Karlsruhe Institute of Technology

Department of Physics

Karlsruhe Institute of Technology

Onboarding Event

***May* 14, 2025**

Welcome

- New PhD students at our department:

Onboarding and Get-Together

Mittwoch 14.05.2025, 18:00 → 22:00 Europe/Berlin

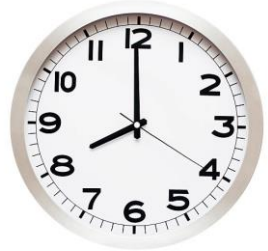
Seminar Room 6/1 (Physics High-Rise Building Geb. 30.23)

Marie Louise Schubert (ETH)

Why am I giving this presentation?

- **To start with the end: you will defend your PhD work at the very end …**

  - you (**friendly!**) thesis committee will be headed by the **dean of the faculty**
  - you will (very likely) defind you thesis in seminar room $\mathbf{10 - 1}$



$\mathbf{8:00 - 9:30}$

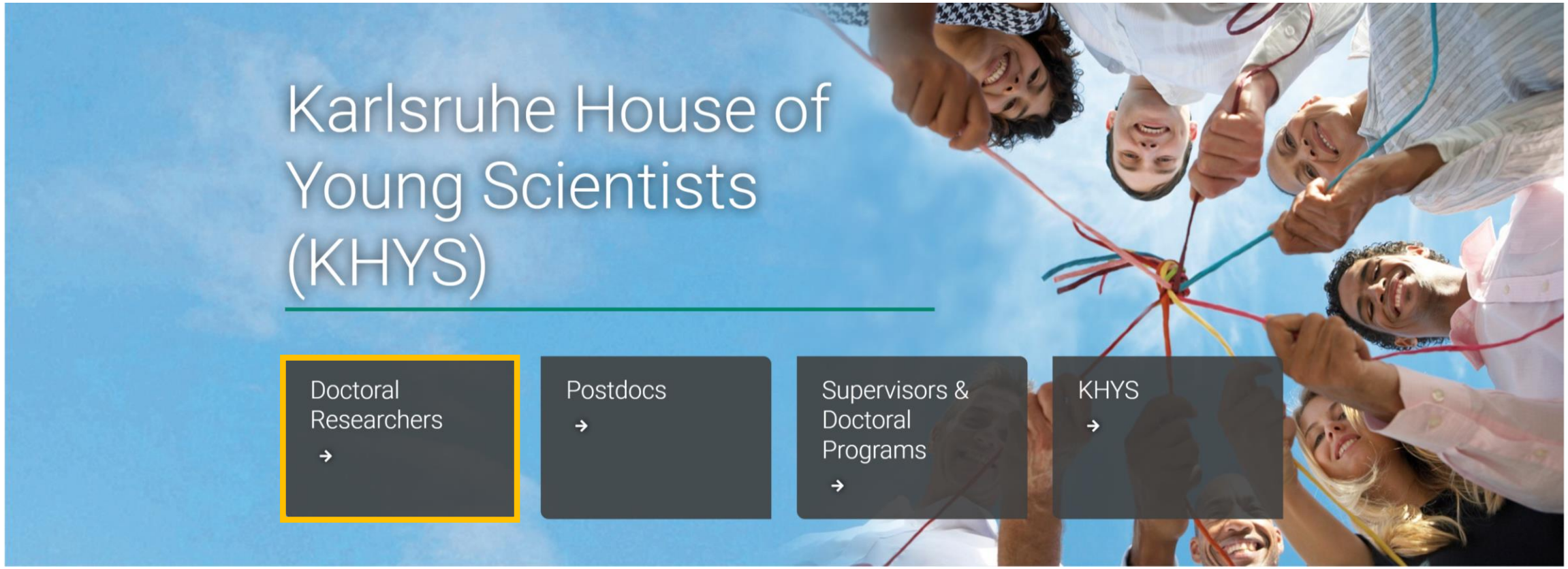
$\mathbf{9:45 - 11:15}$

$\mathbf{11:30 - 13:00}$

Why do we need this presentation?

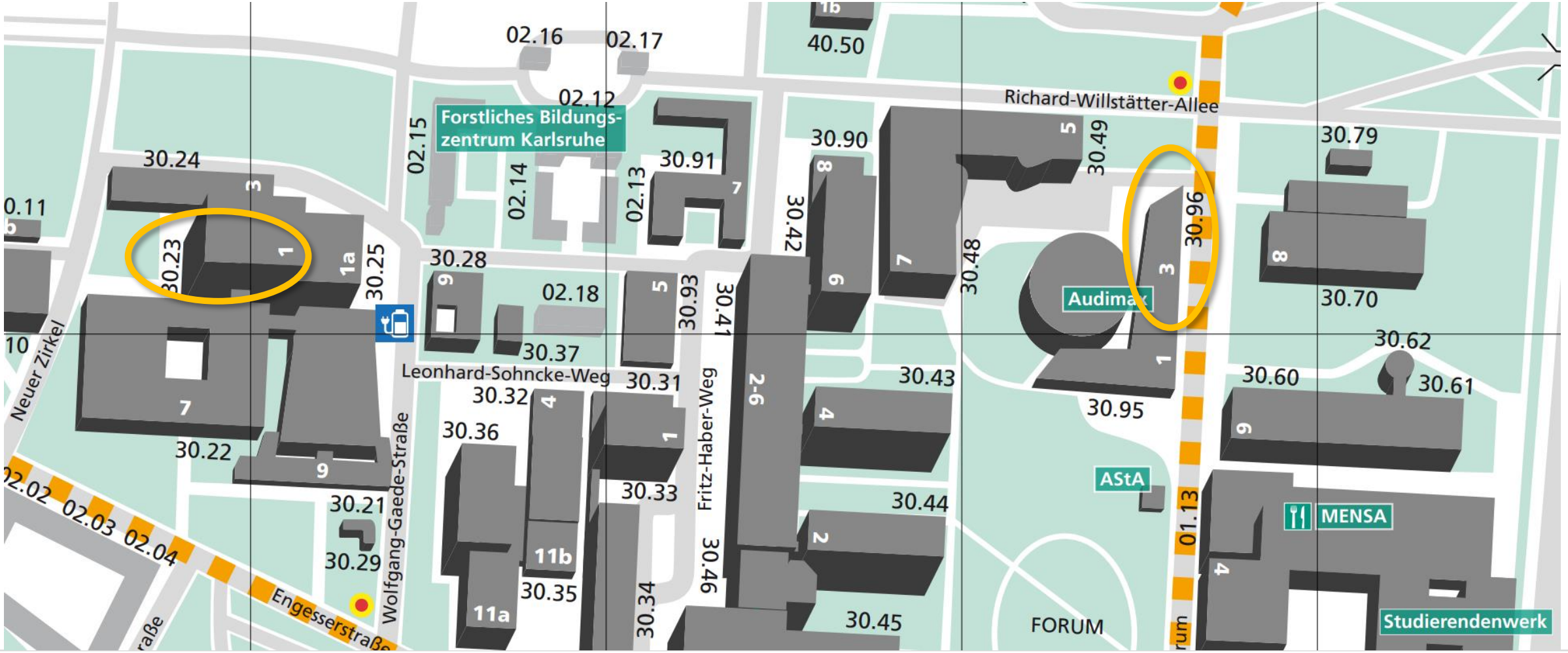
- **Your work on your PhD is starting off, fine – but do these steps early on…**

  - clearly, you are familiar with your supervisor, but what about this $KHYS$?



KHYS – a key web portal at *KIT*

- ***KHYS*** **is the central institution for the promotion of young researchers**



$KHYS$ – a key web portal at KIT

- **$KHYS$ is the central institution for the promotion of young researchers**

  - $KHYS$: providing a lot of very useful information

Karlsruhe House of Young Scientists (KHYS)

Dr. Simone Naumann

Webportal Docata

+49 721 608-46224

simone naumann∂kit edu

Dr. Britta Trautwein
$KHYS$ director

KIT – CS
Straße am Forum 3
Building **30.96**

KHYS – a key web portal at *KIT*

- ***KHYS*** **is the central institution for the promotion of young researchers**

Karlsruhe House of Young Scientists (KHYS)

Doing a Doctorate at KIT

As a doctoral researcher at KIT you can enjoy excellent research conditions in an international environment. KIT offers you many different forms of doing a doctorate (e. g. within a doctoral program) including natural sciences and engineering, economic, social and human sciences.

Moreover, you are provided with extensive interdisciplinary qualification possibilities as well as personal support and advice, so that you are prepared for your career in the best possible way.

KIT - Karlsruhe House of Young Scientists (KHYS) Home

DOCATA – a key web portal at *KIT*

- **Register as doctoral researcher *ASAP*… via docata**

Doctoral researchers with a doctoral examination within a KIT Department

You intend to pursue a doctorate or are already pursuing a doctorate at a KIT Department? Docata offers:

- Registration as a doctoral researcher at KIT as well as support in administrative processes along the doctoral research phase (e.g. application for acceptance at your KIT Department, automatic reminders)
- Membership at the Karlsruhe House of Young Scientists (KHYS) and with that, access to all KHYS offers
- Subscribing to as well as unsubscribing from the KHYS infomail

Further Information on achieving your doctorate at KIT:

>> Formal steps for doctoral researchers with a doctoral examination within a KIT Department

Information

Questions about pursuing a doctorate at a KIT Department

For questions regarding doctoral ordinances and admission requirements, please contact your relevant KIT Department (Fakultät).

Questions about postdoc phase

For questions regarding postdoc phase and status at KIT, please contact the KHYS Postdoc Office: postdoc∂khys kit edu

Questions about using Docata

If you have any questions concerning the use of Docata (e.g. the entry of certain registration data), please contact the Docata team at Karlsruhe House of Young Scientists (KHYS): docata∂khys kit edu

– Docata (kit.edu)

KIT Department of Physics

- **Our department also provides a lot of highly useful information**

Doctorate

The department awards the scientific doctoral degree "Doktor:in der Naturwissenschaften" (Dr. rer. nat.) for independent research in one of the department's research areas. At KIT, doctoral researchers find a stimulating scientific environment for their research that goes beyond their own area of expertise. The research work usually takes place at one of the institutes, in cooperation with a scientific supervisor and other researchers of the research groups.

There is no centrally organized application portal for doctoral researchers at the department. Applications should be addressed to prospective supervisors. The relevant topics and researchers can be found under Research. It is possible to apply even if there is no explicit advertisement.

Doctoral researchers are often involved in further scientific networks, e.g. via the KIT Centers or coordinated research programs, and/or in structured doctoral programs. At KIT there are guidelines for doctoral studies that give an overview of essential aspects to get a doctoral degree.

