TECHNISCHE UNIVERSITÄT DRESDEN

Prof. Arno Straessner
Studiendekan der Fakultät Physik

Welcome! Herzlich Willkommen!
Fakultät Physik der TU Dresden

Welcome and Introduction to the Master of Physics Programme

- Introduction to the Master of Physics Programme
- Information and Support by the Student Council

TU Dresden

- 32.000 Students
- 8.000 Employees
- 600 Professors
- 120 Study Courses

- 17 Departments
- 5 Schools

School of Science

School of Humanities and Social Sciences

School of Engineering Sciences

School of Civil and Environmental Engineering

School of Medicine

School of Science
Bereich Mathematik und Naturwissenschaften

Mathematics

Physics

Chemistry

Biology

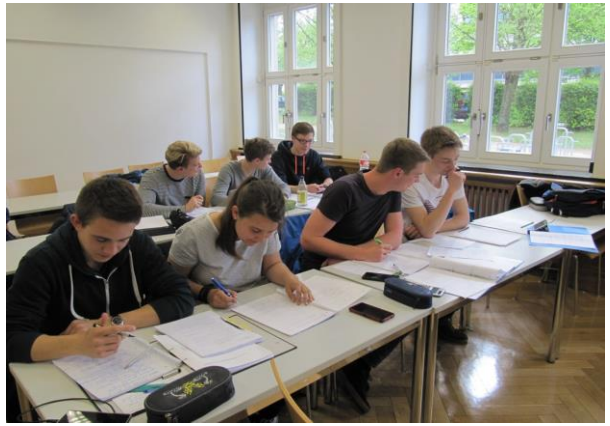
Psychology

Department of Physics
Recknagelbau

Department of Physics

~ 1000 Students

- 350 Bachelor students
- 150 Master students
- 300 Students in teacher training in physics
- 220 Ph.D. students



~ 50 Lectures
~ 10 Seminars
~ Lab courses

Exzellence cluster

- Complexity and Topology in Quantum Matter
- Physics of Life

Research networks

- DFG - German Science Foundation: Sonderforschungsbereiche, Forschungsgruppen, Schwerpunktprogramme, Graduiertenkollegs
- International Max Planck Research School, International Helmholtz Research School
- Federal Minstry of Education and Research: Forschungsschwerpunkte, Forschungsinfrastrukturen

Institutes at the Department of Physics

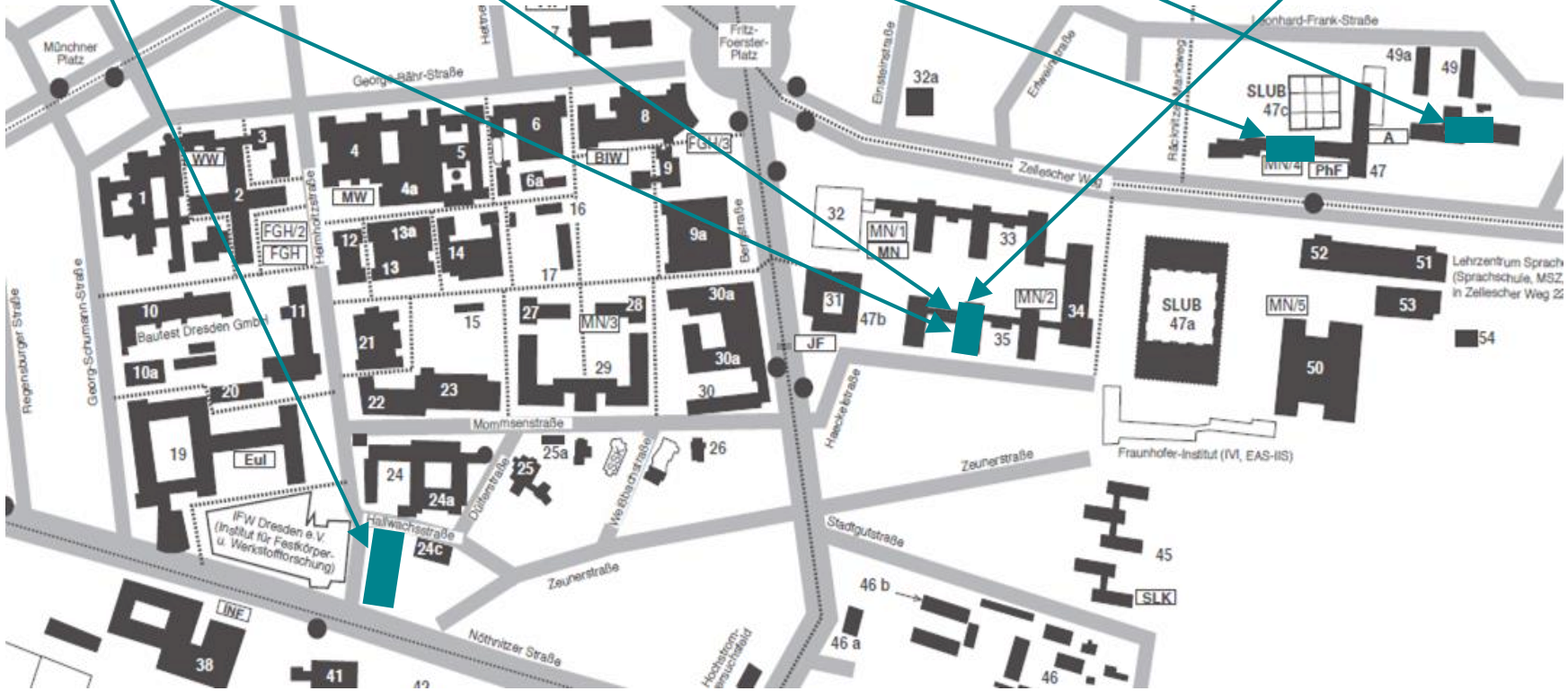
Applied Physics — iap

Solid State and Materials Physics — IFMP Institut für Festkörper- & Materialphysik

Theoretical Physics — ITP

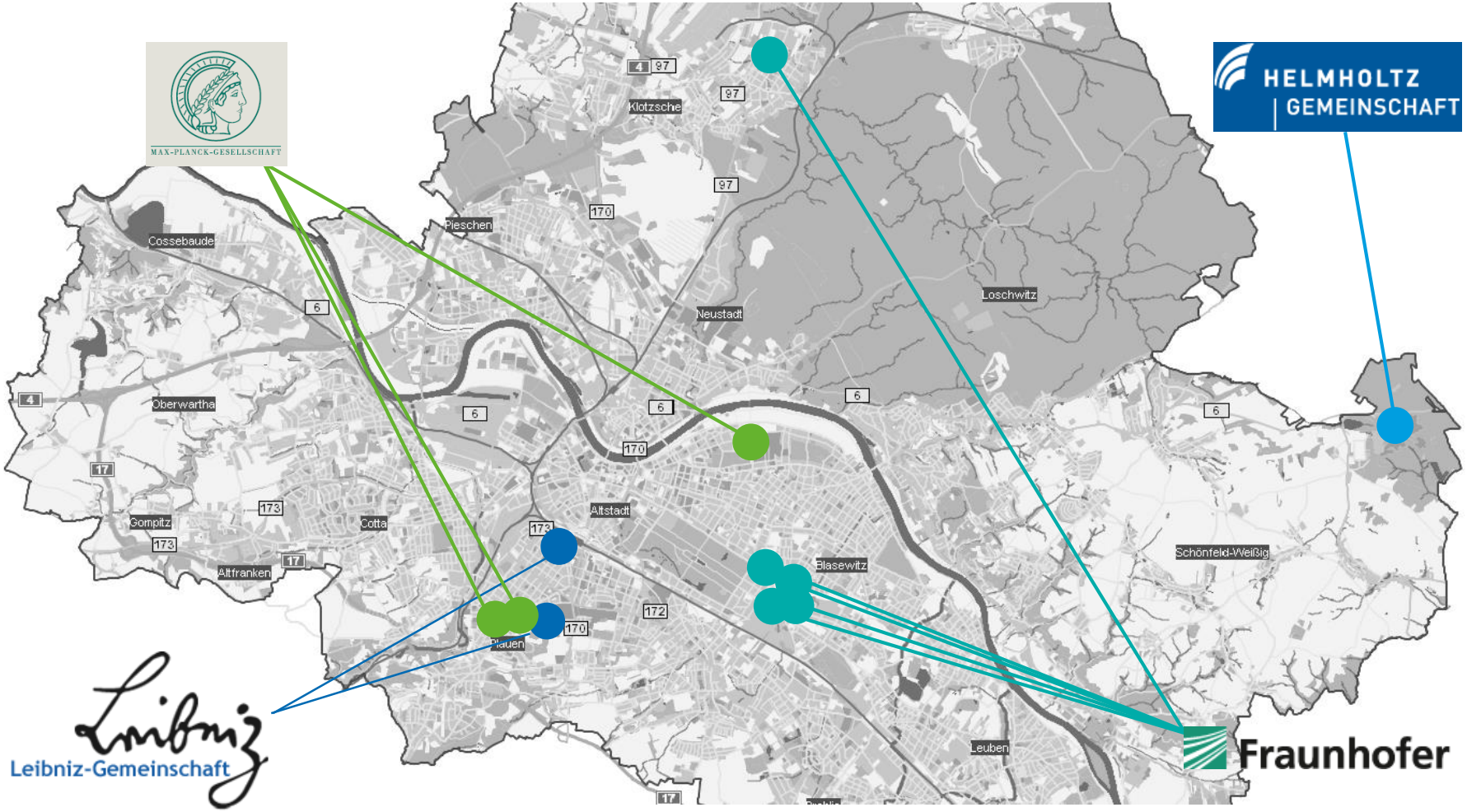
Nuclear and Particle Physics — INSTITUT FÜR KERN- UND TEILCHENPHYSIK

