

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

Programme overview

The use of X-rays and neutrons in basic and advanced physics has expanded enormously the last decades, due to their exceptional properties, and Lund hosts two of the world's best facilities: The world's first 4th generation synchrotron radiation X-ray source, the MAX IV Laboratory, and the neutron facility European Spallation Source (ESS). In this world-unique MSc program, you will study the entire chain of X-ray and neutron science: from the creation of X-ray and neutron beams, to the fundamental physics of the interaction of such beams with matter, and their application in advanced measurement methods.

You will learn how X-rays can be used to understand materials, catalysis and crystal growth by spectroscopy, diffraction and microscopy, and how neutrons can be used to understand proteins, superconductivity and magnetism. You will also learn about the advanced electron and proton accelerators that are needed for the generation of X-rays and neutrons. Since these probes are used in a wide range of fields, from archeology to medicine, many research projects are interdisciplinary. The Master's programme is flexible and interdisciplinary, with a clear foundation in physics, and it is possible to combine theoretical or computational studies with experimental approaches.

As a Master's student, you will become part of a vibrant research community, engaged in cutting-edge experimental and theoretical studies of problems in materials science, quantum physics and biology. The programme includes a Master's project carried out within one of the research groups. The close proximity to large-scale facilities and

excellent materials science research groups provides excellent opportunities for inspiring Master's thesis research projects.

Programme modules/courses

For information on courses and specialisations, see <http://www.fysik.lu.se/english/education/start-studying/masters-programme/x-ray-and-neutron-science>.

Career prospects

A Master of Science in X-rays and neutrons will give you opportunities to pursue a wide variety of careers. Examples of career prospects are researcher at one of the many companies using X-rays and neutrons, PhD studies in the areas of X-ray and neutron science, or research engineer at large scale facilities. Graduates of the programme will be well qualified for PhD programmes in physics and related fields.

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/theoretical-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 '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

Ask questions and follow news at

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CONTACT

Programme webpage

www.lunduniversity.lu.se/x-ray-neutron-science

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