

STUDY PROGRAM

Basic Research in Astro and Particle Physics (Semester 1+2)	
Astronomy & Astrophysics	9 CP
Particle Physics	9 CP
Laboratory Work	6 CP
Modern Topics	6 CP
Specialisation Modules (Semester 1+2)*	
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Theoretical Astrophysics	6 CP
Computational Methods	6 CP
Stellar Physics	6 CP
General Relativity	6 CP
Relativistic Astrophysics	6 CP
Neutrino Physics	6 CP
High Energy Astrophysics	6 CP
Cosmology	6 CP
Extragalactic Astrophysics	6 CP
Space Physics and Astrophysics	6 CP
Quantum Field Theory	6 CP
Neighboring Field (Semester 2)**	
Module of neighboring field	6 CP
Scientific Work (Semester 3+4)	
Methods and project planning	15 CP
Scientific specialisation in Thesis topic	15 CP
Master Thesis	30 CP

CP: Credit Points

* Participants select four of the eleven specialisation modules.

** The module APP301 should be taken from neighboring scientific fields. This includes advanced modules from the 4-year Bachelor study of Physics or other advanced modules from Mathematics. Choices from other fields are also possible but require a decision of the Exam Committee on an individual basis.

Updated: October 2017

Photo credits: University of Tuebingen

ASTRO AND PARTICLE PHYSICS @ TÜBINGEN

The University of Tübingen

Innovative. Interdisciplinary. International. Since 1477. These have been the University of Tübingen's guiding principles in research and teaching ever since it was founded. With this long tradition, the University of Tübingen is one of the most respected universities in Germany. Recently, its institutional strategy was successfully selected for funding in the Excellence Initiative sponsored by the German federal and state governments, making Tübingen one of Germany's eleven universities distinguished with that title of excellence. Tübingen has also proven its status as a leading research university in many national and international competitions – in key rankings Tübingen is listed among the best universities for the Humanities and Social Sciences as well as for Science and Medicine.

With its broad spectrum of subjects, the University of Tübingen provides a wealth of opportunities for interdisciplinary collaboration. And such close cooperation on research extends beyond the University and around the world. The University of Tübingen has joint research projects at all levels with other institutions of higher education, with research institutes and with industry.

The University's excellence in research offers optimal study conditions to students who come to Tübingen, combined with the opportunity to emphasize individual interests along the way. The attractive study environment is reinforced by many additional services, such as the Language Centre, interdisciplinary lectures in the Studium Generale and the state-of-the-art University Library. The University motto speaks for itself: attempto – I dare!

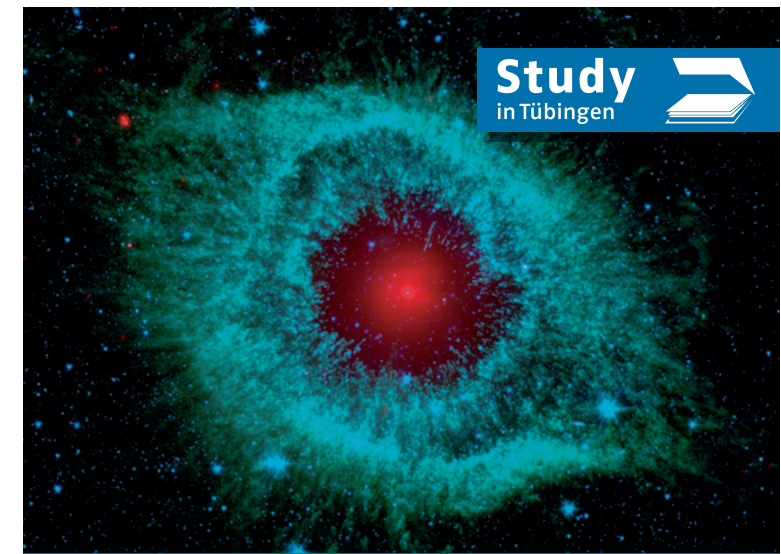
The City of Tübingen

Tübingen does not have a university, it is a university: young, creative, open, innovative. The picturesque historical town center and its attractive position on the Neckar River offer a high quality of life whether you are studying, working, or taking a break.

