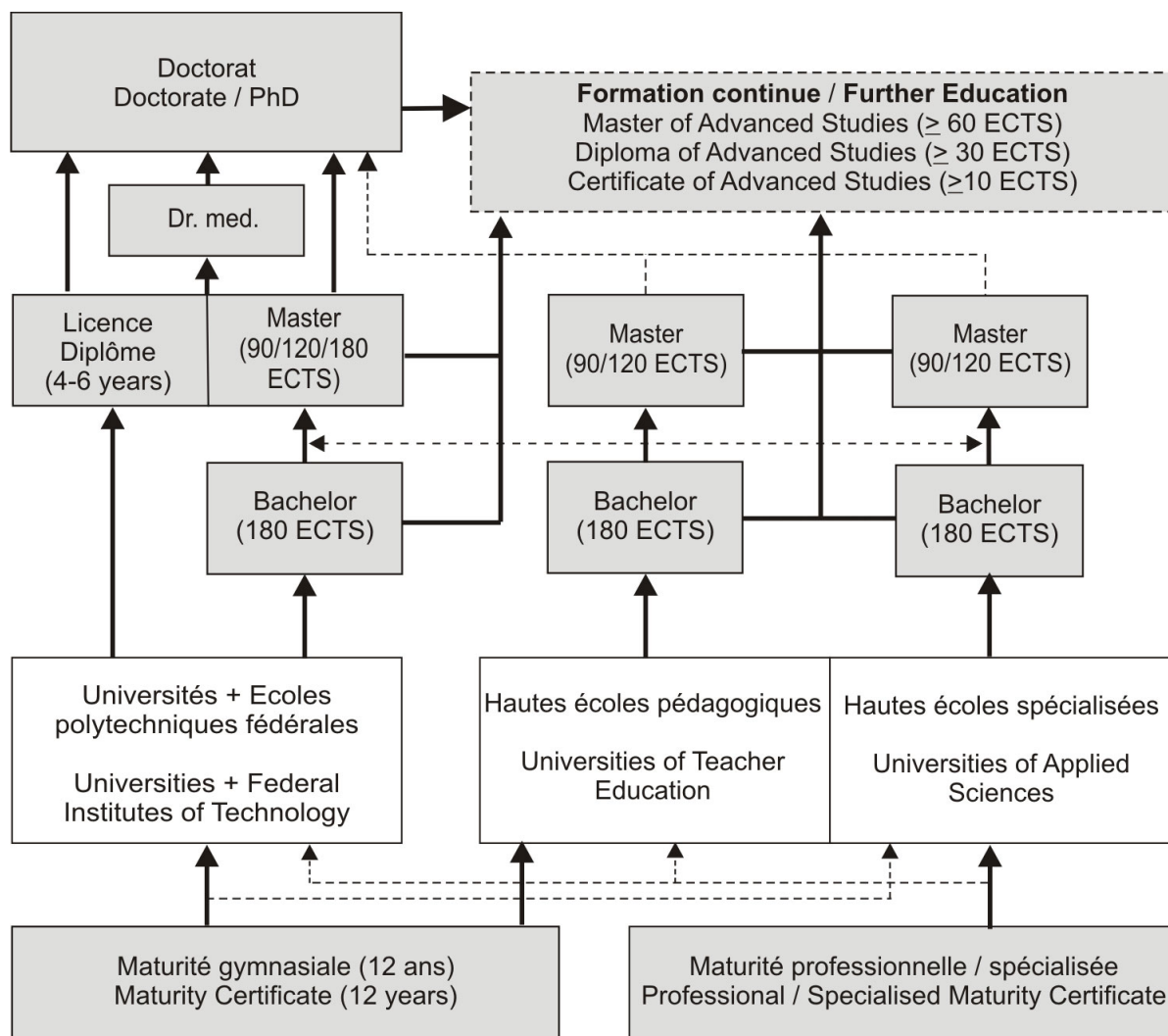
July 14th, 2026

Associate Vice President for Education

Professor Nicolas Grandjean



8. Information on the Swiss education system



→ *Parcours normal*
Normal path

-----> *Conditions supplémentaires requises*
Additional achievement required

9. Description of courses attended**HUM-478 Emotion, value, and life-defining choices I**

ECTS Credits : 3.

Lecturers : Pé-Curto Alain Daniel. Semester : 2024-2025 Master semester 1

Most of us aspire to live meaningful lives. Yet, many of us would struggle to explain what a meaningful life is. This course provides philosophical tools and frameworks useful to understand our aspiration for meaning.