KIT - Studies - Doctorate

KIT Department of Physics

- **Who is who at our faculty: the Dean´s Office**

People

Dean	Prof. Dr. Guido Drexlin
Vice Dean	Prof. Dr. Markus Garst
Dean of Studies (Physics)	Prof. Dr. Günter Quast
Dean of Studies (Geophysics)	Prof. Dr. Andreas Rietbrock
Dean of Studies (Meteorology)	Prof. Dr. Corinna Hoose

the new team will start on $\boldsymbol{Oct.1,2025}$

KIT Department of Physics

Who is who at our faculty: the Dean´s Office

Dean's Office Secretariat:

Corinna Knodel–Rupp

phone: 0721 608 - 42052

fax: 0721 608 - 46663

mail: dekanat∂physik.kit.edu

physics highrise (building 30.23), **room 9/14**

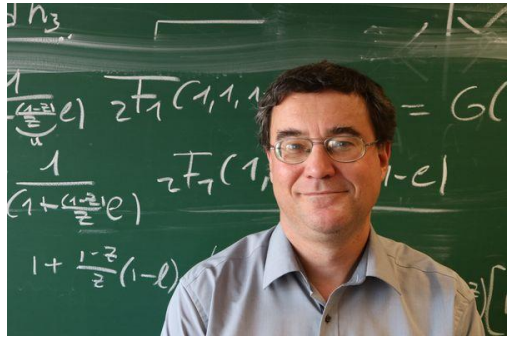
Managing Director	Dr. Hagen Haberland
IT-Administration	Dr. Achim Mildenberger
Examination Office	Anja Müller

KIT Department of Physics

Who is who at our faculty: supporting your doctorate

- Recognition of diplomas, MSc. etc. (especially from abroad).

Prof. Dr. Kirill Melnikov
Physikhochhaus 11/06; Tel. 0721 608-43883
E-Mail: kirill.melnikov∂kit.edu
Consultation hours: by appointment



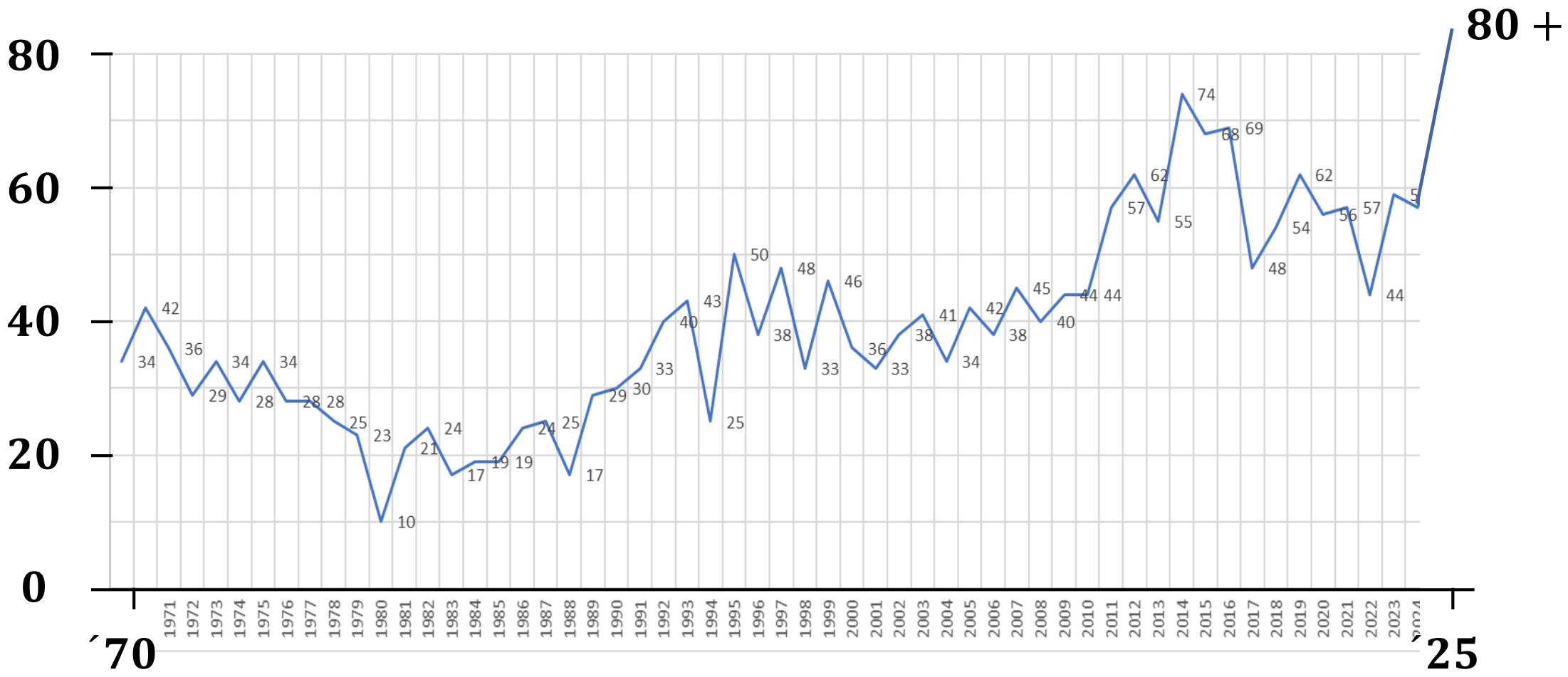
General examination and study matters:

- Enrollment/Exmatriculation
- Application for break semesters
- Questions about tuition fees

Studierendenservice **of the Karlsruhe Institute of Technology (building 10.12)**