Physics Education — Didaktik der Physik

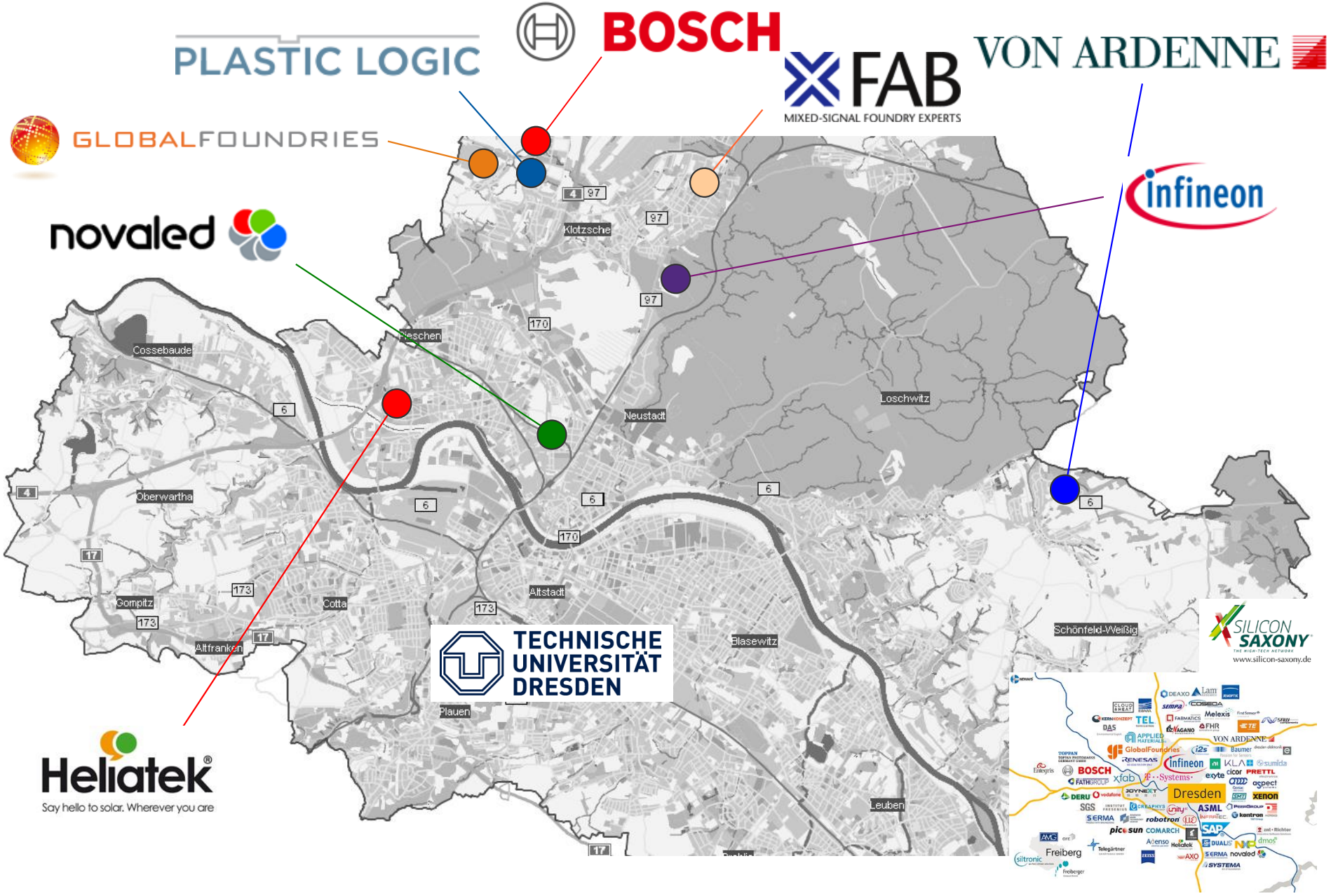


Research Institutions in Dresden

DRESDEN concept



Research Oriented Industry in Dresden



University: Research and Education

Department of Physics

Research

https://tu-dresden.de/mn/physik/forschung

iap

IFMP
Institut für Festkörper- & Materialphysik

ITP

INSTITUT FÜR KERN- UND TEILCHENPHYSIK

Didaktik der Physik

Teaching

https://tu-dresden.de/mn/physik/studium

- Lectures
- Tutorials
- Seminars
- Lab courses
- Scientific theses
- …

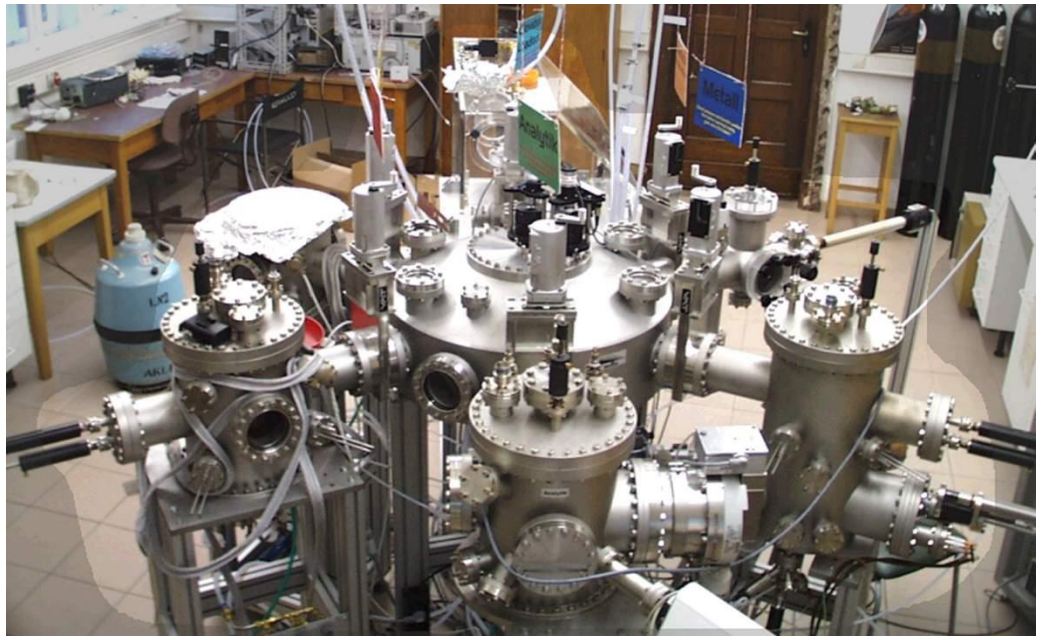
Department / Organisation

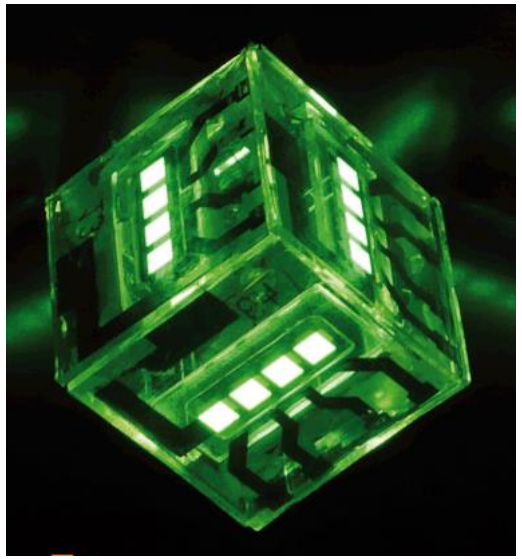
https://tu-dresden.de/mn/physik/die-fakultaet

