A physics programme that covers the inner workings of the universe from the smallest to the largest scale

Although Particle Physics and Astrophysics act on a completely different length and time scales, they both use the laws of physics to study the universe. In this specialisation you’ll dive into these extreme worlds and unravel questions like: What did our universe look like in the earliest stages of its existence? What are the most elementary particles that the universe consists of? And how will it evolve?

Why study this specialisation at Radboud University?
• This Master’s specialisation provides you with a thorough background in High Energy Physics, Astrophysics, and Mathematical Physics and the interface between them.
• Apart from the mandatory programme, there’s plenty of room to adapt the programme to your specific interests.
• You’ll get the opportunity to perform theoretical, experimental or observational research at the Institute for Mathematics, Astrophysics and Particle Physics (IMAPP).
• It’s also possible to participate in large-scale research projects, such as the Large Hadron Collider at CERN, the LOFAR telescope or gravitational wave detectors like LIGO.

change perspective

Radboud University
Programme outline (2 years, 120 EC)
The programme of this specialisation depends on the Master’s that you follow: Physics and Astronomy or Science.

Physics and Astronomy

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Courses
Below you can find an overview of the compulsory courses and some examples of electives. Please have a look at the online prospectus (see ‘More information’) for more detailed information.

Compulsory courses for all students
• Gravity & the Cosmos (6 EC)
• Particles & the Cosmos (6 EC)
• Student Seminar Particle and Astrophysics (3 EC)

Extra compulsory courses for Physics and Astronomy students
• Electrodynamics (3 EC)
• Philosophy: The Transformative Role of Physics in the Current Scientific Revolution (3 EC)
• Professional Preparation (1 EC)

Examples of specialisation electives
• General Relativity (6 EC)
• Cosmic Magnetism (6 EC)
• Quantum Field Theory (6 EC)
• Asteroseismology (6 EC)

Research internship
Most students choose to do their internship at Radboud University, sometimes in combination with observations or experiments abroad. The relevant research departments within the Institute for Mathematics, Physics and Astrophysics (IMAPP) at Radboud University are:
• High Energy Physics (ru.nl/highenergypysics)
  › Dr. Sascha Caron
• Astrophysics (astro.ru.nl)
  › Dr. Søren Larsen
Of course, it’s also possible to perform research at another university, an institute or a company. There are, for example, close contacts with the Max Planck Institute in Germany. We’re happy to provide you with advice about how to combine your specific fields of interest in an internship, you can always contact a lecturer or the student advisor (see ‘More information’).

Your advantages on the labour market
This Master’s specialisation is an excellent preparation for a career in research, either at a university, at an institute (like ESA and CERN) or at a company. At Radboud University, there are typically a few PhD positions per year available in the field of Particle and Astrophysics. Many of our students have attained a PhD position, not just at Radboud University, but at universities all over the world. However, our students end up in business or government positions as well. Examples include project manager, associate in investments, consultant, operations manager, scientist in space research, data analyst, or technology strategy manager.

Admission requirements
You are required to have a Bachelor’s degree in Physics and Astronomy, Science, Physics, Applied Physics, or a closely related discipline. You must also have a sufficient proficiency in English. For details, please visit the website or contact the student advisor (see ‘More information’).

Application procedure
The programme starts in September. The application deadline is 1 April for students from non-EU/EEA countries and 1 May for students from within the EU/EEA.
You apply for the Master’s programme in either Physics and Astronomy or Science via www.studielink.nl. After admittance to the Master’s programme, you can enrol for the specialisation in Particle and Astrophysics.

More information
Prospectus: www.ru.nl/prospectus/sciencefaculty

Student advisor Physics & Astronomy: Emily van Mierlo
  › physicsandastronomy@ru.nl / +31 (0)24 365 30 13
Student advisor Science: Marjolijn Roeters
  › science@ru.nl / +31 (0)24 365 20 29

www.ru.nl/masters/particleandastrophysics