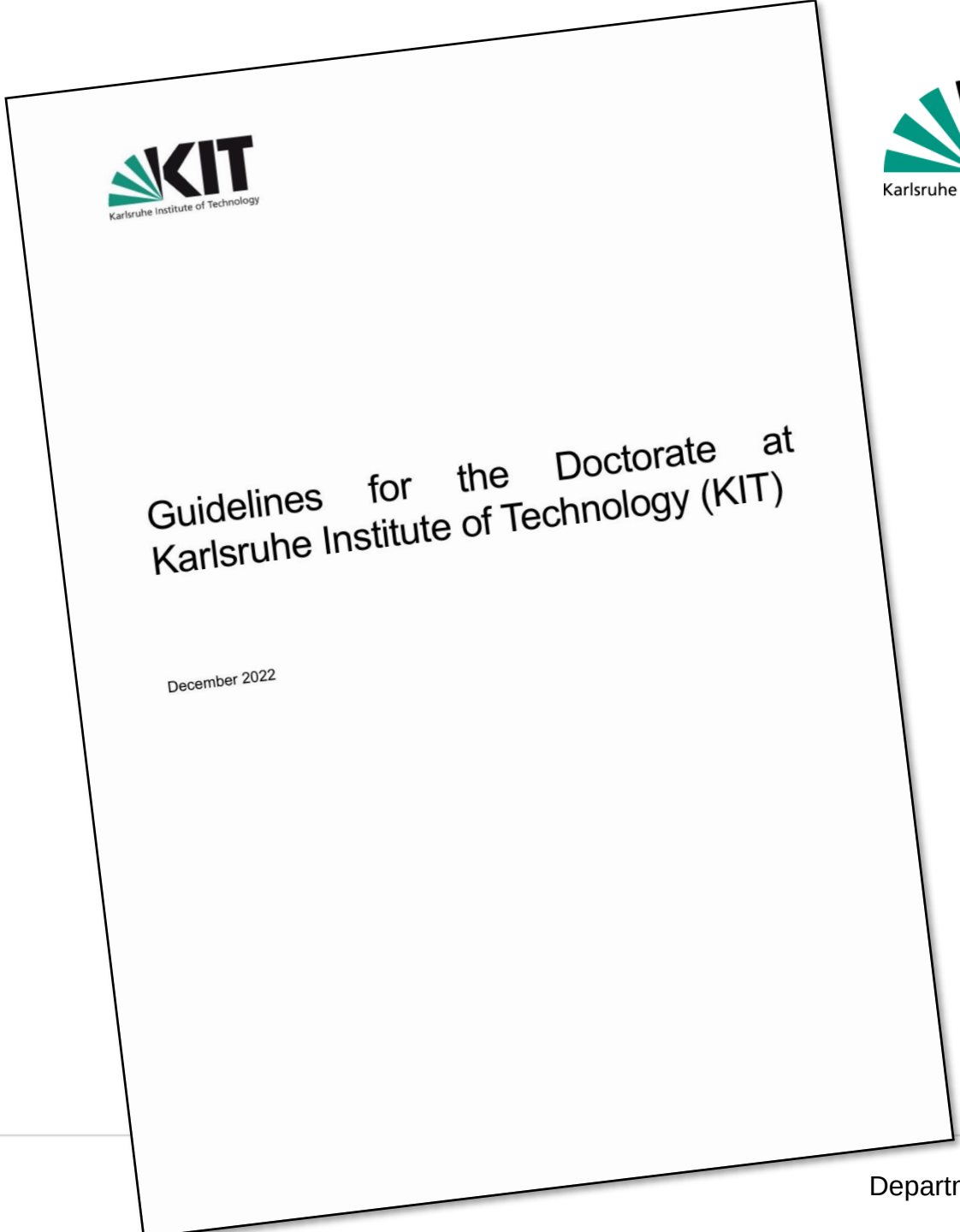
KIT Department of Physics

- yearly number of *PhD* defenses at our faculty: we are very proud of you



Legal framework

- There are general *KIT* guidelines…



Guidelines_for_the_Doctorate_at_KIT.pdf

Legal framework

- **There are ´local´ guidelines…**

  - regulations at our faculty (**2018**), German text only

  - a translation will be provided soon…

Karlsruher Institut für Technologie

Die Forschungsuniversität in der Helmholtz-Gemeinschaft

Amtliche Bekanntmachung

2018 Ausgegeben Karlsruhe, den 26. Oktober 2018 Nr. 59

Seite

Inhalt

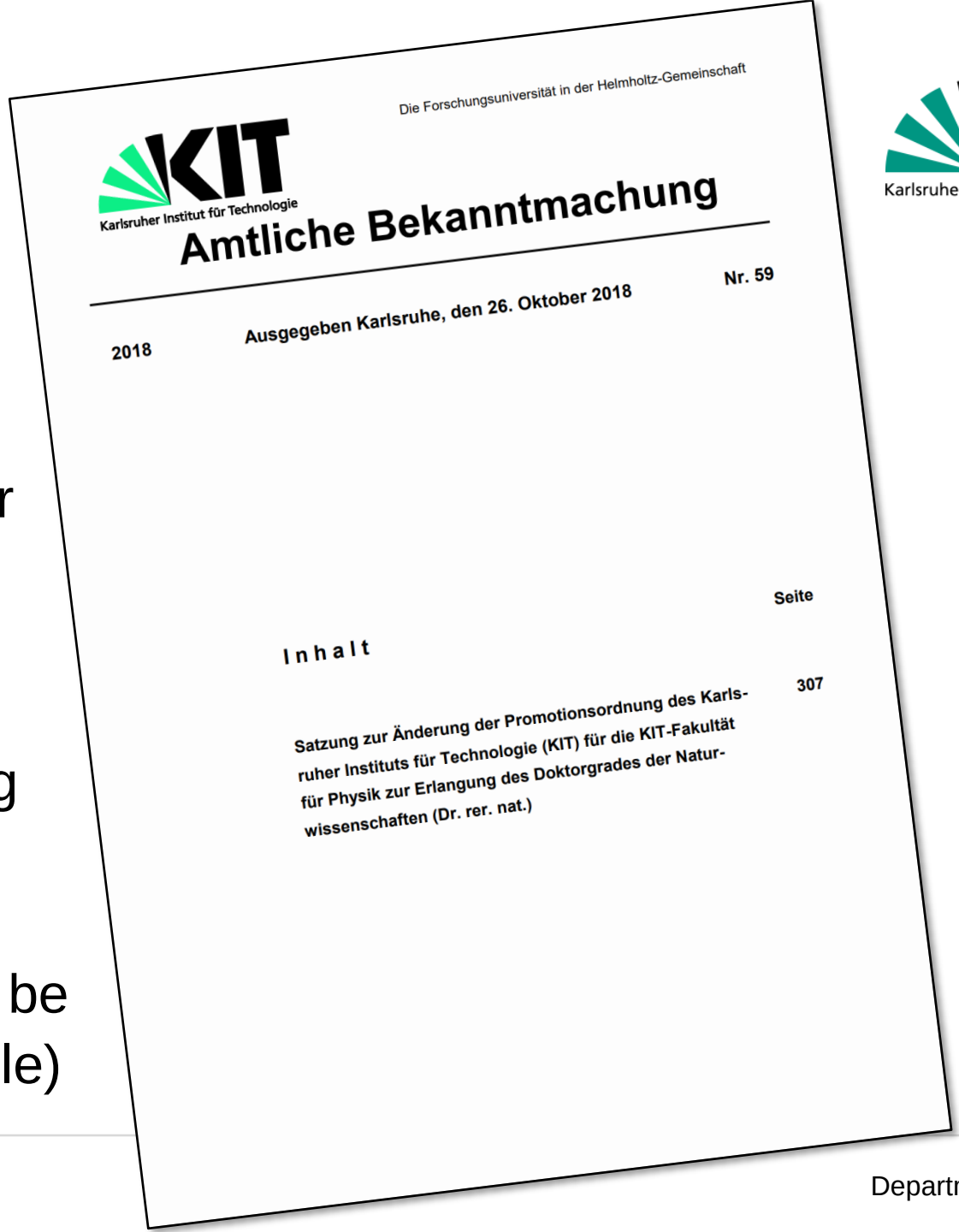
Satzung zur Änderung der Promotionsordnung des Karlsruher Instituts für Technologie (KIT) für die KIT-Fakultät für Physik zur Erlangung des Doktorgrades der Naturwissenschaften (Dr. rer. nat.) 307

[Promotionsordnung-2017.pdf (kit.edu)]

Legal framework

- **There are ´local´ guidelines…**

covering the **following aspects**:
- admission requirements
- acceptance as doctoral researcher
- **supervisors**
- doctoral procedures
- **oral examination**
- language requirements concerning dissertation and the oral exam
- publication of the dissertation
- course achievements that have to be made for the doctorate (if applicable)



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Karlsruhe Institute of Technology

KHYS: Formal Steps for Doctoral Researchers

- **A Step by step introduction (step 1 … 9)**

Step 1: Conclusion of a Doctoral Agreement

Step 2: Registration with KHYS

Step 3: Application for Acceptance at your KIT Department

Step 4: Enrollment as a Doctoral Researcher

Step 5: Application for Admission to the Doctoral Procedure and Opening of the Procedure

Step 6: Oral Exam

Step 7: Publishing your Dissertation

Step 8: Disenrollment/Deregistration

Step 9: Issuance of the Doctoral Degree Certificate

Step 1: Your Doctoral Agreement

- **A document between you and your advisor: contents and time of PhD**

Directly after the promise of acceptance, the first advisor and the doctoral candidate conclude a doctoral agreement. The first advisor usually is the first supervisor of the doctoral thesis and the oral examination.

Conclusion of the doctoral agreement shall not replace submission of the request for acceptance as a doctoral candidate to a KIT department.

The doctoral agreement is designed to establish a transparent relationship between the doctoral candidate and the doctoral advisor supervisor with respect to contents and time. It is therefore important that advisors supervisors and doctoral researchers jointly discuss the contents of the doctoral agreement. In this way, common understanding of mutual expectations relating to the doctoral project is ensured. In this regard, the ▶ **Guidelines for the Doctorate at KIT** can also be helpful. At regular intervals, the contents of the doctoral agreement shall be reviewed and updated.

KIT provides a template of a doctoral agreement and a guidance for the doctoral agreement. Please note that you can access these ▶ **documents** only within the KIT network. If you cannot access them, please inquire with your supervisor regarding the content of the agreement.

Step 1: Your Doctoral Agreement

- **A template document**

- there is also **guidance**
  for you and your advisor:

[Microsoft Word - 2016 12 15_Handreichungen_Promotionsvereinbarung_Englisch_Neufassung.doc (kit.edu)]

[Promotionsvereinbarung_Englisch.doc (live.com)]

Karlsruhe Institute of Technology

Doctoral Agreement

§1 Objective and purpose

The Doctoral Agreement is designed to generate a transparent relationship between doctoral candidate and doctoral supervisor with respect to content and time. Planning and execution of the doctoral project are to be designed by the parties in such a manner that the project can be concluded in high quality and within an appropriate period of time. The individual life situation of the doctoral candidate is to be considered. A successful conclusion of the doctoral project is not guaranteed by the conclusion of this Doctoral Agreement.

§2 Participating persons

This Doctoral Agreement is concluded between

and

Doctoral candidate:

First and or main supervisor:

The chairperson of the doctoral committee of the KIT Department of receives a copy of this Agreement.

Intended second supervisor is .
(Facultative)

§3 Doctoral project

Preliminary working title / field of work:

Planned as cumulative doctoral project: yes / no
(only possible if permitted by the doctoral ordinance applicable at the time of acceptance as doctoral candidate)

Commencement (month/year):

Scheduled conclusion (month/year):

The doctoral project is described in a Suggestion of topic and Time/work schedule in Annexure 1.

DE HAA 03/2015

Step 2: Registration with $KHYS$

- **You are legally required to register with $KHYS$ via docata**

Requirements for Registration with KHYS:

- You have concluded a doctoral agreement with your supervisor.
- To use ▶ **Docata**, the web portal for doctoral researchers at KIT, you need a KIT account (type "ab1234@kit.edu" or "ab1234@partner.kit.edu). Note: please do NOT use your student account (type "ab1234@student.kit.edu").

Formal Steps of Registration:

1. For registration, a KIT account/user account is required. With the registration name (of the type "ab1234") and the password of your KIT account, you can log in. ▶ **Registration for Docata users**
2. Login with KIT account: ▶ **Login**
3. Complete the registration form: Enter the data on your doctoral project in the registration form and upload the necessary documents and attachements in Docata. Please make sure that the entries agree with the data given in your documents (e.g. doctoral agreement, proof of studies)! Please note that you have to close all browser windows to log out securely!
4. Confirmation of registration: You will receive a confirmation of registration in writing (PDF) by KHYS usually within 10 working days. With your registration, you automatically become a member of KHYS. ▶ **Information on KHYS membership**

Step 2: Registration with $KHYS$

- **mentor: this person should not be in the same institute (discipline)**

a. Curriculum Vitae with your academic career
b. Bachelor documents (Certificate of completion, Transcript of Records, Diploma)
c. Master documents (Certificate of completion, Transcript of Records, Diploma, (if you don't have it yet, you can use a title certificate first and submit the official document later))
d. Doctoral Agreement
e. Mentor: According to the official regulation of the faculty of physics, a third supervisor from another institute has to be selected. The task of the mentor is mainly to mediate and help if there are conflicts with the main supervisors.
Please ask a prof or private lecturer from another institute to be your mentor. After you filled out the KHYS form you will get a document ("Appendix - confirmation for mentoring") which your mentor has to sign.

Professors

Name	Title	Institute	E-Mail
Baumbach, Gerd Tilo	Prof. Dr.	IPS	tilo baumbach∂kit edu
Beckmann, Detlef	apl. Prof. Dr.	IQMT	detlef beckmann∂kit edu
Bohlen, Thomas	Prof. Dr.	GPI	thomas bohlen∂kit edu
Braesicke, Peter	Prof. Dr.	IMK	peter braesicke∂kit edu
Drexlin, Guido	Prof. Dr.	IAP	guido drexlin∂kit edu
Eggeler, Yolita	TT-Prof. Dr.	LEM	yolita eggeler∂kit edu
Engel, Ralph	Prof. Dr.	IAP	ralph engel∂kit edu
Ferber, Torben	Prof. Dr.	ETP	torben ferber∂kit edu
Fink, Andreas	Prof. Dr.	IMK	andreas fink∂kit edu
Fuchs, Matthias	Prof. Dr.	IBPT	matthias fuchs∂kit edu
Garst, Markus	Prof. Dr.	TFP	markus garst∂kit edu
Ginete Werner Pinto, Joaquim José	Prof. Dr.	IMK	joaquim pinto∂kit edu
Goll, Gernot	apl. Prof. Dr.	CFN	gernot goll∂kit edu
Heinrich, Gudrun	Prof. Dr.	ITP	gudrun heinrich∂kit edu
Hoose, Corinna	Prof. Dr.	IMK	corinna hoose∂kit edu
Hunger, David	Prof. Dr.	PHI	david hunger∂kit edu
Husemann, Ulrich	Prof. Dr.	ETP	ulrich husemann∂kit edu
Kahlhöfer, Felix	TT-Prof. Dr.	TTP	felix kahlhoefer∂kit edu
Klute, Markus	Prof. Dr.	ETP	markus klute∂kit edu

Step 3: Application for Acceptance at our faculty

- **Latest application date: 6 months after signing your doctoral agreement**

Why acceptance <u>at the beginning</u> of the doctorate?

Your ***KIT*** **Department** reviews whether you fulfill the admission requirements for doctoral researchers at KIT. By issuing the **acceptance as doctoral researcher**, the ***KIT*** **Department commits itself to the scientific supervision of your doctoral research**. This can become relevant if your first supervisor cannot continue supervision of your project, e.g. in case of illness or a change of university. **A letter of acceptance from your *KIT* Department is proof of your status as a doctoral researcher at *KIT***.