- Dean (Prof. Timm)
- Dean of Studies (Prof. Straessner)
- Department (Dr. Grafström, Dr. Brose, Fr. Gerber, Fr. Päzold)
- Examination Office
- Student Council Physics https://www.pfsr.de/
- Coordination of Master Programme (Dean of Studies, BA: Matthias List, MA: Daniil Ryndyk)
- Academic Advisor (Dr. Dörr)

Specializazion Area: Applied Physics and Photonics

- Organic electronics:
  LEDs, solar cells, transistors, ...
- Nano optics





DEUTSCHER ZUKUNFTSPREIS
Preis des Bundespräsidenten
für Technik und Innovation

Heliatek®
Say hello to solar. Wherever you are

novaled

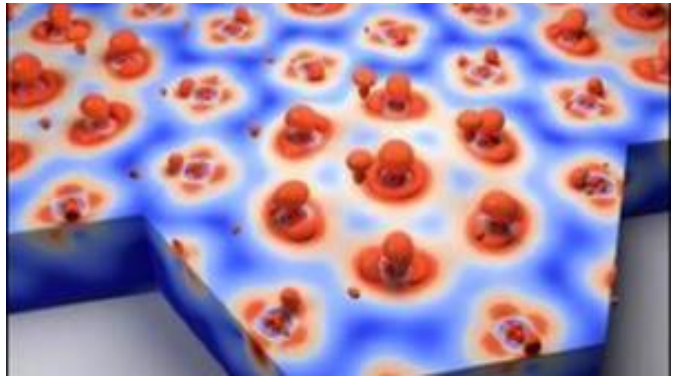
Specialization Area: Solid State Physics and Materials

HZDR
HELMHOLTZ ZENTRUM
DRESDEN ROSSENDORF

Intense magnetic field laboratory Dresden

Materials with exotic properties:

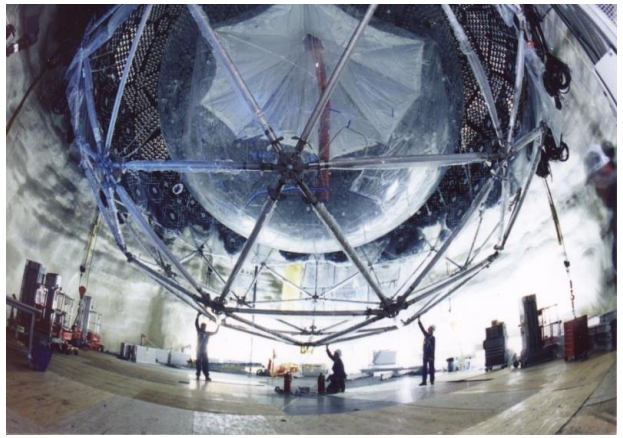
- Superconductors
- Magnetism
- Heavy fermions
- Low-dimensional systems



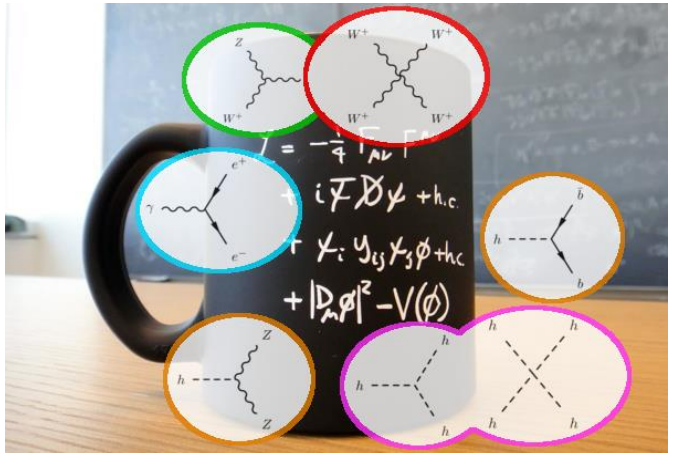
ct.qmat

Specialization Area: Nuclear and Particle Physics

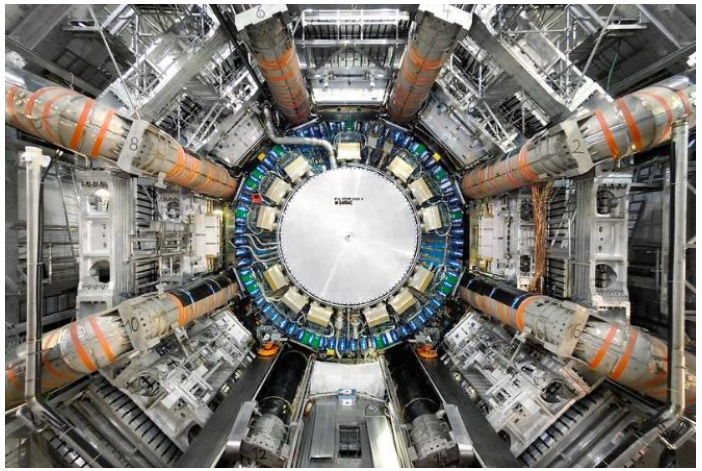
- High energy physics at the LHC:
  - Standard Model physics, Higgs physics, …
- Neutrino physics
- Nuclear astrophysics
- Medical physics and particle beams
- Particle physics theory



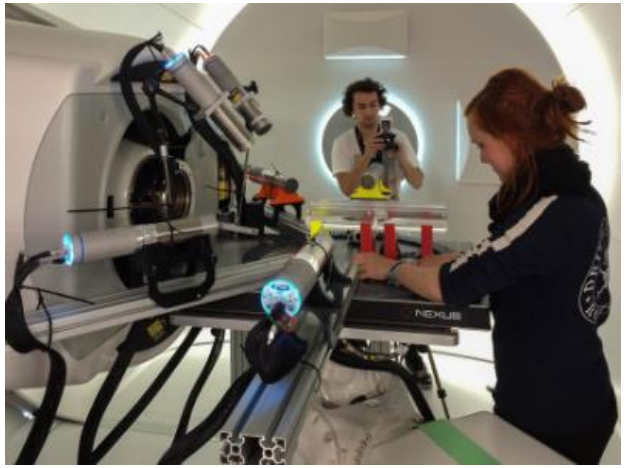
SNO+ Detector in Sudbury



Standard Model of Particle Physics



ATLAS Detector at CERN



Particle Detectors for Medical Physics

Specialization Area: Theoretical Physics

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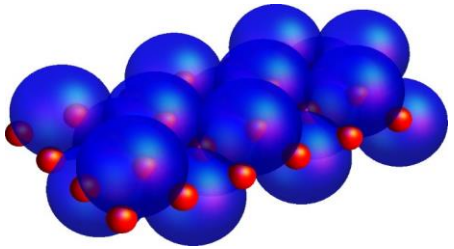
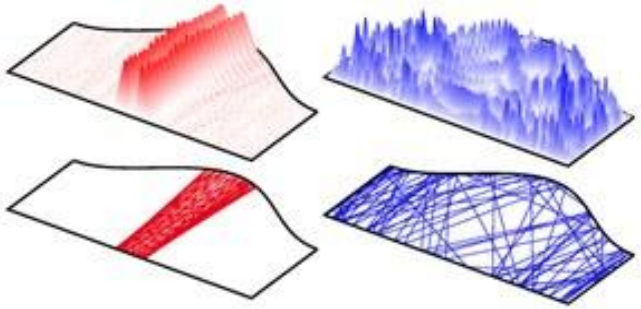


Broad spectrum:

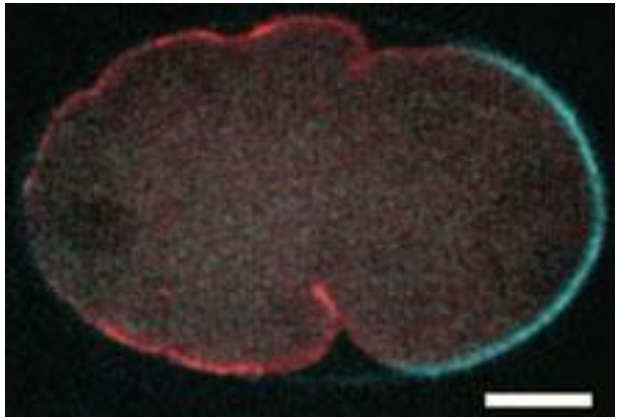
- Solid state and many-body physics
- Quantum optics
- Non-linear dynamics
- Statistical physics
- Elementary particle physics
- Theory of complex networks

