



Universiteit Utrecht



Master's programme Experimental Physics

Some core facts about the programme:

- your hosts are:

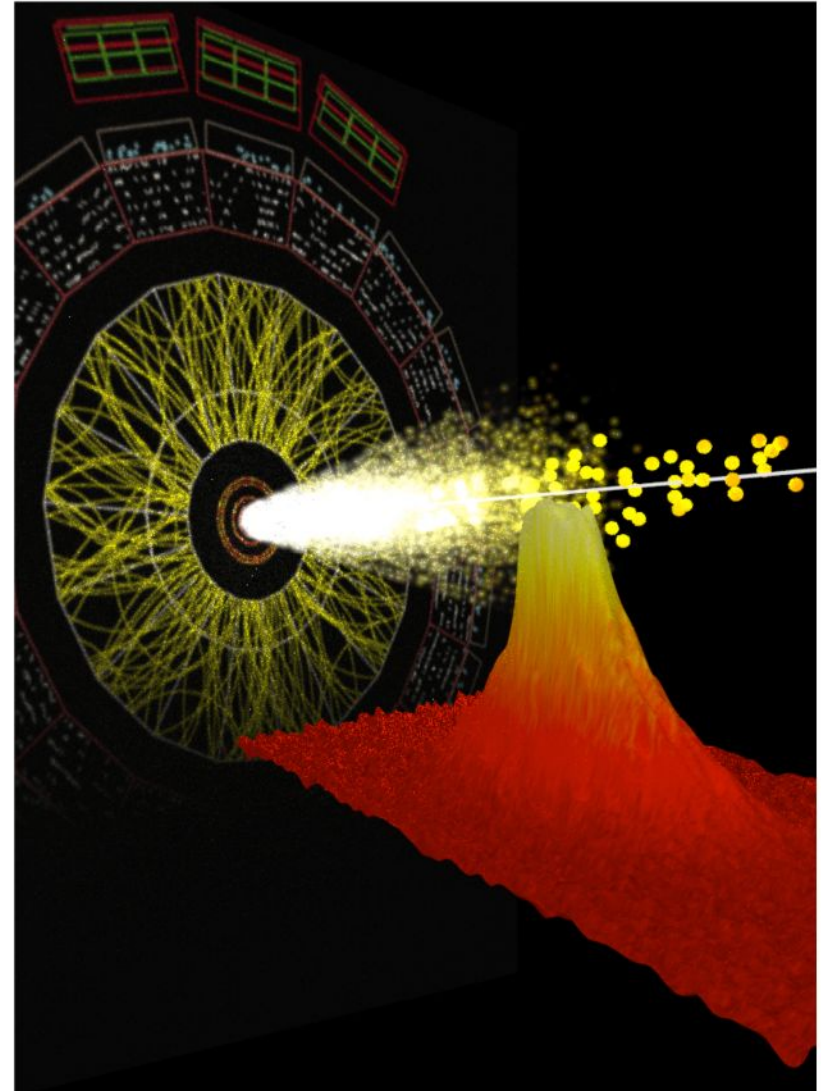
Raimond Snellings
Professor, Subatomic Physics
Programme Leader