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EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN



Study
in Tübingen

ASTRO AND PARTICLE PHYSICS

Master of Science

FACULTY OF SCIENCE
Department of Physics



PROFILE

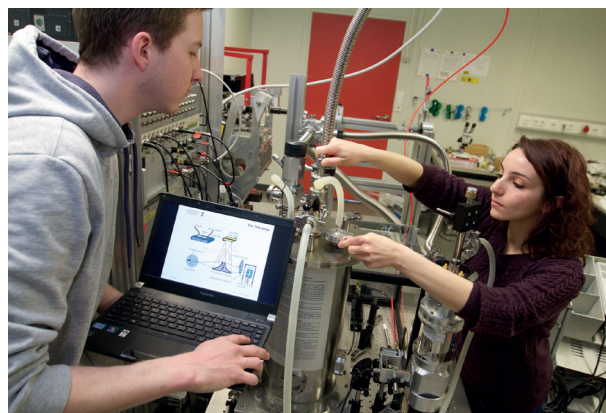
The focus of the master programme Astro and Particle Physics is put on a distinct quantitative approach as usual in physics, along with the acquisition of essential practical skills (primarily in the lab) with respect to problem sets in the field of Astro and Particle Physics.

The Master Astro and Particle Physics is an international research-oriented two year programme established by the Kepler-Center. This programme connects science from the fields of particle physics, astrophysics and cosmology and combines different disciplines in experimental and theoretical physics, astronomy and astrophysics. The education will be in English throughout which prepares the students for the increasing internationalization in industry and modern society.

LEARNING OUTCOMES

- Graduates have a sound standing in basic and advanced astro and particle physics covering various research fields, e.g. theoretical quantum field theory, general relativity, computational astrophysics, experimental neutrino physics.
- The students are capable to critically scrutinize the suitability of specific scientific methods for studying various astro and particle physics related questions.
- They are able to combine different techniques in a meaningful way to make rather complex physical problems accessible.
- The students are able to plan and undertake independently appropriate theoretical and laboratory investigations.
- Graduates can present scientific findings of their research orally and in writing. In discussions they are skilled to answer scientific questions in a proficient manner. They can communicate in English with experts in the field and contribute to discussions on current astro and particle physics related topics.

CAREER OPTIONS



a) Professional Qualifications

This master program is designed to prepare students for a research career in academia or industry by introducing advanced ideas and techniques that are applicable to a wide range of research areas and sectors including academia, industry, and education. Graduates receive a comprehensive education in experimental as well as theoretical physics with a practical section and they are well prepared for the duties in industry and in other research oriented institutions.

b) Further Opportunities

Under certain conditions, there is a possibility to undertake doctoral research in the Department of Physics. The Kepler-Center manages a coordinated PhD-programme with the topic: *Particles, Fields and Messengers of the Universe* with about 30 PhD students.

REQUIREMENTS

The study program requires enthusiasm, curiosity, and a solid basic knowledge in physics. Applicants must have completed a Bachelor of Science degree in physics or a similar degree with a grade of 2.5 or better. We expect broad interest in natural science as well as willingness to familiarize and work with complex scientific details, and to be able to scientifically communicate in English in written and oral form. English is the language of instruction and examination in the Astro and Particle Physics Master degree program. An adequate knowledge of English is required (level B2 of the Common European Framework of Reference for Languages).

APPLICATION PROCEDURE

Students may join the M. Sc. Astro and Particle Physics program in either the winter or the summer term each year. Deadline for applications from abroad (Non-EU) is July 15 for the winter term and January 15 for the summer term. For applicants from EU countries, the deadline is September 30 for the winter term and March 31 for the term.

For further information, please visit:

www.uni-tuebingen.de/en/667

Information on admission to studies (requirements, restrictions, necessary documents, application deadlines, etc.) is available via the Student Administration (zsb@uni-tuebingen.de) or the study coordinator of Astro and Particle Physics.

The application is to be submitted online only via

<https://movein-uni-tuebingen.moveonnet.eu/movein/portal/studyportal.php>

FURTHER INFORMATION

www.uni-tuebingen.de/de/86970