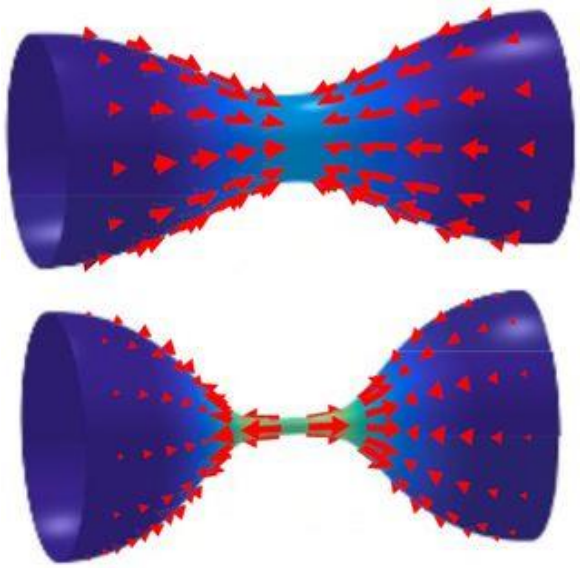
ZIH
Zentrum für Informationsdienste und Hochleistungsrechnen

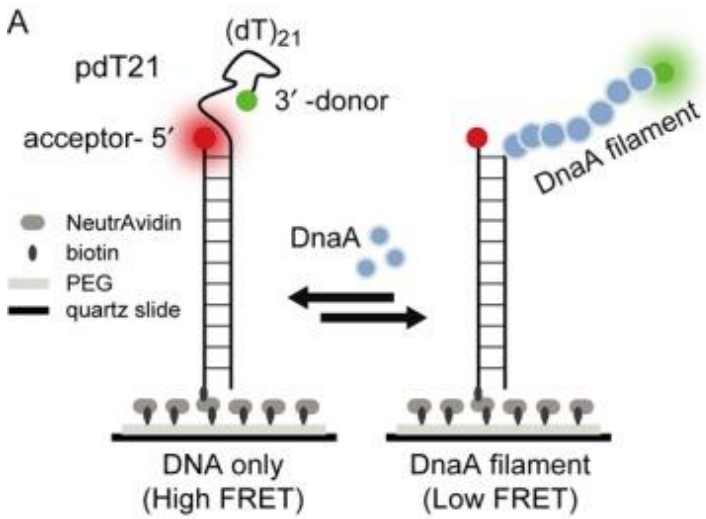


Specialization Area:
Biophysics, soft condensed matter physics

- Dynamics of bio molecules
- Mechanics of cells
- Tissue organisation
- Experiment und theory

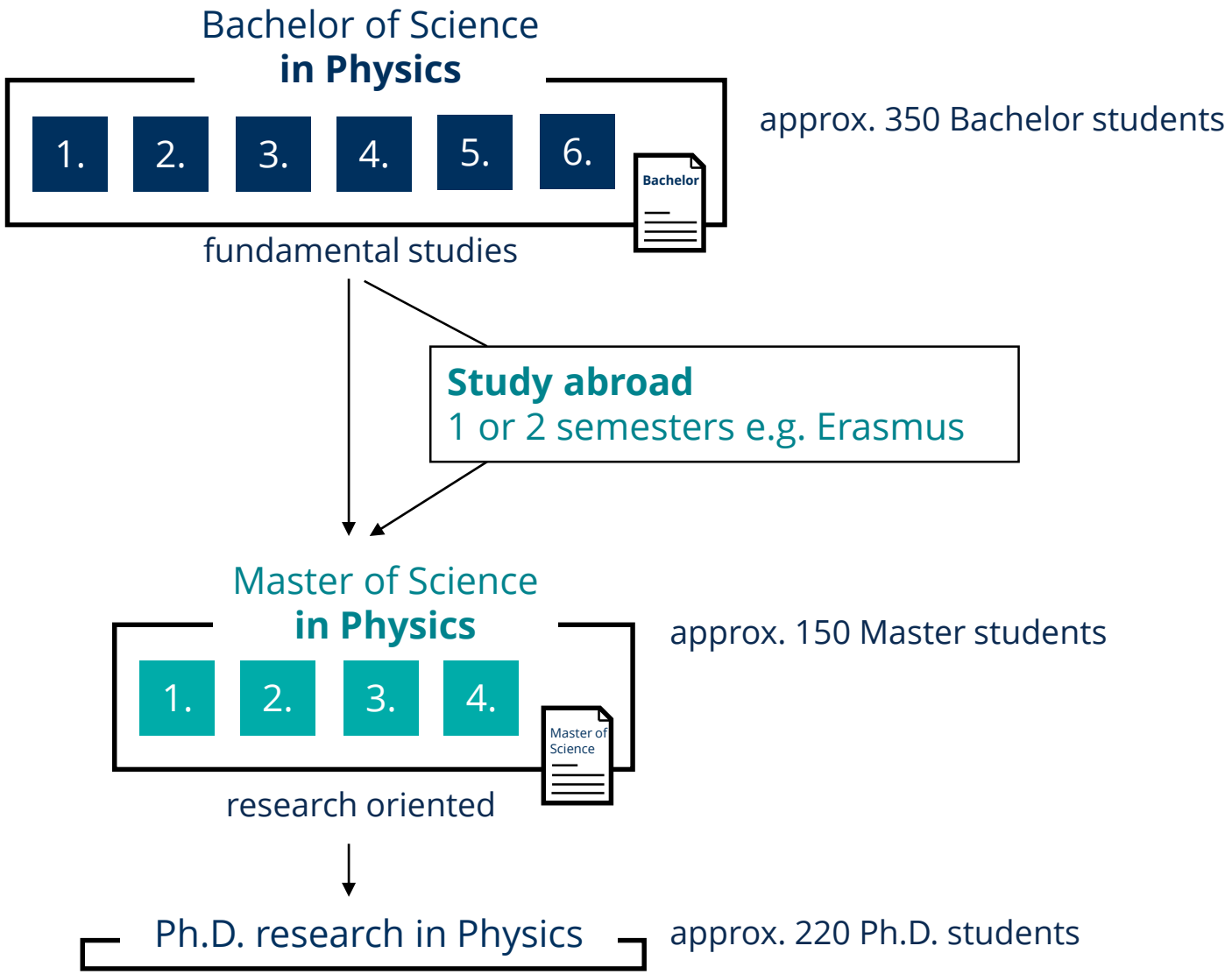






Quelle: Cheng *et al.*, Nucl. Acids Res. **43**, 396 (2015)

Physics @ TU Dresden



Master of Physics

Seme-ster	experimental	theoretical	applied	elective courses	
7	**Experimental Physics**	**Theoretical Physics**	**Advanced Scientific Seminar**	Specialisation Physics: **Applied Solid State Physics and Photonics** **Solid State and Material Physics** **Soft Condensed Matter and Biological Physics** **Particle and Nuclear Physics** **Theoretical Physics**	Non-physics supplemen-tary courses
8					
9	**Research Phase Master**		**Scientific Studies**		
10			**Master Thesis**		

Study Plan Start in Summer term

Modul number	Modul name	1st Semester (M)	2nd Semester	3rd Semester	4th Semester	CP
		L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	
Compulsory Field						
Phy-Ma-Vert	Specialisation Physics	*/*/0/0/*/*/0 1xPW	*/*/0/0/*/*/0 1xEx			**15**
Phy-Ma-Hsem	Advanced Scientific Seminar	0/0/0/2/0/1/0 1xEx				**6**
Phy-Ma-Exp	Experimental Physics	0/0/1/0/0/3/0	3/1/0/0/0/0/0 1xEx			**13**
Phy-Ma-Theo	Theoretical Physics	0/0/1/0/0/3/0	3/1/0/0/0/0/0 1xEx			**13**
Phy-Ma-WisStu	Scientific Studies			0/0/0/0/0/0/22,5 weeks 1xEx		**30**
					Master Thesis	**30**
Elective Compulsory Field Non-Physics Supplement[1]						
Phy-Ma-NpErg-MAT	Non-Physics Supplementary Course Mathematics	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-BIM	Non-Physics Supplementary Course Biomathematics	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-CHE	Non-Physics Supplementary Course Chemistry	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-BIO	Non-Physics Supplementary Course Biology	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-MBE	Non-Physics Supplementary Course Molecular Bioengineering	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-INF	Non-Physics Supplementary Course Computer Science	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-PHI	Non-Physics Supplementary Course Philosophy	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-ELT	Non-Physics Supplementary Course Electrical Engineering	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-MSB	Non-Physics Supplementary Course Mechanical Engineering	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-WSW	Non-Physics Supplementary Course Materials Science	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-BWL	Non-Physics Supplementary Course Business Administration	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-VWL	Non-Physics Supplementary Course Economics	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
CP		**30**	**30**	**30**	**30**	**120**

