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 overview

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 a door 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 BA/BSc in physics, mathematics or similar, with 90 ECTS in physics and/or mathematics, including basic knowledge of quantum mechanics. English Level 6 (equivalent to IELTS 6.5, TOEFL 90). See www.lunduniversity.lu.se for details on English proficiency levels.

“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
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 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 statement of purpose and letters of recommendation with your application.

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 Departments 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.