HUM-479 Emotion, value, and life-defining choices II

ECTS Credits : 3.

Lecturers : Pé-Curto Alain Daniel. Semester : 2024-2025 Master semester 2

In this master's project seminar, students prepare a high-quality article embodying the philosophical ideals of clarity, concision, and aspiration to truth. Students also defend the claim made in their article by delivering a professional talk.

PHYS-400 Selected topics in nuclear and particle physics

ECTS Credits : 4.

Lecturers : Blanc Frédéric. Semester : 2024-2025 Master semester 2

This course presents the principles and the recent research developments on three topics of particle and nuclear physics: neutrinos, dark matter, and plasmas of quark and gluons. An emphasis is given on experimental aspects in these three fields.

PHYS-415 Particle physics I

ECTS Credits : 4.

Lecturers : Marchevski Radoslav. Semester : 2024-2025 Master semester 1

Presentation of particle properties, their symmetries and interactions. Introduction to quantum electrodynamics and to the Feynman rules.

PHYS-416 Particle physics II

ECTS Credits : 4.

Lecturers : Shchutskaya Lesya. Semester : 2024-2025 Master semester 2

This course aims to make students familiar and comfortable with the main concepts of particle physics, providing a clear connection between the theory and relevant experimental results, including the most recent ones from modern particle physics experiments.

PHYS-421 Physics project I

ECTS Credits : 8.

Lecturers : Blanc Frédéric. Semester : 2024-2025 Master semester 1

The student applies the competencies acquired during her/his studies in a research study developed in one of the laboratories of the physics section under the supervision of teacher of the section. The student is present during a whole day of the week in the laboratory during the semester.

PHYS-422 Physics project II

ECTS Credits : 8.

Lecturers : Haefeli Guido. Semester : 2024-2025 Master semester 2

The student applies the competencies acquired during her/his studies in a research study developed in one of the laboratories of the physics section under the supervision of teacher of the section. The student is present during a whole day of the week in the laboratory during the semester.

PHYS-425 Quantum physics III

ECTS Credits : 6.

Lecturers : Yazyev Oleg. Semester : 2024-2025 Master semester 1

To introduce several advanced topics in quantum physics, including semiclassical approximation, path integral, scattering theory, and relativistic quantum mechanics

PHYS-427 Relativity and cosmology I

ECTS Credits : 6.

Lecturers : Augusto Penedones Fernandes João Miguel. Semester : 2024-2025 Master semester 1

Introduce the students to general relativity and its classical tests.

PHYS-431 Quantum field theory I

ECTS Credits : 6.

Lecturers : Rattazzi Riccardo. Semester : 2025-2026 Master semester 3

The goal of the course is to introduce relativistic quantum field theory as the conceptual and mathematical framework describing

fundamental interactions.

PHYS-439 Introduction to astroparticle physics

ECTS Credits : 4.

Lecturers : Neronov Andrii, Perrina Chiara, Savchenko Volodymyr. Semester : 2024-2025 Master semester 2

We discuss the role of particle physics in cosmology and in the description of astrophysical phenomena. We also present the methods and technologies for the observation of cosmic particles.

PHYS-440 Particle detection

ECTS Credits : 4.

Lecturers : Haefeli Guido. Semester : 2025-2026 Master semester 3

The course will cover the physics of particle detectors. It will introduce the experimental techniques used in nuclear and particle physics. The lecture includes the interaction of particles with matter, scintillators, gas detectors, silicon detectors, detectors for particle ID and photo-detectors.

PHYS-471 Particle physics: the flavour frontiers

ECTS Credits : 4.

Lecturers : Marchevski Radoslav. Semester : 2024-2025 Master semester 2

This course will present experimental aspects of flavour physics primarily in the quark sector but also in the lepton sector and their role in the development of the Standard Model of particle physics.

PHYS-597 Specialisation semester

ECTS Credits : 30.

Lecturers : Blanc Frédéric, Haefeli Guido. Semester : 2025-2026 Master semester 3

Students have the opportunity to apply their knowledge in a project contributing to specialize them in a physics field. The project can take place in an external or internal laboratory or in a research institute.

PHYS-599(b) Master project in Physics

ECTS Credits : 30.

Lecturers : Curras Rivera Esteban, Haefeli Guido, Schneider Olivier. Semester : 2025-2026 Master Project spring

The student realises a research project in a physics laboratory or in a company.