[1] one module must be chosen

* depending on choice made by the student

M Mobility window according to § 6 para. 1 sentence 4

CP	Credit Points	Ex	Examination(s)	PW	Preliminary academic work	L	Lecture	E	Exercise
T	Tutorial	S	Seminar	P	Practical training	St	Self-study	SW	Scientific work

Study Plan Start in Winter term

Modul number	Modul name	1st Semester (M)	2nd Semester	3rd Semester	4th Semester	CP
		L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	
Compulsory Field						
Phy-Ma-Vert	Specialisation Physics	*/*/0/0/*/*/0 1xPW	*/*/0/0/*/*/0 1xEx			**15**
Phy-Ma-Hsem	Advanced Scientific Seminar	0/0/0/2/0/1/0 1xEx				**6**
Phy-Ma-Exp	Experimental Physics	0/0/1/0/0/3/0	3/1/0/0/0/0/0 1xEx			**13**
Phy-Ma-Theo	Theoretical Physics	0/0/1/0/0/3/0	3/1/0/0/0/0/0 1xEx			**13**
Phy-Ma-WisStu	Scientific Studies			0/0/0/0/0/0/22,5 weeks 1xEx		**30**
					Master Thesis	**30**
Elective Compulsory Field Non-Physics Supplement[1]						
Phy-Ma-NpErg-MAT	Non-Physics Supplementary Course Mathematics	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-BIM	Non-Physics Supplementary Course Biomathematics	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-CHE	Non-Physics Supplementary Course Chemistry	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-BIO	Non-Physics Supplementary Course Biology	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-MBE	Non-Physics Supplementary Course Molecular Bioengineering	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-INF	Non-Physics Supplementary Course Computer Science	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-PHI	Non-Physics Supplementary Course Philosophy	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-ELT	Non-Physics Supplementary Course Electrical Engineering	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-MSB	Non-Physics Supplementary Course Mechanical Engineering	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-WSW	Non-Physics Supplementary Course Materials Science	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-BWL	Non-Physics Supplementary Course Business Administration	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-VWL	Non-Physics Supplementary Course Economics	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
CP		**30**	**30**	**30**	**30**	**120**

[1] one module must be chosen

* depending on choice made by the student

M Mobility window according to § 6 para. 1 sentence 4

CP	Credit Points	Ex	Examination(s)	PW	Preliminary academic work	L	Lecture	E	Exercise
T	Tutorial	S	Seminar	P	Practical training	St	Self-study	SW	Scientific work

Specialisation Physics

- 5 specialisation areas:
  - Applied Solid State Physics and Photonics
  - Solid State and Material Physics
  - Soft Condensed Matter and Biological Physics
  - Particle and Nuclear Physics
  - Theoretical Physics

- Online catalogue of courses:
  - https://tu-dresden.de/mn/physik/studium/lehrveranstaltungen/vertiefungsgebiete-bachelor-und-master
- Some courses are valid for more than one specialisation areas

- Naming scheme:
  - VW: course for Master and Bachelor students
  - VWo: obligatory course in the respective specialisation area - shall be taken either during Bachelor or Master studies
  - VWm: course preferentially for Master students
  - VF: optional course

- The courses define the possible topics of the oral exam in the specialisation area: 2 topics need to be selected for the exam

Example

area: "applied solid state physics and phot
idte Festkörperphysik und Photonik"

Lecturer(s):	SWS (V/Ü)	Title	Category
Leo	2/0	›Semiconductor Physics	VWo
Eng	2/0	›Nanooptics - MC Nanobiophysics	VWo
Helm / Winnerl	2/0	›Semiconductor Quantum Structures	VW
Eng / Bode	3/1	›Raserkraftmikroskopie	VW
Helm / Zhou	2/0	›Material Science using Ions	VF

Specialization area: "particle and nuclear physics" / "Teilc
Kernphysik"

Lecturer(s):	SWS (V/Ü)	Title	Category	L
Junghans	2/1	›Nuclear Physics: Fundamentals and Applications	VW	D

- The language of all oral exams can be English or German

Specialisation Physics

- 5 specialisation areas:
  - Applied Solid State Physics and Photonics
  - Solid State and Material Physics
  - Soft Condensed Matter and Biological Physics
  - Particle and Nuclear Physics
  - Theoretical Physics

- Master and Bachelor studies are independent

- You may select specialization topics in the (oral) Master examinations which you already had selected as specialization in your Bachelor studies

- However, the examination results of the Bachelor course cannot be recognized as examination results of the Master

- You can take course from more than one specialization - only at the time of inscription for the oral Master exam you select "your" specialisation

Example

n area: "applied solid state physics and phot
ndte Festkörperphysik und Photonik"

Lecturer(s):	SWS (V/Ü)	Title	Category
Leo	2/0	›Semiconductor Physics	VWo
Eng	2/0	›Nanooptics - MC Nanobiophysics	VWo
Helm / Winnerl	2/0	›Semiconductor Quantum Structures	VW
Eng / Bode	3/1	›Raserkraftmikroskopie	VW
Helm / Zhou	2/0	›Material Science using Ions	VF

Specialization area: "particle and nuclear physics" / "Teilc
Kernphysik"

Lecturer(s):	SWS (V/Ü)	Title	Category	L
Junghans	2/1	›Nuclear Physics: Fundamentals and Applications	VW	D

Specialisation Physics

- The examination prerequisite is a "portfolio of written problem solutions" which is comprised of
  - Applied Solid State Physics and Photonics:
    - laboratory practical reports
  - Solid State and Material Physics:
    - laboratory practical reports
  - Soft Condensed Matter and Biological Physics
    - computer or laboratory practical reports
  - Particle and Nuclear Physics
    - reports from a mix of lab and QFT practical work
  - Theoretical Physics
    - written problem solutions completed in each of (at least) three courses, e.g. as part of the tutorials

Example

Specialization area: "applied solid state physics and photo
...dte Festkörperphysik und Photonik"

Lecturer(s):	SWS (V/Ü)	Title	Category
Leo	2/0	›Semiconductor Physics	VWo
Eng	2/0	›Nanooptics - MC Nanobiophysics	VWo
Helm / Winnerl	2/0	›Semiconductor Quantum Structures	VW
Eng / Bode	3/1	›Raserkraftmikroskopie	VW
Helm / Zhou	2/0	›Material Science using Ions	VF

Specialization area: "particle and nuclear physics" / "Teilc
Kernphysik"

Lecturer(s):	SWS (V/Ü)	Title	Category	L
Junghans	2/1	›Nuclear Physics: Fundamentals and Applications	VW	D

Study Plan Advanced Scientific Seminar

Modul number	Modul name	1st Semester	2nd Semester (M)	3rd Semester	4th Semester	CP
		L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	
Compulsory Field						
Phy-Ma-Vert	Specialisation Physics	*/*/0/0/*/*/0 1xPW	*/*/0/0/*/*/0 1xEx			**15**
Phy-Ma-Hsem	Advanced Seminar Scientific		0/0/0/2/0/1/0 1xEx			**6**
Phy-Ma-Exp	Experimental Physics	0/0/1/0/0/3/0	3/1/0/0/0/0/0 1xEx			**13**
Phy-Ma-Theo	Theoretical Physics	0/0/1/0/0/3/0	3/1/0/0/0/0/0 1xEx			**13**
Phy-Ma-WisStu	Scientific Studies			0/0/0/0/0/0/22,5 weeks 1xEx		**30**

- Advanced scientific seminars are offered by the physics institutes of the department
- Seminar can be taken in Winter and Summer term
- Seminar topics are announced each semester in the course catalog:

https://tu-dresden.de/mn/physik/studium/lehrveranstaltungen/lectures_english

- Example:

›Seminar ITP: Topics in Biological Physics Phy-Ma-Hsem (English)

Friedrich

Study Plan Experimental and Theoretical Physics

Modul number	Modul name	1st Semester	2nd Semester (M)	3rd Semester	4th Semester	CP
		L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	
Compulsory Field						
Phy-Ma-Vert	Specialisation Physics	*/*/0/0/*/*/0 1xPW	*/*/0/0/*/*/0 1xEx			**15**
Phy-Ma-Hsem	Advanced Seminar Scientific		0/0/0/2/0/1/0 1xEx			**6**
Phy-Ma-Exp	Experimental Physics	0/0/1/0/0/3/0	3/1/0/0/0/0/0 1xEx			**13**
Phy-Ma-Theo	Theoretical Physics	0/0/1/0/0/3/0	3/1/0/0/0/0/0 1xEx			**13**
Phy-Ma-WisStu	Scientific Studies			0/0/0/0/0/0/22,5 weeks 1xEx		**30**

- Experimental and Theoretical Physics:
  - Winter term: lectures and tutorials
  - Summer term: tutorials and self-studies

- Oral examination can be taken in every term
- Module examinations taken prior to the semesters specified in the study schedule allow for a "free attempt":
  - Upon request, module examinations or examined assessments graded at least “pass” (4.0) in the free attempt may be repeated once the next time the examination is regularly held in order to improve the grade. In this case, the better assessment counts.

