

Welcome in the Master programme

Prof. Axel Görlitz, HHU Düsseldorf

09.10.2023

Master Programme in Physics

MSc in Physics - Study Programme			
1. Semester	2. Semester	3. Semester	4. Semester
Focus Area 1 (12 LP)		Specialization (15 LP)	Final Seminar (3 LP)
Focus Area 2 (12 LP)			Master Thesis (30 LP)
Elective Physics (36 LP)			
Elective General (12 LP)			

Physics Focus (Schwerpunkt)

- Plasma Physics, Quantum Optics and Quantum Information, Solid State Physics, Soft Matter Physics, Biophysics
- Two focus areas (12 ECTS each) have to be chosen
- In each focus area one experimental (type A) and one theoretical (type B) module (6 ECTS each) have to be chosen
- It is guaranteed that in all focus areas lectures of type A and type B are held regularly (i. e. once per academic year)
- Course enrollment at LSF (lsf.uni-duesseldorf.de)

Physics Focus (Schwerpunkt)

Schedule of lectures in the focus areas	
WS 2023/24	SS 2024
Experimental Plasma Physics (A)	Experimental Quantum Optics (A)
Theoretical Plasma Physics (B)	Theoretical Quantum Optics and Quantum Information (B)
Experimental Soft Matter (A)	Theoretical Soft Matter (B)
Semiconductor Devices (A) Surface Physics I (A)	Theoretical Solid State Physics (B)*
Experimental Biophysics (A)	Theoretical Biophysics (B)

*additional lectures in experimental solid state physics may be offered in the summer term 2024

Elective Physics Modules (Wahlpflichtbereich Physik)

- Focus modules, Laser Physics, Astrophysics, Computational Physics, Numerical Simulations, Advanced Quantum Mechanics, ...
- Modules with a total of 36 credit points have to be chosen
- Course enrollment at LSF (lsf.uni-duesseldorf.de)
- [Handbook of Modules](#) lists courses that are generally offered

Elective Physics Modules (Wahlpflichtbereich Physik)

Modules that can be chosen as elective physics module in WS2023/24	
all focus modules (if not used in focus area)	
Astrophysics	Physics with Trapped Charged Particles
Fundamentals of Medical Physics (Grundlagen der Medizinphysik – Deutsch)	Quantum Electrodynamics
Laser-Plasma Diagnostics	Quantum Field Theory of Nonequilibrium Phenomena
Sun, Coal, Nuclear Fusion	Surface Code Quantum Computation
Atomic Resolved Characterization of Materials	Medical Image Processing and Time Series Analysis
Imaging Techniques I	Laser Physics
Introduction to the Standard Model	
Computer Practical Biophysics	Journal Club on Quantum Information Theory
Seminar - Nanoelectronics	Seminar - Quantum-Technology-Inspired Tests of Fundamental Symmetries with EXCURSION TO CERN

Elective modules (Wahlbereich)

- Any university course including physics modules.
- Language courses (www.deutschkurse.de, <http://www.spz.hhu.de>) , advanced Mathematics, Chemistry, more Physics courses, transferable skills (<http://www.studierendenakademie.hhu.de>),...
- 1st year courses of the Bachelor programmes in physics or mathematics are excluded.
- Credit points for Bachelor courses of other disciplines may be reduced (please ask examination board (Prof. Egger)).
- Graded courses/modules count for final grade.

2nd year of Master Programme

Specialization

- Training for Master thesis
- 15 Credit Points

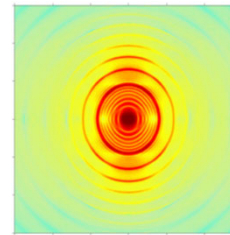
Final Seminar

- Presentation of Master thesis
- 3 Credit Points

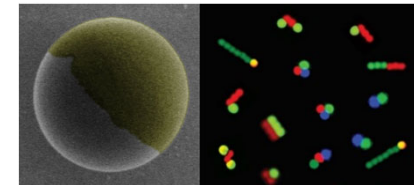
Master thesis

Research work in one of our primary research areas:

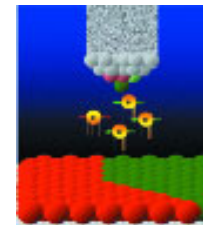
- Plasma Physics
- Soft Matter
- Solid State Physics/Nano Physics
- Quantum Optics/Quantum Information
- Medical Physics/Biophysics



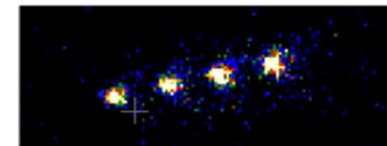
(AG Müller)



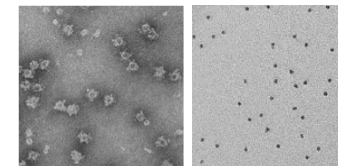
(AG Buttinoni)



(AG Getzlaff)



(AG Schiller)



(AG Monzel)

- Cover entire moduls
- Oral exams (date of exam are individually arranged with the examiner) or written tests (fixed date)
- Registration: 1 week before exam; online-registration (in the Studierendenportal)
- **Exception** - seminars: registration with professor
- **Exception** - directed study: registration with professor

Contact

Student Advisor: Prof. Axel Görlitz
(Contact hours: when the office door is open)

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