Step 4: Enrollment as Doctoral Researcher

- **New legal situation since $Feb\ 16, 2021$: mandatory enrolement**

Enrollment

Enrollment is mandatory for all doctoral candidates accepted by a KIT department, unless they are employed full-time by KIT and have declared that they do not want to enroll. If no such declaration is submitted, doctoral candidates are obliged to enroll.

Note: "Full-time employment means that the working time or the official tasks cover at least half of the regular working time or half of the average volume of official tasks of the corresponding staff that is employed full-time." (Article 9, par. 1, cl. 3, LHG)

Fees

Enrollment is associated with the obligation to pay an administrative charge, a charge for the Studierendenwerk, and a charge for the General Students Committee. For more information on fees and the possibility of reimbursement upon request, please refer to ▶ **Information about Fees** provided by the business unit SLE.

In case of binational doctoral procedures, the provisions agreed upon in the Cotutelle shall apply.

Benefits of enrollment

Information about the benefits of the enrollment at KIT are listed ▶ **here**.

KIT - Karlsruhe House of Young Scientists (KHYS) Doctoral Researchers - Formal Steps - Enrollment as Doctoral Researcher

Step 4: Enrollment as Doctoral Researcher

Benefits

With enrollment at KIT you get:

- a ▶ **KIT card**;
- access to the KIT software shop
- the right to free travel in the public transportation network of the ▶ **Karlsruhe Transport Authority (KVV)** on weekdays between 6 p.m.- 5 a.m. as well as full time on weekends and public holidays;
- the option to buy the extended KVV ▶ **Studikarte** offer for use of public transport during weekdays as well (ca. EUR 174 for 6 months);
- the use of the offers of ▶ **Studierendenwerk Karlsruhe**, e.g. the student discount in the dining halls and cafeterias as well as access to the university sports facilites;
- free participation in a language course per semester at ▶ **Sprachenzentrum** oder ▶ **Studienkolleg**;
- if applicable further student benefits (e.g. free of charge use of Badische Landesbibliothek)

With enrollment you have:

- liability and accident insurance (for stays at KIT and routes to and from KIT).
- For more information on accident and liability insurance, please visit ▶ **Studierendenwerk Karlsruhe**.

Please note that enrolled doctoral candidates usually don´t get a reduction for the health insurance.

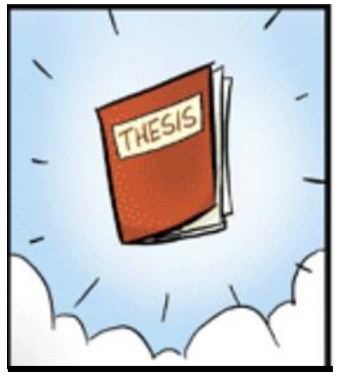
Step 5: Application for Admission to Examination

Now your written thesis is ready

Once you have completed your dissertation, you need to submit a written application for admission to the doctoral procedure to your KIT Department.

In case you were accepted as a doctoral researcher subject to supplementary requirements, please make sure that you have fulfilled these supplementary requirements before applying for admission to the doctoral procedure.

Prepare your documents	Complete electronic application	Submit application documents
Prepare necessary information as well as documents (incl. dissertation) for submission	Login to Docata complete the electronic application form	Download the application for admission to the doctoral procedure, sign it and submit it to the dean's office at your KIT Department (incl. documents)



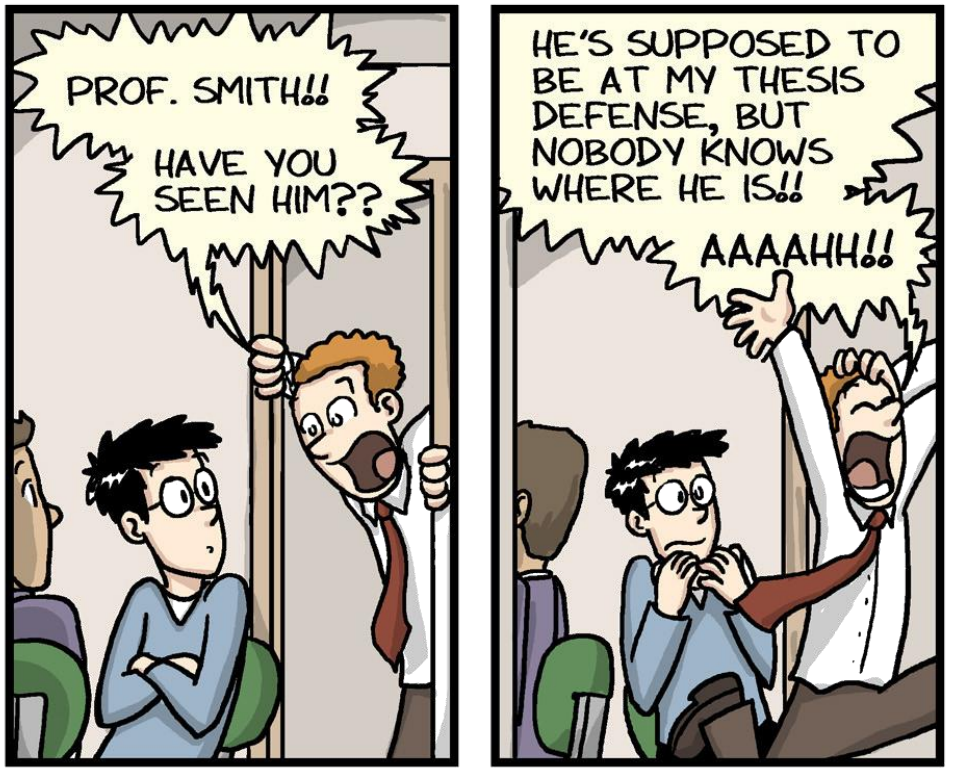
JORGE CHAM ©

Step 6: Oral Exam

- **Colloquium: consisting of a scientific presentation (20 *min*.) followed by a disputation where you defend your thesis**

- presentation is open to faculty & your group
- get familiar with **seminar room 10/1**

- **5 participants** for disputation:
  supervisor, co–supervisor, Dean
  2 further examiners from faculty
  (excluding the mentor)
- you can arrange a **pre–meeting** with the **2** further examiners to discuss your work (you will be reminded of this by email)



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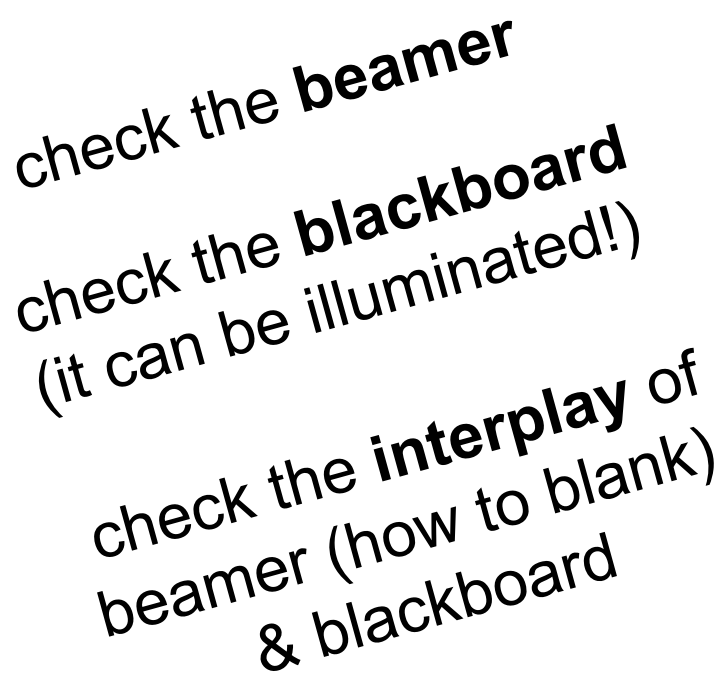


Step 6: Oral Exam – you have passed

- **Colloquium: consisting of a scientific presentation (20 min.) followed by a disputation where you defend your thesis**

Step 7: Publishing your dissertation

- **Publish or…**

Your dissertation has to be published **within one year after the oral exam**. This goes for all KIT departments. According to the ▶ **doctoral regulations of the KIT departments**, publishing a doctoral thesis is part of the doctorate.

The KIT departments allow an exclusively electronic publication either in the KITopen repository or at KIT Scientific Publishing. Other publication options vary depending on the respective ▶ **doctoral regulations of the KIT departments**. You can find more information about the publication options for your dissertation on the ▶ **websites of the KIT Library**.

Once you have published your dissertation, the KIT Library will forward a confirmation to the KIT department and the "Studierendenservice".

Step 7: Publishing your dissertation

Publish your doctoral thesis… your options

[KIT Library | Research & Publishing - Publishing for KIT scientists - Doctoral theses at KIT]

Detailed information can also be found on the website "Flyers and tutorials" in the section "Forschen und Publizieren - Dissertationen".

Content

Step 7: Publishing your dissertation

Publish your doctoral thesis… your options

Electronic publishing in the KITopen repository

Publishing a doctoral thesis in KITopen

- If you choose to assign a Creative Commons license to your work, please include the license information on the reverse side of the front page of your document before publishing in KITopen.
- Detailed information in the KITopen repository and its services.

Electronic publishing at KIT Scientific Publishing

Publishing a doctoral thesis at KIT Scientific Publishing (inquiry form)

- Includes electronic publishing in the KITopen repository.
- Additional printed copies for authors.
- Worldwide sale via international bookstores (print on demand).
- Detailed information on KSP.

Step 8: Disenrollment/Deregistration

Do this to receive your certificate

Provided that you are enrolled as a doctoral researcher, you need to officially disenroll/deregister in order to receive the doctoral degree certi ate and report.

The process is the same for all enrolled doctoral researchers, regardless of their nationality.

On the basis of Art. 62 par. 5 of the Act of Baden-Württemberg on Universities and Colleges (LHG), so-called endorsements of various KIT insti- tutions are obtained with the help of the application for deregistration.

Please fill out the ▶ **application for deregistration** and have the respective endorsements recorded on it by the responsible offices in question. Subsequently, you submit the signed application for deregistration to the ▶ **Welcome Desk team of the "Studierendenservice"**:

Business Unit Studium und Lehre
- Studierendenservice -
Englerstrasse 13
Building 10.12
76131 Karlsruhe

KIT - Karlsruhe House of Young Scientists (KHYS) Doctoral Researchers - Formal Steps - Disenrollment/Deregistration

The Welcome Desk team of the "Studierendenservice" will carry out the deregistration on the basis of the application. This is a necessary pre- requisite for the issuance of the graduation documents (doctoral degree certificate and report).

The most important questions and answers regarding enrollment and disenrollment/deregistration can be found ▶ **here**.