Study Plan Experimental and Theoretical Physics

Modul number	Modul name	1st Semester	2nd Semester (M)	3rd Semester	4th Semester	CP
		L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	
Compulsory Field						
Phy-Ma-Vert	Specialisation Physics	*/*/0/0/*/*/0 1xPW	*/*/0/0/*/*/0 1xEx			**15**
Phy-Ma-Hsem	Advanced Seminar Scientific		0/0/0/2/0/1/0 1xEx			**6**
Phy-Ma-Exp	Experimental Physics	0/0/1/0/0/3/0	3/1/0/0/0/0/0 1xEx			**13**
Phy-Ma-Theo	Theoretical Physics	0/0/1/0/0/3/0	3/1/0/0/0/0/0 1xEx			**13**
Phy-Ma-WisStu	Scientific Studies			0/0/0/0/0/0/22,5 weeks 1xEx		**30**

- Experimental Physics:
  - key concepts of experimental physics
  - common strategies in the experimental investigation of structures and excitations of physical systems at different scales of size and energy
  - correlate physical concepts and methods of different experimental fields

- Theoretical Physics:
  - overview of the fields of theoretical physics and their interrelations
  - comprehensible theoretical descriptions possible of selected physical phenomena
  - combine the theoretical fundamentals and methods
  - explore complex physics issues independently and theoretically

Study Plan Non-physics Supplement

	Elective Compulsory Field Non-Physics Supplement[1]		
Phy-Ma-NpErg-MAT	Non-Physics Supplementary Course Mathematics	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*
Phy-Ma-NpErg-BIM	Non-Physics Supplementary Course Biomathematics	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*
Phy-Ma-NpErg-CHE	Non-Physics Supplementary Course Chemistry	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*
Phy-Ma-NpErg-BIO	Non-Physics Supplementary Course Biology	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*
Phy-Ma-NpErg-MBE	Non-Physics Supplementary Course Molecular Bioengineering	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*
Phy-Ma-NpErg-INF	Non-Physics Supplementary Course Computer Science	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*
Phy-Ma-NpErg-PHI	Non-Physics Supplementary Course Philosophy	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*
Phy-Ma-NpErg-ELT	Non-Physics Supplementary Course Electrical Engineering	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*
Phy-Ma-NpErg-MSB	Non-Physics Supplementary Course Mechanical Engineering	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*
Phy-Ma-NpErg-WSW	Non-Physics Supplementary Course Materials Science	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*
Phy-Ma-NpErg-BWL	Non-Physics Supplementary Course Business Administration	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*
Phy-Ma-NpErg-VWL	Non-Physics Supplementary Course Economics	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*

Mathematics
Biomathematics
Chemistry
Biology
Molecular Biology
Computer Science
Philosophy
Electrical Engineering
Mechanical Engineering
Materials Science
Economics
Business Administration

- Elective Compulsory Non-Physics Supplement:
  - 25 topics in 12 non-physics areas
  - typically 8 SWS (double periods of lecture/tutorial/seminar/lab) and 13 credit points

  - The module exam consists of 2 or 3 course assessments
  - The module grade will be calculated from the individual grade of each examination weighted 1:1(:1)
  - All oral exams are conducted in German or English, at the student's discretion.
  - All written examinations take place in the language of instruction.
  - If a module grade yields "not passed", instead of repeating the exam, also another topic and/or another minor can be chosen.

Study Plan Non-physics Supplement

Elective Compulsory Field Non-Physics Supplement[1]						
Phy-Ma-NpErg-MAT	Non-Physics Supplementary Course Mathematics	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-BIM	Non-Physics Supplementary Course Biomathematics	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-CHE	Non-Physics Supplementary Course Chemistry	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-BIO	Non-Physics Supplementary Course Biology	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-MBE	Non-Physics Supplementary Course Molecular Bioengineering	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-INF	Non-Physics Supplementary Course Computer Science	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-PHI	Non-Physics Supplementary Course Philosophy	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-ELT	Non-Physics Supplementary Course Electrical Engineering	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-MSB	Non-Physics Supplementary Course Mechanical Engineering	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-WSW	Non-Physics Supplementary Course Materials Science	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-BWL	Non-Physics Supplementary Course Business Administration	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**
Phy-Ma-NpErg-VWL	Non-Physics Supplementary Course Economics	*/*/*/*/*/*/0 Ex*	*/*/*/*/*/*/0 Ex*			**13**

- Elective Compulsory Non-Physics Supplement:
  - Catalogue and further information:
  - https://tu-dresden.de/mn/physik/studium/master/lehrveranstaltungen/nichtphysikalische_ergaenzung_master?set_language=de

Study Plan Scientific Studies and Master Thesis

Modul number	Modul name	1st Semester	2nd Semester (M)	3rd Semester	4th Semester	CP
		L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	L/E/T/S/P/St/SW	
Compulsory Field						
Phy-Ma-Vert	Specialisation Physics	*/*/0/0/*/*/0 1xPW	*/*/0/0/*/*/0 1xEx			**15**
Phy-Ma-Hsem	Advanced Seminar Scientific		0/0/0/2/0/1/0 1xEx			**6**
Phy-Ma-Exp	Experimental Physics	3/1/0/0/0/0/0	0/0/1/0/0/3/0 1xEx			**13**
Phy-Ma-Theo	Theoretical Physics	3/1/0/0/0/0/0	0/0/1/0/0/3/0 1xEx			**13**
Phy-Ma-WisStu	Scientific Studies			0/0/0/0/0/0/22,5 weeks 1xEx		**30**
					Master Thesis	**30**

- Scientific Studies and Master Thesis:
  - research oriented project, usually in the field of the specialization area
  - oral presentation at the end of the scientific studies
  - Master thesis is usually a continuation of the research project of the scientific studies

Master of Physics

- Please, use these web pages for further information, study documents, catalogues and more:
  - https://tu-dresden.de/mn/physik/studium/master
- If you find inconsistencies or unclear information, please, contact me.
- In the annotated course catalogue:
  - https://tu-dresden.de/mn/physik/studium/lehrveranstaltungen#Master%20Kursveranstaltungen
  - links to OPAL pages for course organization:
    - course material, videos, ... of lectures, tutorials, seminars, ...
    - inscription to tutorial groups, selection of seminar topics, ...
  - OPAL inscriptions are for organization only
  - Inscription to exams must be done at the examination office or through the HISQIS web pages

Master of Physics Examiniations and Preparation

- Not graded:
  - Advanced scientific seminar (can be taken in any term)
  - Lab and computer courses as part of the "examination prerequisite" in the physics specilisation
  - Oral presentation of the Scientific Studies

- 3 oral exams, can be taken in any term, but typically at the end of the 2nd term:
  - experimental and theoretical physics
  - physics specialisation

- Preparation:
  - lectures, tutorials, self-study
  - recommendation: preparation for oral exams is best done in small groups / teams!

