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 specialisations 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 in a diversified society. 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. The programme also provides the same career options as the Master’s Programme in General Physics.

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.

“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
2. Submit your supporting documents:

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

Selection of students is based on previous university/college studies and other merits such as letters of recommendation and statement of purpose.

**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.

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**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 7 600 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. Lund University offers one of the broadest ranges of programmes and courses in Scandinavia, based on cross-disciplinary and cutting-edge research. The University has a distinct international profile, with partner universities in around 70 countries.

Lund University has an annual turnover of SEK 8.5 billion, more than half of which is destined for research. Our eight faculties conduct strong research in many different areas, including over thirty research fields in which we are world-leading. Many scientific breakthroughs and pioneering innovations have originated from Lund University.

The world-leading research facilities MAX IV and ESS which are being established in Lund will be of great significance for research and industrial development within materials and life sciences. MAX IV is the world’s foremost synchrotron radiation facility and the ESS will be the most powerful neutron source in the world once it opens for research in 2023. Science Village Scandinavia is developing nearby and is destined to become a meeting place and a test environment for research, education and entrepreneurship.

Learn more at www.lunduniversity.lu.se

Ask questions and follow news at facebook.com/lunduniversity