Step 9: Doctoral degree – the certificate

- **You are now on your very final steps to be a $Dr.rer.nat.$**

You receive the doctoral degree certificate once you have published your dissertation and after you have disenrolled (if applicable).

Once you published your dissertation, the KIT Library will forward a confirmation regarding the publication of the dissertation to the KIT department and the "Studierendenservice". The doctoral degree certificate will be issued as soon as the "Studierendenservice" received the confirmation from the KIT Library. Provided that you are enrolled as a doctoral researcher at KIT, you need to officially disenroll in order to receive the doctoral degree certificate and report (see step 8).

Only after receiving your certificate you are allowed to carry your new title.

With that final step you have successfully concluded your doctoral research project. Congratulations!

There are a number of ▶ **prizes and awards** for which you can apply in order to honor your accomplishments and your dedication. Every year, KIT rewards three outstanding doctoral graduates at KIT with the ▶ **KIT Doctoral Award**.

KIT - Karlsruhe House of Young Scientists (KHYS) Doctoral Researchers - Formal Steps - Issuance of the Doctoral Degree Certificate

KIT Ombudspersons for Doctoral Researchers

- **In case your *PhD* would be facing major (unexpected) hurdles…**

The Ombudspersons act as contact persons in cases of conflicts or disputes between doctoral researchers and supervisors during the doctoral research phase.

Doctoral researchers and supervisors are free to initiate contact with any Ombudsperson at any point. They can decide for themselves whom they wish to address irrespective of their research background. As independent persons of trust, the Ombudspersons offer advice and recommendations and will seek to mediate between disputing parties. The Ombudspersons are bound to confidentiality.

Please consult the German-language ▶ **Statute on appointing Ombudspersons for Doctoral Researchers and Supervisors at KIT** from March 4, 2015 (German only) for more information on the Ombudspersons and the process of their appointment.

An overview of further advisory offices and contact points for doctoral researchers and postdocs can be found ▶ **here**.

Structured doctoral programs

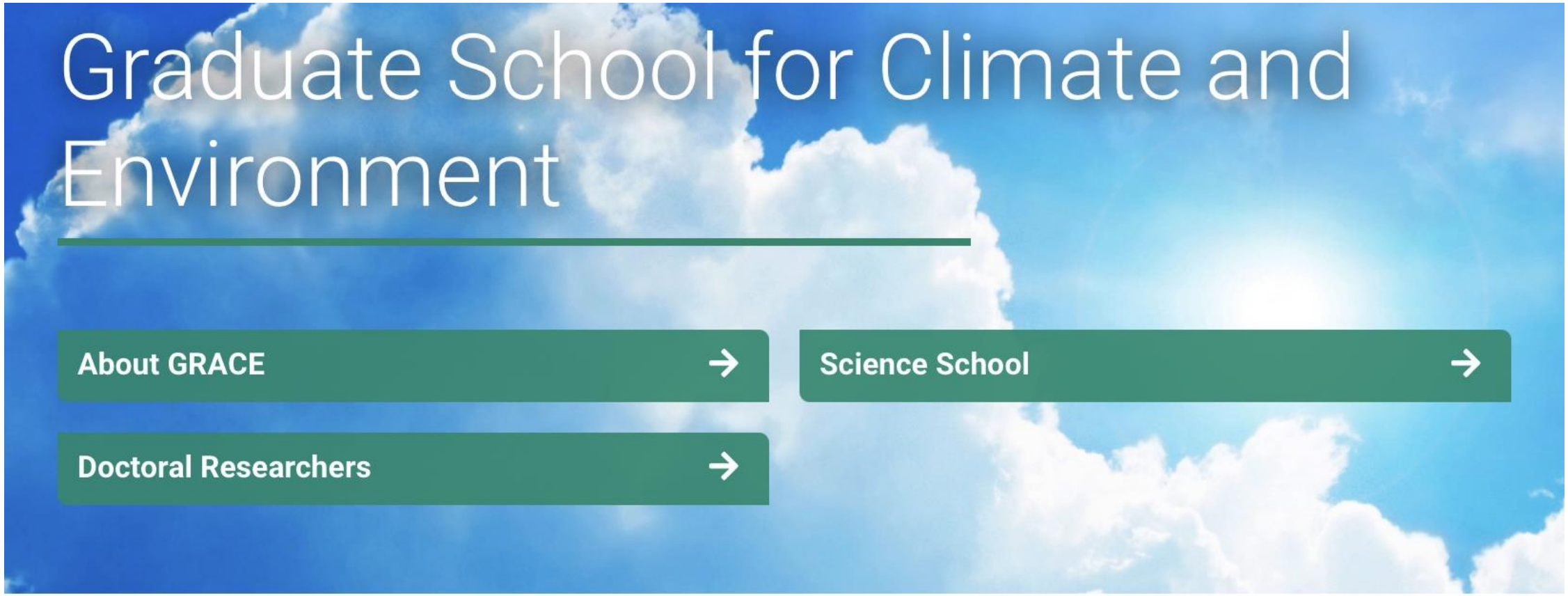
- **A huge part of our PhD students participates in one of these programs**

The independent research of doctoral researchers is supported by structured doctoral programs such as doctoral schools or research training groups. They offer consistent concepts and the highest standards for the supervision of doctoral theses and for the professional and interdisciplinary qualification of doctoral students as well as support for their career development. Researchers of the department play leading roles in several doctoral schools:

- GRACE – Graduate School for Climate and Environment
- KCDS – KIT Graduate School Computational and Data Science
- KSETA – Karlsruhe School of Elementary Particle and Astroparticle Physics: Science and Technology
- KSOP – Karlsruhe School of Optics and Photonics
- KSQM – KIT Graduate School of Quantum Matter
- MPSP – Max Planck School of Photonics

Graduate schools – $GRACE$

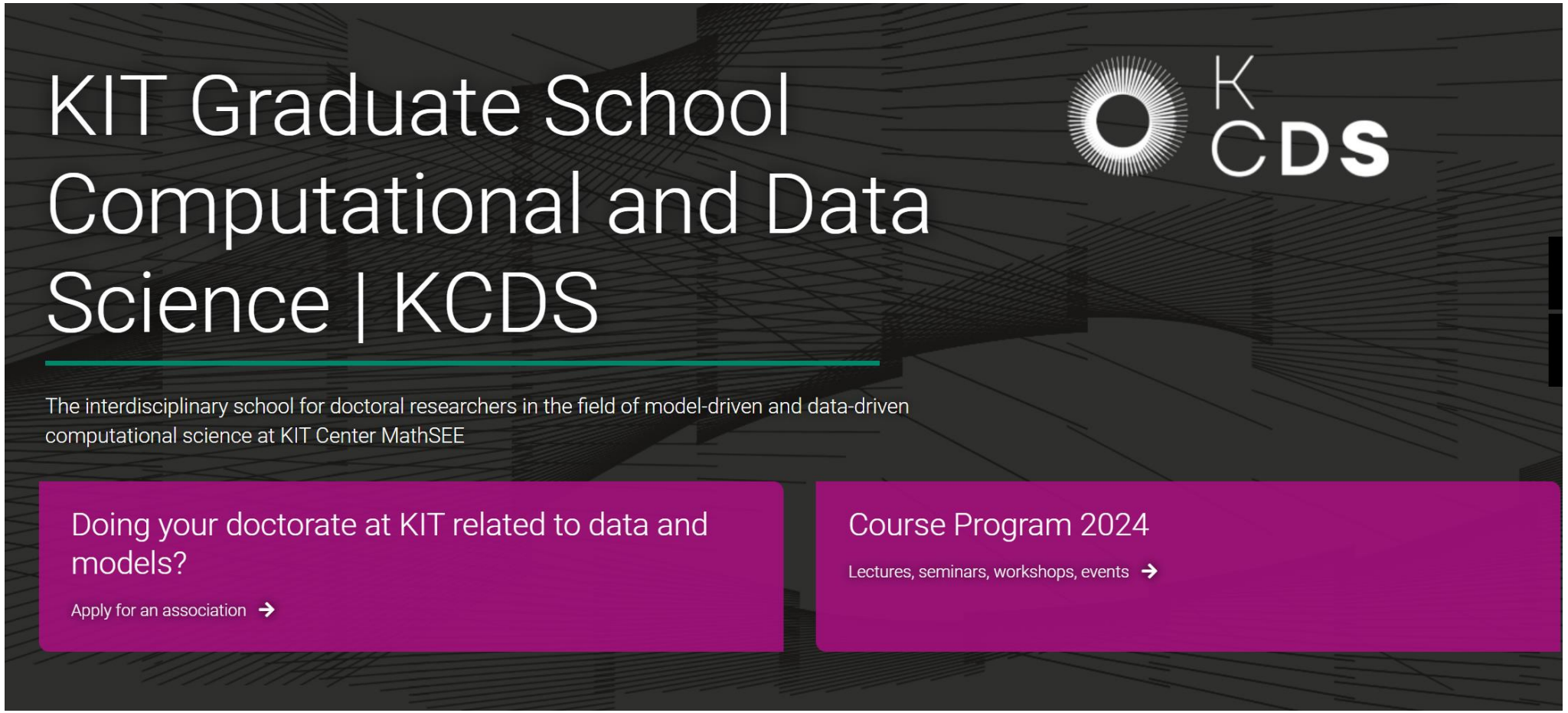
- **Climate and environmental scientists: your home is $GRACE$**



GRACE - Home (kit.edu)

Graduate schools – $KCDS$

- **Computational and data scientists: your home is $KCDS$**



Graduate schools – $KCDS$

- **Computational and data scientists: example $KCDS$ workshop**

Wednesday, 26 June 2024, 9:00-15:00

Campus South, building 20.30, room 3.060 ("Wellenraum")

Personal Roadmap for Career Orientation. What Skills Do I Have and Where Do I Want to Go?

As part of a personal roadmap, you have the opportunity to consciously reflect on your current professional and private situation. You will look at your personal goals and wishes and derive concrete steps for your further career and skills development.

What have I already achieved? What skills particularly characterize me? What are my strengths? What is important to me?
How do I visualize a successful future?

The first aim of the event is to take a closer look at the current status quo and generate an understanding of your present situation. Taking stock in this way will help you to take a focused approach to your life and career planning, create a basis for reflection for your longer-term professional and private decisions and work on your individual areas of development in a targeted manner. In this way, you can develop goals for your further career planning from a holistic perspective and derive the first specific steps.

Please note that a career workshop cannot provide individual career counselling.

Registration
Please visit the KCDS intranet portal to register for this course.
For non-members of KCDS:
In order to be able to book the course, a KCDS guest/non-member account is necessary.
If you don't have an account yet, you can register here: Create a KCDS account to book courses
Once your account is activated by a KCDS administrator, you will be able to book the course.