- No formal inscription to lectures needed

- Specialisation area is selected only at the time of inscription to the corresponding oral exam

Master of Physics Credit Points and Grades

- Credit points and grading weights are independent

- Weights for the final grade:

  - 35% Master's thesis (30 CP)
  - 26% Physics Specialization (15 CP)
  - 13% Experimental Physics (13 CP)
  - 13% Theoretical Physics (13 CP)
  - 13% Elective compulsory module of the non-physics supplement (13 CP)

- Specialisation : Experimtal Ph.: Theoretical Ph. : Non-physics suppl.= 2:1:1:1
- Specialisation + Master thesis = 61%
- "key concept" lectures (exp. + theor.) = 26%

Master of Physics Study abroad

- Courses taken abroad can be integrated in the specialisation area (can also be one of the 2 topics in the oral exam)
- At foreign Universities you do not need to take graded examinations (oral exams in Dresden)

- 2 semesters abroad:
  - better integration at foreign University
  - more easy organisation in case of full-year exchange studies (sometimes obligatory in ERASMUS programme)

- 1 semester abroad:
  - summer term is recommended

- experimental and theoretical physics courses may be completed within 1 semester

- More information: https://tu-dresden.de/mn/physik/studium/beratung-und-service/internationales

Study abroad

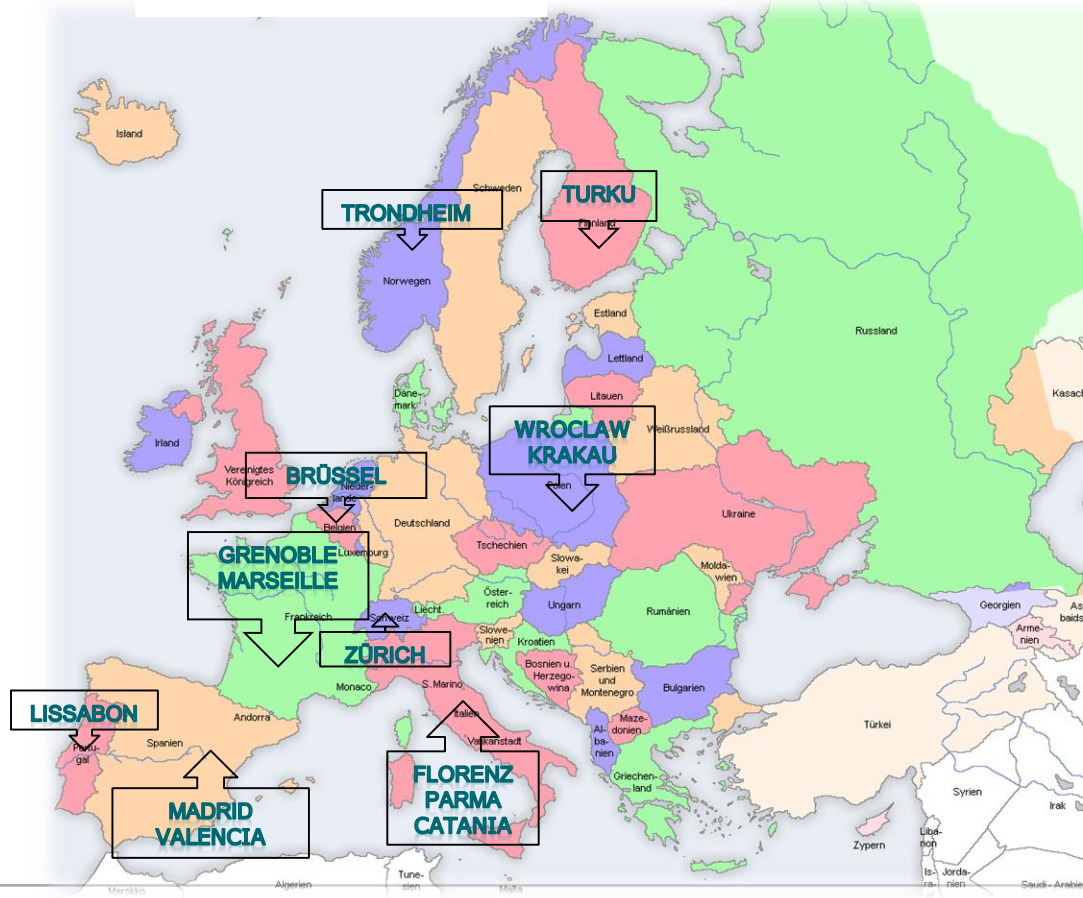
- e.g. Erasmus+: partner Universities in Belgium, Finnland, France, Italy, Norway, Poland, Portugal, Spain, Switzerland

- Please, contact:
- **Erasmus Coordinator** (Europe)
  - Prof. W. Strunz, ERASMUS.Physik@tu-dresden.de
- **International Officer Physics** (weltweit, insb. nicht-EU)
  - Prof. J. Budich, iop@tu-dresden.de

  oder beim International Office TU Dresden

- Internships abroad: Leonardo Office Sachsen www.leo.tu-dresden.de

- Support for "incoming" students: mentoring/buddy programme



What does ERASMUS+ offer? (Europe)

- Support of a 3 to 12 month long stay abroad (BA, MA, PhD) at one of the partner institutions in one of the EU states
- Language courses: EN, ES, FR, IT
- No study fees at the partner institution
- Recognition of academic results by the home instituion (ECTS)
- Mobility support
- Support in preparation of the stay abroad (academic, language, ...)
- Relatively "easy" application procedure

Application Requirements

- successful academic record
- clear vision of the exchange study plan
- sufficient knowledge of the foreign teaching language
- "Auslands-Bafög" and ERASMUS can be combined
- Application deadline: usually March 15 for succeeding winter and summer term
  - but any later application will also be taken into account if free places are available
  - application web portal: Mobility Online
  - motivation letter
  - acedemic record (student transcript)
  - CV

Support for you!

- Buddy programme / mentoring groups: student council PFSR: https://www.pfsr.de/
- Learning room Physics (Mon-Thu, 6+7. DS, REC/D16)
- Coordination of the Master of Physics studies: Daniil Ryndyk, Arno Straessner
- Academic Advisor - Master of Physics: Dr. M. Dörr
- Examination Office
- IT: Dr. Brose

LERNRAUM PHYSIK

Central IT Services at the Department of Physics

https://tu-dresden.de/mn/physik/die-fakultaet/it-service

DIE FAKULTÄT > IT-SERVICE

PC-POOLS | WLAN | SOFTWARE | NUTZERZERTIFIKAT BEANTRAGEN | THUNDERBIRD_EXCHANGE_KALENDER | JENS BROSE

INFRASTRUKTUR

- PC-Pools
- W-Lan
- Softwarelizenzen für Studierende
- Nutzerzertifikat beantragen
- Opal

Dr. Jens Brose

E-MAIL SENDEN

Tel. +49 351 463-32104
Jens.Brose@tu-dresden.de
Recknagel-Bau, Raum C116

Language Program

16 Languages

From elementary to professional use in your field

Credit points towards your degree

TUDIAS
TECHNISCHE UNIVERSITÄT DRESDEN INSTITUTE OF ADVANCED STUDIES

No fees

Preparation for semesters abroad

Certifications

- Ancient Greek
- Arabic
- English
- Czech
- Finnish
- French
- Italian
- Latin
- Polish
- Portuguese
- Russian
- Swedish
- Spanish
- German as a foreign language
- Chinese and Japanese (offered by the OAZ)

Schedules, leveling tests, etc.