Gerhard Blab
UD, SCM & Biophysics
Programme Coordinator



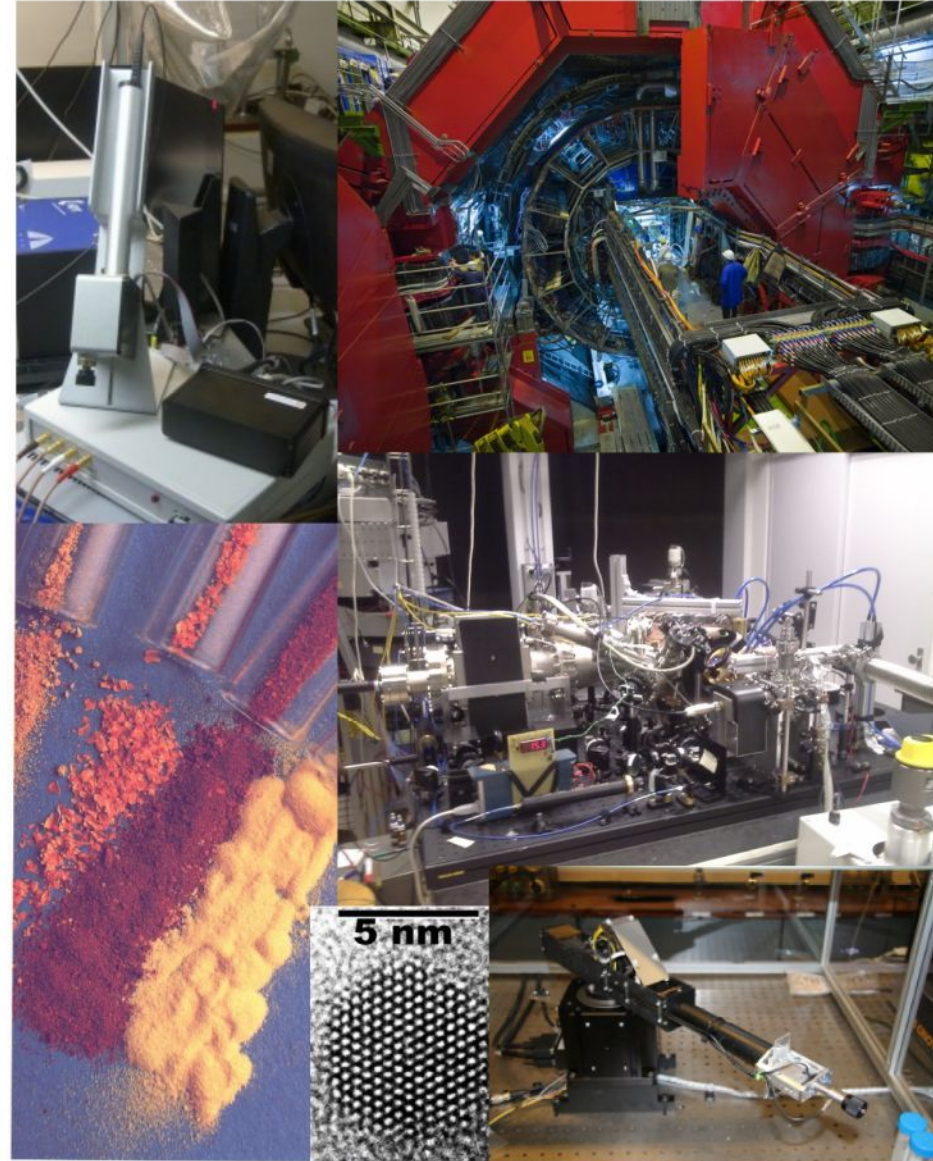
- the language is English.
- it is a full-time and takes 2 years (120 EC).
- the programme starts in September, starting in February is possible, but less than ideal.





Aim of the programme

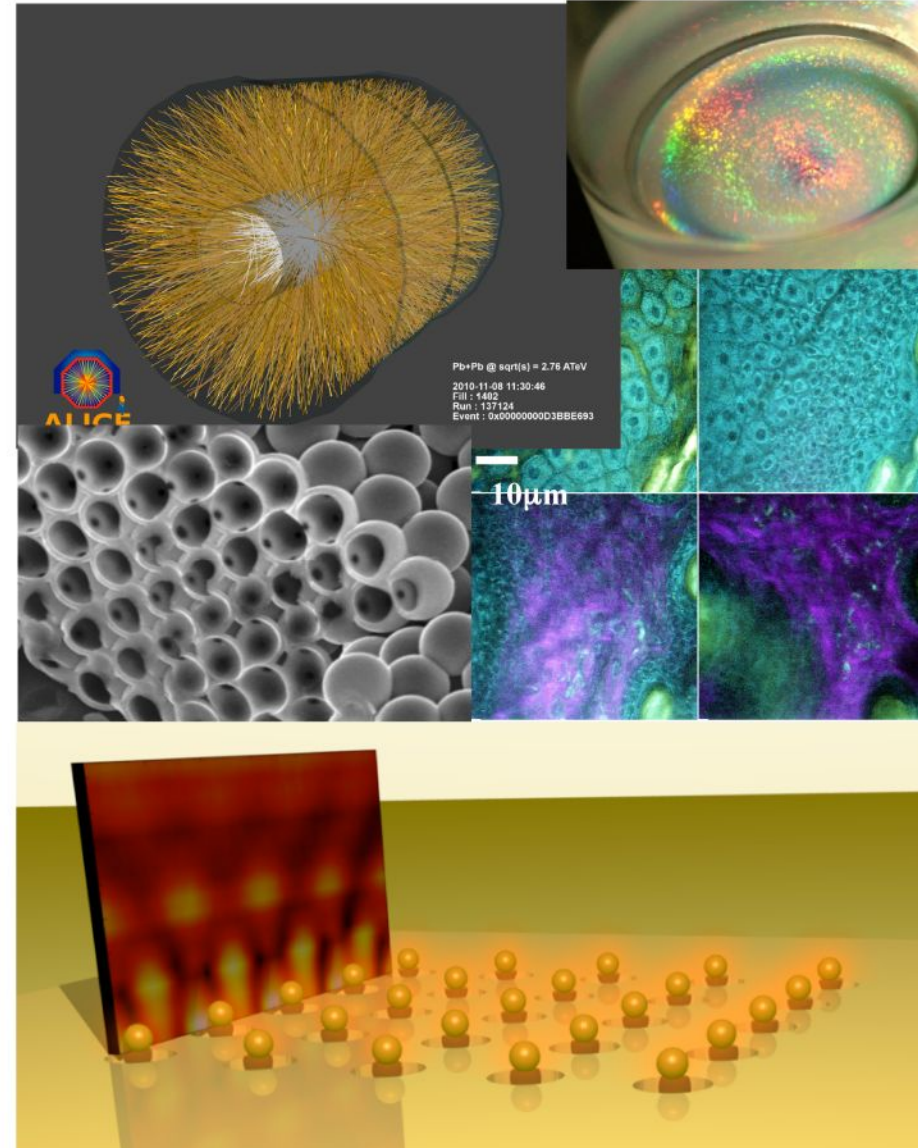
This master program offers courses with a **strong link to experimental research** carried out by research groups in the Department of Physics. The research undertaken at Utrecht is at the forefront of fundamental experimental physics. You will have the opportunity to work in close cooperation with research groups that specialize in colloidal physics, top-of-the-line integrated microscopy, the strong nuclear forces, Bose-Einstein or ultrafast light-matter interaction.