Graduate schools – $KSOP$

- **Scientists focused on optics & photonics: your home is $KSOP$**

Welcome to the KSOP - Karlsruhe School of Optics & Photonics

Multidisciplinary Environment for First-Class Research, Education, and Innovation.

Graduate schools – $KSOP$

Scientists focused on optics & photonics: your home is $KSOP$

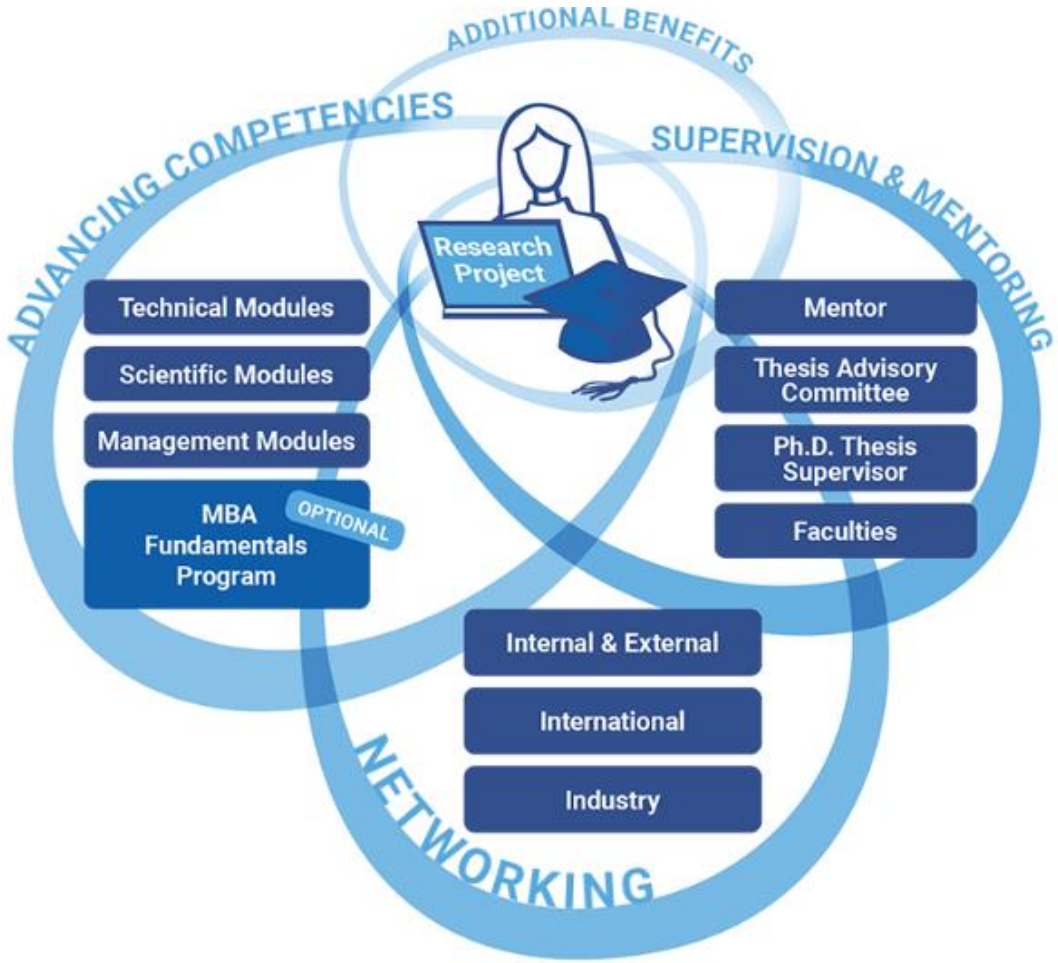
The Karlsruhe School of Optics & Photonics (KSOP), Graduate School at the Karlsruhe Institute of Technology, provides both multidisciplinary **Master** and **Doctorate Programs** in Optics & Photonics taught in English. The educational concept is designed to qualify students for accelerated careers at world leading academic institutions and in high-technology industries. KSOP also has a strong focus on research which shows by the many publications, patents, awards and more that have been achieved by KSOP students, alumni, professors, and members.

Students benefit from cooperations with the Optics industry. Partnerships with global corporations such as ZEISS, Polytec, and BOSCH, as well as with small and medium-sized enterprises facilitate their first career steps for those who are heading towards the industry. On top, KSOP provides its students with additional career training, networking events, free language courses and state of the art labs.

Excellent Professors
Low Tuition Fees
Taught in English
Interdisciplinary
Excellent Research
Internship Program
International Environment

Graduate schools – *KSOP*

KSOP PhD training concept



Mentoring

In your studies and research you will additionally be supported by two independent advisors and a personal mentor with whom you will be able to discuss your progress on a regular basis.
Click here for more information.

Training Concept

KSOP provides a specific modular Ph.D. training program which comprises units from a catalog of technical, scientific as well as management modules. Click here for more information.

Networking

KSOP fosters active international networking amongst its students via alumni groups, social media networks and various social events. Click here for more information.

Further Information

To obtain more personal information, feel free to contact one of our KSOP ambassadors, who lives near your location and ask to share their experience with you. For additional information, just download our program flyer.

Graduate schools – $KSOP$

Karlsruhe School of Optics & Photonics

KSOP

Startseite > Events > KSOP Summer School > more

KSOP Summer School

KSOP is known for teaching latest advancements in Optics & Photonics. For keeping our students updated we invite them every second year to follow us in the fascinating world of Optics & Photonics.

Alternating with the Karlsruhe Days of Optics & Photonics (KDOP), we reserve **two days** in the year inviting **leading experts** in Optics & Photonics, students, doctoral researchers and young scientists also from other universities and research institutes for staying in a nice environment for exchanging undisturbed on the recent research state-of-the-art in Optics & Photonics.

Graduate schools – $KSQM$

- **Quantum physicists: your home is $KSQM$**

KSQM - KIT Graduate School of Quantum Matter

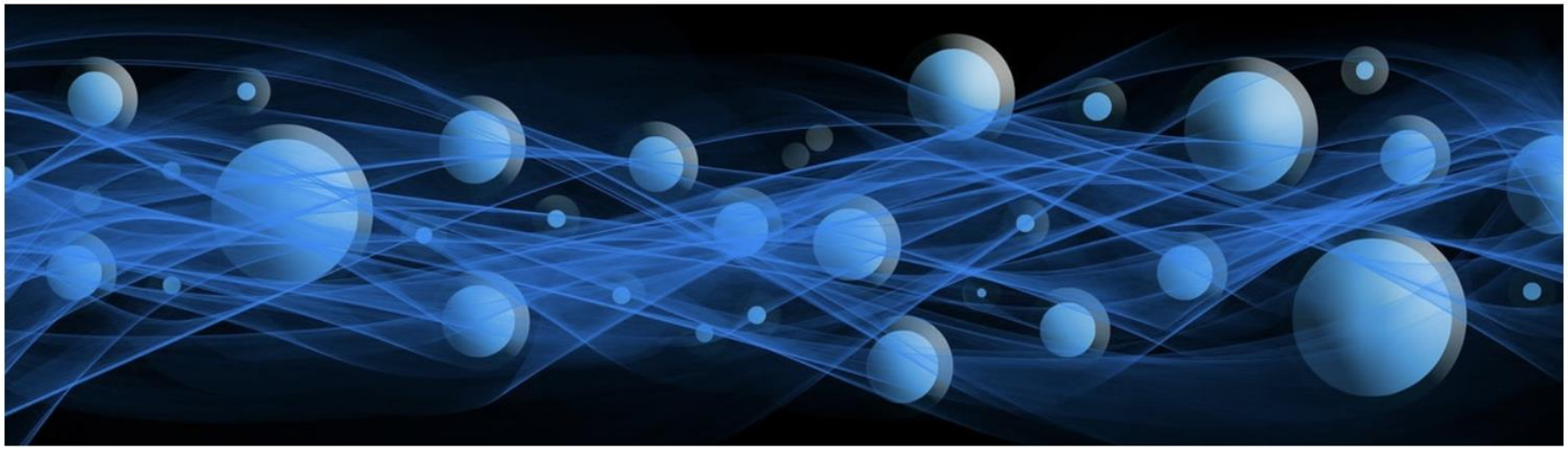
Scientific profile of KSQM

KSQM provides a multidisciplinary environment for first-class education to foster research and innovation for quantum technologies.

Graduate schools – $KSQM$

- $KSQM$ – what does it offer?

KSQM aims to promote hard and soft scientific skills as wells as transferable skills; it provides a platform where doctoral researchers from different disciplines come together and interact as well as further assistance in supervision and mentoring.



KSQM is a qualification and networking platform for doctoral researchers. It strengthens the competencies of the doctoral researchers all around and fosters excellence and interdisciplinary qualification beyond personal field of studies.

Graduate schools – $KSQM$

$KSQM$ – what does it offer?

- **Special tailored lectures** and **courses** in the field of quantum matter, quantum technology and quantum materials
- **Annual interdisciplinary summer schools** where renowned invited speakers provide introductory courses to more specialized topics and give an overview about current research activities on quantum matter
- **Annual retreat meetings** where doctoral researchers and PIs come together and present their own work to fellow researchers thus practicing presentation and discussion skills
- **International exchanges** with research groups from abroad and **funds to cover travel expenses**
- **Modules of KHYS soft skills training** like scientific writing and presentation skills, conflict and stress management, Time and self-management, career management
- **Access to the national and international networks** of the quantum technology and engineering: guest seminars on hands-on experiences with Alumni that work in industry
- **Project funding** for innovative research ideas
- **Additional assistance and support in supervision & mentoring**
- **School certificate as additional qualification proof after successful participation**

Graduate schools – $KSQM$

- $KSQM$ – **objectives & qualification concept**

Q: what does a graduate school like $KSQM$ provide for **me**?

A: It promotes the excellence of its doctoral researchers who receive tailored training for the associated scientific and technological challenges in both academia and industry. Scientifically, the School focuses on three areas: (I) Quantum materials, (II) Quantum engineering and (III) Theory of quantum matter and quantum information reflecting the necessity to discover, design and understand quantum matter for the development of suitable hard- and software.The Graduate School offers on the one hand tailored further education for doctoral researchers within the three focus areas and, on the other hand, establishes stronger relations between existing and new research and teaching efforts bridging the activities between different areas and disciplines.

