



LUND
UNIVERSITY

MSc in Physics, Particle Physics

LUND UNIVERSITY, SWEDEN

- Master of Science in Physics
- 2 years, full-time, 120 ECTS credits
- Department of Physics
- Lund Campus
- Application deadline: January 2021
- Programme start: August 2021

Programme overview

What are the fundamental constituents of matter and what forces act upon them? Particle physics is the subject that addresses the fundamental principles governing our world: forces and constituents. This understanding is formulated mathematically as theories (previously called laws of nature). The subject matter evolves through experimental explorations and development of theories and models. Today, our understanding is described by the Standard Model theory, which has an exceptional predictive power, but is incomplete. We explore the predictions of the Standard Model and seek a more complete understanding, i.e. beyond the Standard Model. In practice, we conduct the research in global experimental collaborations. Today, these experiments are mainly done at the LHC collider at CERN.

At the Physics Department at Lund University, the Particle Physics Division is involved in two major experiments at the LHC: ATLAS and ALICE. The ATLAS experiment is devoted to looking for physics beyond the Standard Model, whereas the ALICE experiment is designed to look at a new state of matter called quark-gluon plasma. As a Master's student in particle physics, you will be given the opportunity to follow the progress of those experiments and to take an active part in looking at the data as it is recorded by the experiments. The students should be prepared to visit foreign research centres such as CERN for shorter periods.

Programme modules/courses

For information on mandatory and elective courses, see the programme website: www.fysik.lu.se/english/education/start-studying/masters-programme.

Career prospects

The programme is ideal as the beginning of an academic career in particle physics, but also opens doors to other careers. During the programme, you will gain skills in physics and mathematics as well computers, information technology, e-Science and other cutting-edge technologies used in the experiments. In addition to preparing the students for PhD studies in the field, the programme will also provide a suitable start for a future career at one of the international laboratories. As the experiments are performed in large international collaborations, the programme is also intended for those who plan a future working in an international environment.

Entry requirements and how to apply

ENTRY REQUIREMENTS

A Bachelor's degree of at least 180 credits in physics or the equivalent. The degree must include at least 90 credits in physics. English Level 6 (equivalent to IELTS 6.5, TOEFL 90). See www.lunduniversity.lu.se for details on English proficiency levels.

HOW TO APPLY

1. Apply online: Go to www.lunduniversity.lu.se/particle-physics. Click on "Apply" and follow the instructions for the online application at www.universityadmissions.se, the Swedish national application website.

Rank the chosen programmes in order of preference.

2. Submit your supporting documents:

- **General supporting documents:** Check what documents



"Lund University is one of the best universities in the world. I chose Lund because of the collaborations with both the ATLAS and ALICE experiments, which are two of the main experiments at CERN that interest me. Lund University is the right place to study physics. All the facilities you could possibly need are here – Lund has it all! Most important of all, the experts, teachers and supervisors really take care of you and guide you well. I was also lucky enough to get a part-time job at MAX-lab. The Master's in Particle Physics gives you an excellent base with which to carry on your research interest into the future and Lund has a lot of choices in terms of physics disciplines."

Patrawan Pasuwan from Thailand





you need to submit (i.e. official transcripts, degree diploma /proof of expected graduation, translations, proof of English, passport) and *how* you need to submit them at www.universityadmissions.se.

- **Programme-specific supporting documents:** When applying for this programme, you must also submit a 'Summary Sheet' with your application. See the programme webpage for details.

3. Pay the application fee (when applicable).

SELECTION CRITERIA/ADDITIONAL INFORMATION

The selection will be based on grades awarded for previous academic courses, particularly qualifying courses, and the statement of purpose (from the applicant's 'Summary Sheet').

TUITION FEES

There are no tuition fees for EU/EEA citizens. For non-EU/EEA citizens, the tuition fee for this programme is SEK 145 000 per year. See www.lunduniversity.lu.se for details on tuition fees.

About the Department of Physics

The Department of Physics has over 300 researchers, teachers, technicians and administrators. We work to extend the understanding of physics and its applications, and to communicate our findings, and those of others, to new generations. We also teach the basics of physics to over one thousand students every year.

About Lund University

Lund University was founded in 1666 and is repeatedly ranked among the world's top 100 universities. The University has 40 000 students and more than 8 000 staff based in Lund, Helsingborg and Malmö. We are united in our efforts to understand, explain and improve our world and the human condition.

Lund is the most popular study location in Sweden. The University offers one of the broadest ranges of degree programmes and courses in Scandinavia, based on cross-disciplinary and cutting-edge research. Because of its wide disciplinary range, interdisciplinary collaborations and engagement with wider society, Lund University is particularly well equipped to meet complex societal challenges. With partner universities in around 70 countries, the University's profile is distinctly international.

Lund University has an annual turnover of more than EUR 830 million, of which two-thirds go to research in our nine faculties, enabling us to offer one of the strongest and broadest ranges of research in Scandinavia.

The establishment of the world-leading facilities MAX IV and ESS will have a major impact on future scientific and industrial development in both materials science and life science. MAX IV is the leading synchrotron radiation facility in the world, while the European research facility ESS will be the world's most powerful neutron source when it opens for research in 2023. Adjacent to these facilities, Science Village Scandinavia is also being developed into a meeting place and testing environment for research, education and entrepreneurship.

Learn more at www.lunduniversity.lu.se

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CONTACT

Programme webpage

www.lunduniversity.lu.se/particle-physics

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