Academic context

- Fundamental physics research:
 - What are the elementary building blocks of matter?
 - How do building blocks of matter interact, and how do those interaction scale?
 - How can you observe interactions at a (sub)molecular level?
 - How do light and matter interact?
 - What happens at the extremes of the temperature scale?
- You do not have to answer all those questions completely to get your degree!





Organisation

- Experimental Physics is a Master in the Graduate School of Natural Sciences (GSNS) within the Faculty of Science (Bèta).
- The research is performed at Utrecht University in state of the art laboratories and in international collaborations at research centers in Europe (CERN), the EU (Nano-material safety) and the US. Nationally we cooperate in the Nikhef consortium:
 - **Nikhef:**
 - National institute for Particle and Astro-particle Physics,
 - Partners: FOM, RUN, UU, UvA, VU (contacts RUG, UL, UT)
 - Theory department
 - Detector development group, mechanical and electronics workshops
 - Staff: about 250, 125 scientific (80 PhD students)



Programme structure

- **Core Mandatory Courses** (choose three out of 4, total 22.5 EC)
 - Particle Physics I
 - The standard model: fundamentals of modern particle physics
In collaboration with UvA, VU
Lectures: Monday and Wednesday, first block at Nikhef second at Utrecht
 - Photon Physics
 - Understand the interactions between light and matter
 - Experimental Quantum Physics
 - Understanding of the theory and experimental techniques in modern physics
 - Soft Condensed Matter Theory
 - Learn to interpret, describe, and predict the physical properties of soft matter, such as colloidal particles, polymers, or macromolecules.
- Electives (37.5 EC)
- Thesis Research Project (60 EC)



Programme structure

- Core Mandatory Courses (choose three out of 4, total 22.5 EC)
- **Electives** (37.5 EC)
 - Primary Electives (22.5 EC)
 - The current list of primary electives can be found on the [UU master's page](#).
 - NIKHEF offers additional courses that count as primary electives.
 - Secondary Electives (15 EC)
 - You may chose from any master level course offered by GSNS.
 - *Please note: due to limited resources, some courses are offered every other year!*
 - There are currently three “**profiles**” (30 EC) available for students of Experimental Physics:
 - Profile Complex Systems
 - Educational Profile
 - Applied Data Science Profile
- Thesis Research Project (60 EC)

Profiles can be done within the 120 EC of the programme:
15 EC from secondary electives and
15 EC from thesis research



Programme structure

- Core Mandatory Courses (choose three out of 4, total 22.5 EC)
- Electives (37.5 EC)
- **Thesis Research Project** (60 EC)
 - Locally in groups or institutes at the UU:
 - Hard Condensed Matter or Nanophotonics
 - Particle Physics
 - Soft condensed Matter & Biophysics
 - or quasi-local: AMOLF, DIFFER, Nikhef,...
 - Externally at other universities or in a company, but also abroad (*e.g.* CERN) pending approval from the program coordinator.
 - **NB:** you will always need **two** local staff members who are responsible for your thesis work)

The 60 EC research contain
1/2 EC for this introduction and
1/2 EC for "Dilemma's of the scientist"

The research is
split in two parts of 19 EC and 40 EC,
each has a go/no-go moment, and
each has to be finished on time.



More information?

- Attend a class (always a good start) and/or talk to the lecturer ...
- Check out the new master's student pages
<http://students.uu.nl/en/science/experimental-physics>, or
- eMail us at r.snellings@uu.nl or g.a.blab@uu.nl.
- Call the International Office on (030) 253 7000
or visit www.uu.nl/qdesk