Graduate schools – $KSQM$

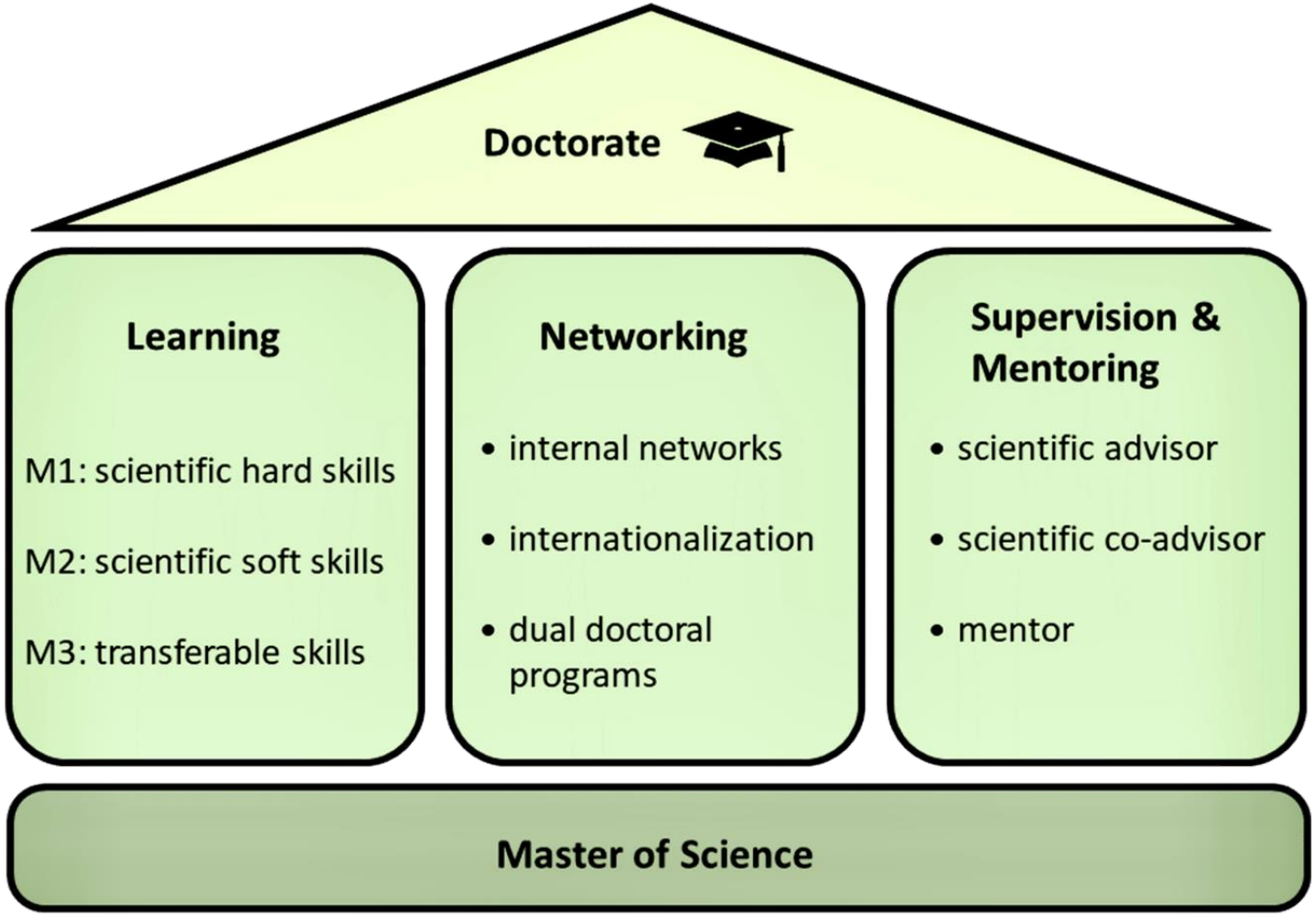
- $KSQM$ – objectives & qualification concept

Objectives and qualification concept

The qualification concept builds on three pillars: (I) Learning, (II) Networking and (III) Supervision & Mentoring. The educational concept is designed to qualify graduates in science as well as in softskills for making a successful careers at world-leading academic institutions and in high-technology industries.The doctoral researchers benefit from all three pillars of the Graduate School as it will offer tailored courses, retreat meetings, and summer schools, encourage the participation in workshop and conferences, it will partially finance international exchanges, and it develops further the existing mentoring and supervision system.

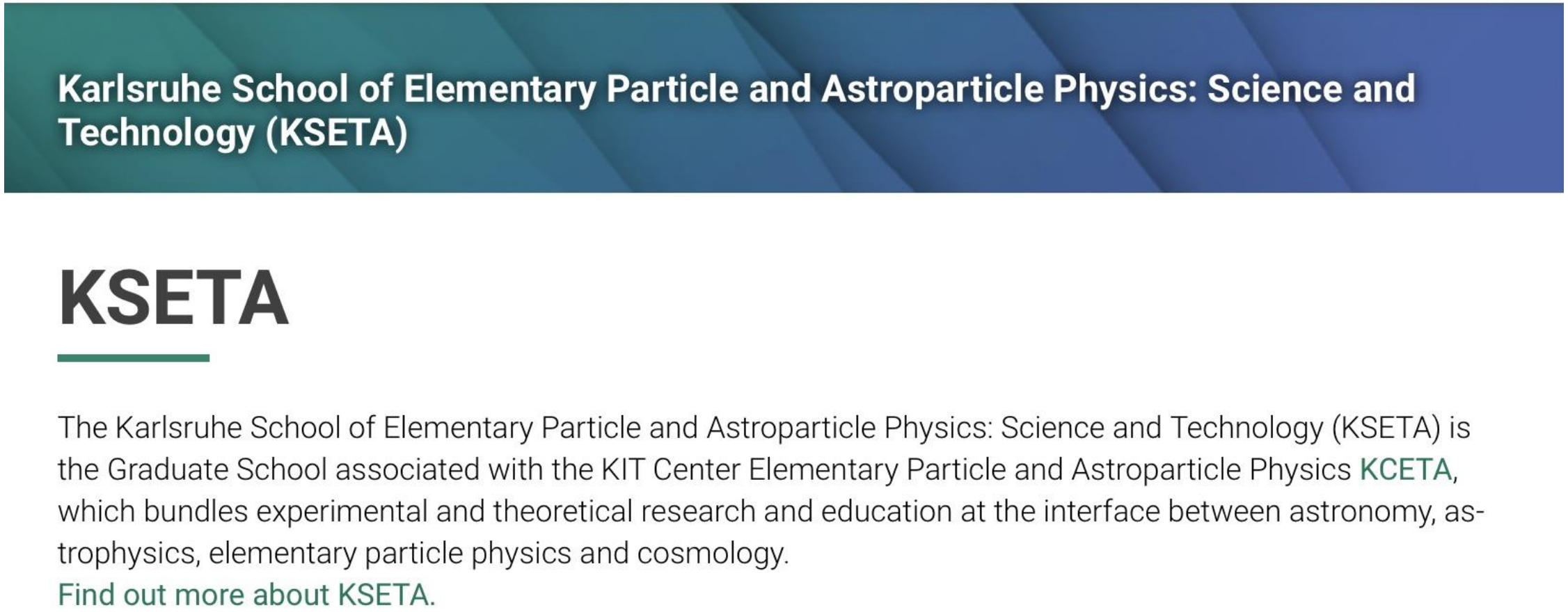
Graduate schools – $KSQM$

- **Quantum physicists: your home is $KSQM$**



Graduate schools – $KSETA$

- **Elementary particle & astroparticle physicists: your home is $KSETA$**



Graduate schools – $KSETA$

- $KSETA$ – plenary worklshop: a snapshot of researchers in 2025

Graduate schools – $KSETA$

- $KSETA$ – the organisational structure

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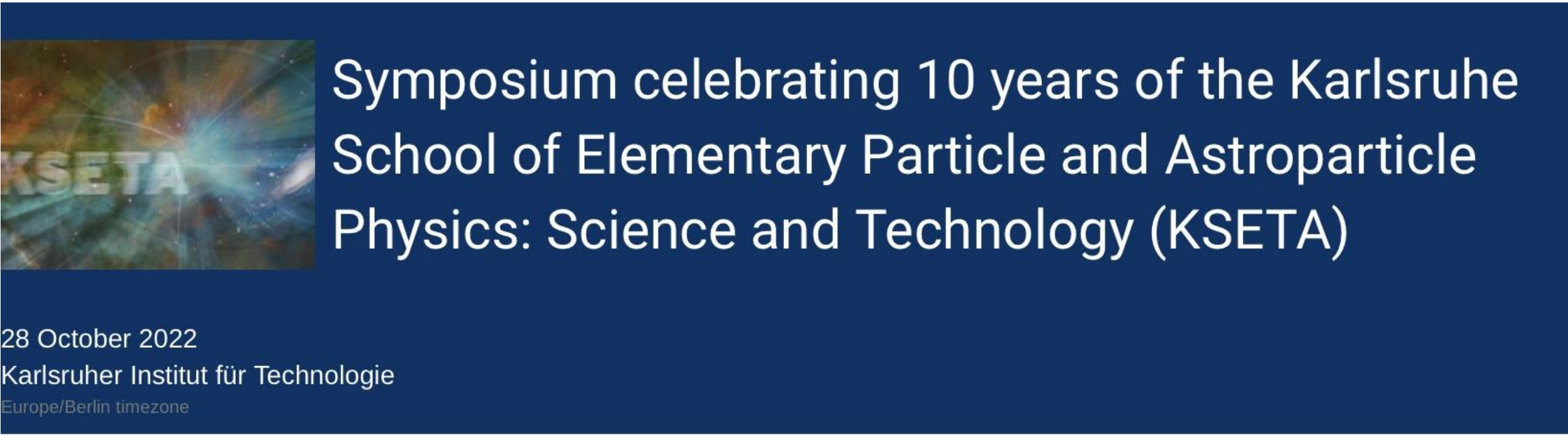
Graduate schools – $KSETA$

- $KSETA$: founded already way back in 2012



Graduate schools – $KSETA$

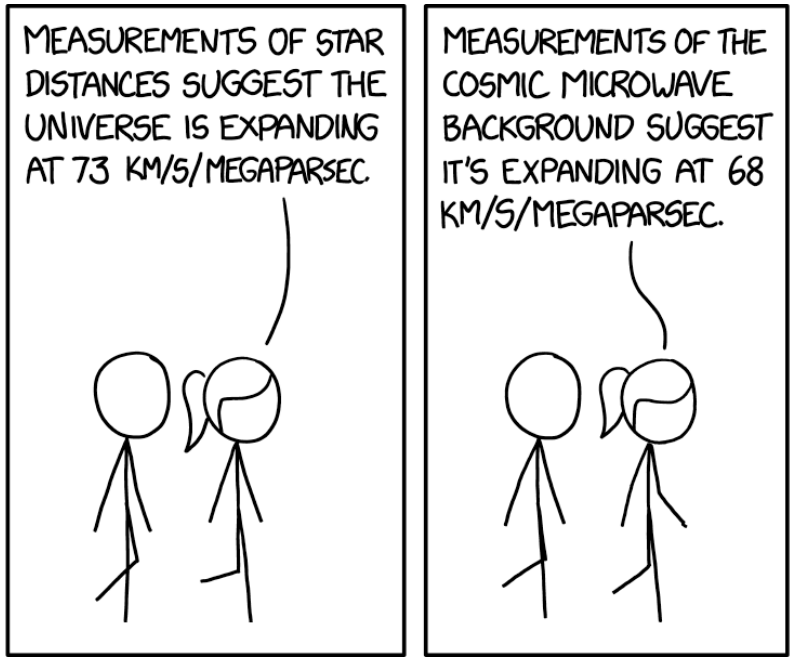
- $KSETA$ – topical courses in $March$ 2025