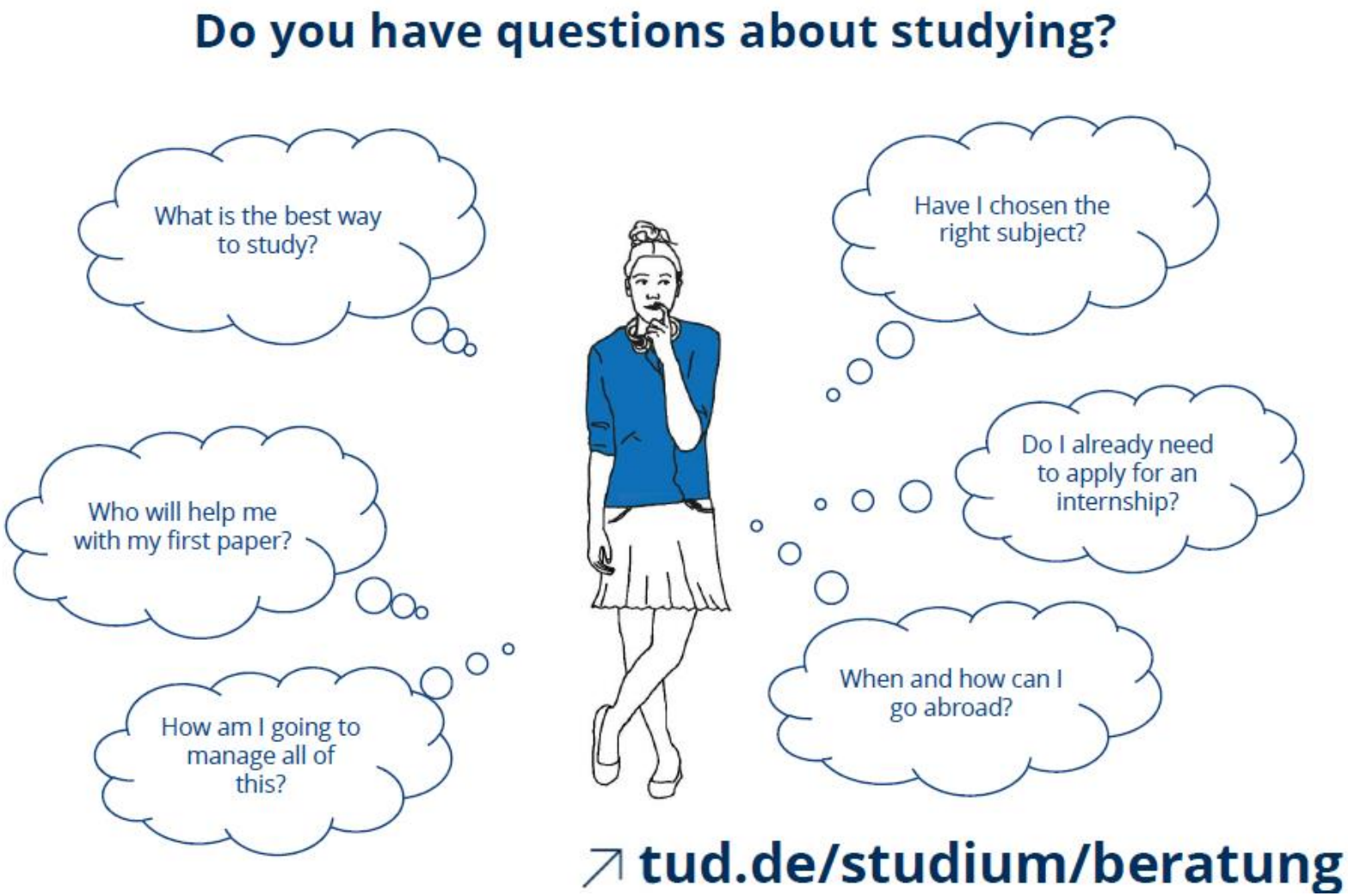
↗ http://sprachausbildung.tu-dresden.de

Registration for classes using OPAL

Registration for exams using SELMA | HIS*

https://sprachausbildung.tu-dresden.de

General Support



https://tu-dresden.de/studium/im-studium/beratung-und-service

Enjoy your Master of Physics studies in Dresden!

— Slides will be uploaded to: https://tu-dresden.de/mn/physik/studium/studieneinstieg

Welcome and Introduction to the Master of Physics Programme

- Introduction to the Master of Physics Programme
- Information and Support by the Student Council

Fachschaftsrat
Physik

31.03.2023 //

Fachschaftsrat Physik

We are the FSR

www.pfsr.de

Overview

- Who are we?
- What are we doing?
- important committees and contact persons
- ZaPF
- questions

Who are we?

- committee of students for students
- elected by all physics students of the university
- we are in contact with the professors and represent you to the university

Our meetings: every Monday at 7 PM (REC/D016)

FSR
Fachschaftsrat
Physik
TU Dresden

What are we doing?

- quality of the courses
- representation in other committees
- mentoring
- homepage and newsletter
- collecting of exam protocols
- material rent
- administration of the Kuschelecke
- events...

Events and parties

Weihnachtsfeier

Mittwochabendveranstaltung

ESE

Feuerzangenbowle

Musikabend

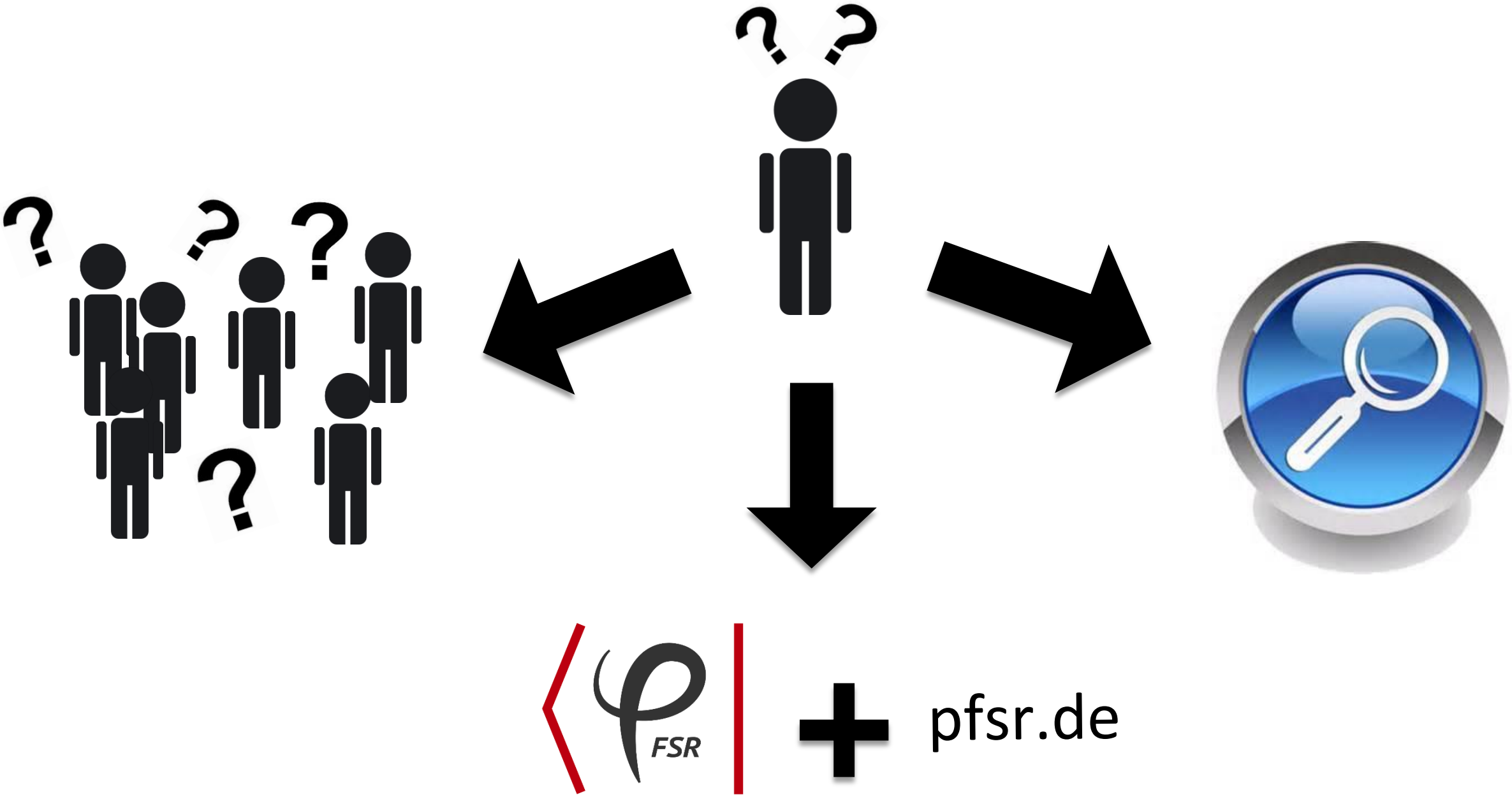
Sommergrillen

Volleyballturnier

Cern-Exkursion

Büro-
material

Kuschelecke


FSR
pfsr.de

Newsletter

every month

Important committees and contact persons

student study coordinator

- Who: Ilja List
- first shelter for complaints
- quality management

Examination committee Master

- meets only as required
- members:
  - 2 students
  - 5 lecturers
- application for subsidiary subjects
- problems at the exams

Study commission Master

- meets as required
- members: 50% students, 50% lecturers
- drafting, revising and improving the study regulations
- current problems in teaching

Examination office

- Where: WIL/A 303
- office hours:
  - Tuesday: 1 to 3 PM
  - Thursday: 10 to 12 AM

Physics tutorial center

- helps with specific questions
- helps with the preparation of exercises and exams
- Where: REC/D016
- opening times: Monday – Thursday, 6.-7. double period

Zusammenkunft aller Physikfachschaften (ZaPF)

- networking with other physics students
- exchange of knowledge

Your questions!

Erik die Ente