Working at a frontier of mathematics that intersects with cutting edge research in physics

This specialisation is about both being inspired by physical phenomena and delving into the relevant - often pure - mathematics to understand those. It combines expertise in areas like functional analysis, geometry, and representation theory with research in, for example, quantum physics and integrable systems. Mathematicians can benefit from discoveries in physics and conversely mathematics is essential to further excel in the field of theoretical physics.

Why study this specialisation at Radboud University?

- This specialisation is one of the few Master’s in the world that lies at the heart of where mathematics and physics intersect and that examines their cross-fertilization.
- You’ll benefit from the closely related Mathematics Master’s specialisations, and get the opportunity to work closely with the mathematicians and physicists of the IMAPP research institute.
- With the national Mastermath programme, you can follow the best mathematics courses in the Netherlands, regardless of the university that offers them.
- Teaching takes place in a stimulating, collegial setting with small groups. This ensures that at Radboud University you’ll get plenty of one-on-one time with your thesis supervisor.

change perspective

Radboud University
Programme outline (2 years, 120 EC)
The programme of this specialisation consists of:
• Compulsory courses (15 EC)
• Major electives (15 EC)
• Minor electives (24 EC)
• Free mathematical electives (16 EC)
• Professional preparation (1 EC)
• Philosophy (3 EC)
• Free electives (6 EC)
• Master's thesis (40 EC)

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
• Lie Groups and Lie Algebras or Differential Geometry (6 EC)
• Operator Algebras or Foundations of General Relativity (6 EC)
• Master Seminar (3 EC)

Examples of specialisation electives
• Advanced Mathematical Physics (6 EC)
• Algebraic Topology (8 EC)
• Harmonic Analysis (8 EC)
• Symplectic Geometry (8 EC)

Mastermath programme
Radboud University takes part in the Dutch Master's Degree Programme in Mathematics, or Mastermath for short. Every semester the Departments of Mathematics of Dutch universities organise joint courses in mathematics. These courses offer you the highest quality of instruction and allow you to meet and interact with mathematics students and researchers from universities all over the country.

Master's thesis
For your Master's thesis, you further specialise in a mathematical topic that matches your interests, and you may take up the challenge of doing research yourself. Our staff members can offer a broad range of topics that are suited for a project, and we are also open to research suggestions you yourself bring. At Radboud University the most relevant department is Mathematical Physics (ru.nl/science/gqt). Important research topics here are:
• Algebraic geometry, group theory, and sympletic geometry
  › Prof. Gert Heckman
• Theory of quantum groups
  › Prof. Erik Koelink
• Topos theory and Schrödinger's Cat
  › Prof. Klaas Landsman
• Non-commutative geometry & particle physics
  › Dr. Walter van Suijlekom
• Quantum field theory and category theory
  › Dr. Michael Müger
For other possibilities, contact a lecturer or the student advisor.

Your advantages on the labour market
The skills learned during this Master's will help you find jobs even in areas where your specialised mathematical knowledge may initially not seem immediately relevant. This makes your job opportunities very broad indeed and is why many graduates of a Master's in Mathematics find work very quickly. Possible careers include: researcher (at research centers or within a company), teacher, risk model validator, consultant, policy maker, and analyst.

Admission requirements
You are required to have a Bachelor's degree in Mathematics 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 Mathematics via www.studielink.nl. After admittance to the Master's programme, you can enrol for the specialisation in Mathematical Physics.

>>> More information
Prospectus: www.ru.nl/prospectus/sciencefaculty
Mastermath: www.mastermath.nl
Student advisor Mathematics: Ina de Vries
  › mathematics@ru.nl / +31 (0)24 365 23 86

www.ru.nl/masters/mathematicalphysics