1. **Science Communication for Particle Physics** (better; all)
   Jens Kube (AWKJK)
2. **Superconducting magnets for particle accelerators** (broader; all)
   Axel Bernhard (KIT) and Bennet Krasch (KIT)
3. **Software Engineering for Physicists** (better; all)
   Pranav Sampathkumar (KIT) **(postponed)**
4. **Future Particle Collider(s): Which? Why? When?** (broader; Particle Physicists)
   Christophe Grojean (DESY)
5. **Computer algebra and Symbolica** (deeper; Theoretical Physicists)
   Ben Ruijl (Ruijl Research)
6. **Direct searches for dark matter** (broader; Experimental physicists)
   Belina von Krosigk (Uni. Heidelberg) and Teresa Marrodan (MPIK)
7. **Scientific Writing** (better; all)
   CJ Fitzsimons (Leadership Sculptor)

Graduate schools – *KSETA*

- ***KCETA*** – **Colloquium next week**

- each week a **highly interesting topic** for the school is being reported on by an external speaker



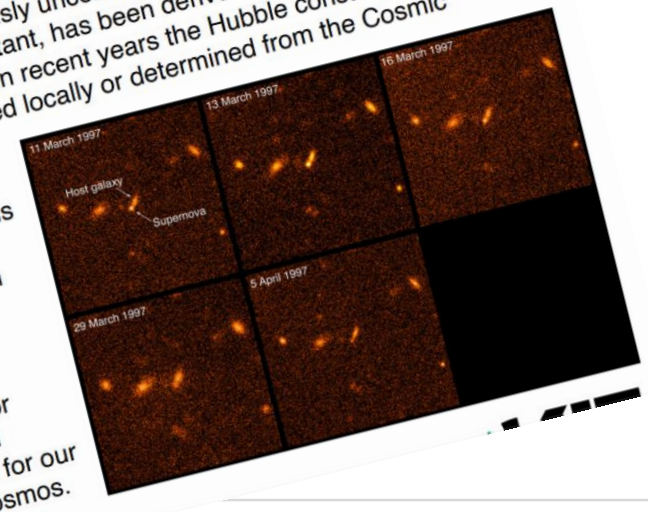
KCETA Colloquium

The Hubble Tension - an experimental or a cosmological problem?

Thursday, May 22, 2025
Kleiner Hörsaal A (CS) 15:45 - 17:00

Prof. Bruno Leibundgut
(ESO and TUM)

The cosmic expansion rate is a primary parameter of all relativistic models of the cosmos. Its determination is difficult, as it requires an absolute measurement, which are notoriously uncertain in astrophysics. The local expansion rate, the Hubble constant, has been derived for about 100 years and has always been controversial. In recent years the Hubble constant has shown diverging values when measured locally or determined from the Cosmic Microwave Background using the Lambda Cold Dark Matter (LCDM) model. The deviations appear significant and may point towards deficiencies in LCDM. I will present the difficulties of the cosmic distance measurements, propose a new method for such measurements and discuss the implications for our understanding of the cosmos.



Please note:

Graduate school

HEIKA Graduate School on Functional Materials

3D MATTER
MADE TO ORDER

The HEiKA Graduate School on “Functional Materials” is a central structural element of the Cluster.

The Graduate School Office coordinates the entire process before, during and after the application. Aside supporting the Young Scientists in their scientific research leading up to their doctorate, the Graduate School offers a **module program** preparing them for a highly interdisciplinary research field.

Graduate School Program Manager

Stefanie Peer
Cluster Office

stefanie.peer@3dmm2o.de

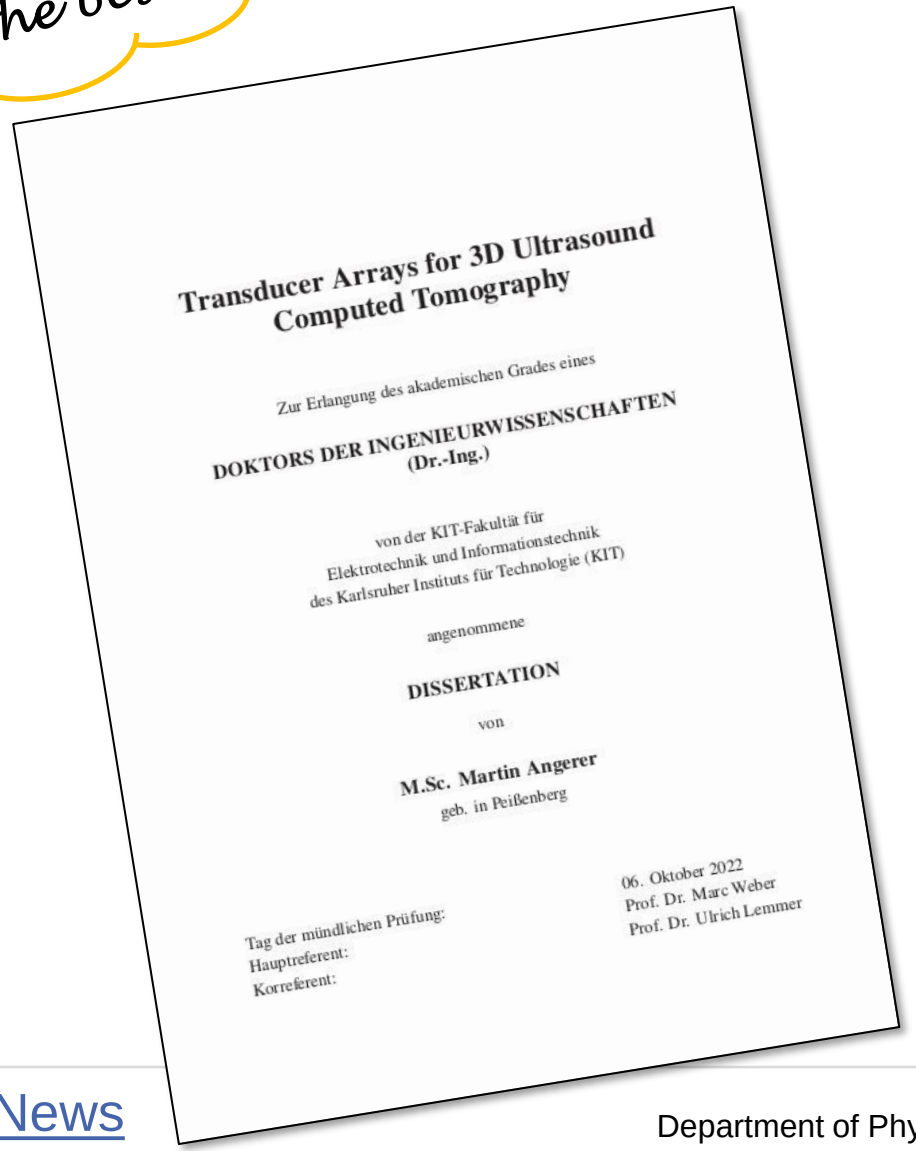
Helmholtz Doctoral Award 2024

- **Your thesis is important!**

PhDs from KIT are the best!

Martin Angerer during his time as a PhD student at the Institute for Data Processing and Electronics (IPE)

Otmar D. Wiestler presents the doctoral prize to Martin Angerer during the award ceremony at the Helmholtz office, Berlin, 29.04.2024



Transducer Arrays for 3D Ultrasound Computed Tomography

Zur Erlangung des akademischen Grades eines

DOKTORS DER INGENIEURWISSENSCHAFTEN (Dr.-Ing.)

von der KIT-Fakultät für Elektrotechnik und Informationstechnik des Karlsruher Instituts für Technologie (KIT)

angenommene

DISSERTATION

von

M.Sc. Martin Angerer
geb. in Peißenberg

Tag der mündlichen Prüfung: 06. Oktober 2022
Hauptreferent: Prof. Dr. Marc Weber
Korreferent: Prof. Dr. Ulrich Lemmer

IPE

Helmholtz Doctoral Award 2024

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May 2, 2024

3D Ultrasound computer tomography (3D-USCT) is a unique, innovative imaging technique for early, radiation-free breast cancer detection that avoids all the disadvantages of classical mammography while promising high resolution and sensitivity. During his doctoral studies, Martin Angerer as a KSETA fellow worked on the design, fabrication, characterization and optimization of ultrasound transducer arrays for 3D ultrasound computed tomography (3D USCT). The key to his success was the unique infrastructure at KIT provided by the Helmholtz "Matter and Technology" program. The technically most challenging component of 3D-USCT system are the piezo transducers that emit and detect ultrasound waves. Martin Angerer has built a complete set of ultrasonic transducers and demonstrated in simulations that the physical limits were nearly reached with his solution. With his devices he contributed to a successful technology transfer project. He was able to combine fundamental research with his decisive contributions to the project and tight deadlines. In addition, he explored alternative technologies to overcome the limitations of composite materials with piezoelectric fibers. His excellent research has now been awarded with the Helmholtz doctoral price 2024.

The Helmholtz doctoral prize for mission-oriented research is awarded annually in competitive decision to a thesis with outstanding contribution to solving the most pressing problems facing our society. Doctoral students are to be encouraged to conduct mission-oriented research and thus to position themselves at the interface between science and application, to develop and expand entrepreneurial skills, and to help shape the transfer of science to society at an early stage.

Martin Angerer, "Transducer Arrays for 3D Ultrasound Computed Tomography", PhD thesis, Karlsruhe Institute of Technology (KIT), 2022, doi: 10.5445/IR/1000152507

Link: https://www.helmholtz.de/newsroom/artikel/helmholtz-verleiht-promotionspreis-2024/

IPE

KIT Doctoral Award 2022/23

PhD of Jan van der Linden

Jan van der Linden with his doctoral hat

December 2023

In recognition of his outstanding achievements in studying the production of heavy quarks at the Large Hadron Collider (LHC), Jan van der Linden will be awarded the 2022/2023 edition of the KIT Doctoral Award, awarded by the Excecutive Board of KIT. With this award, KIT honors outstanding young scientists and underlines the high value of young scientists at KIT as a role model for others. The award ceremony will be part of the KIT President's Honorary Evening in summer 2024.

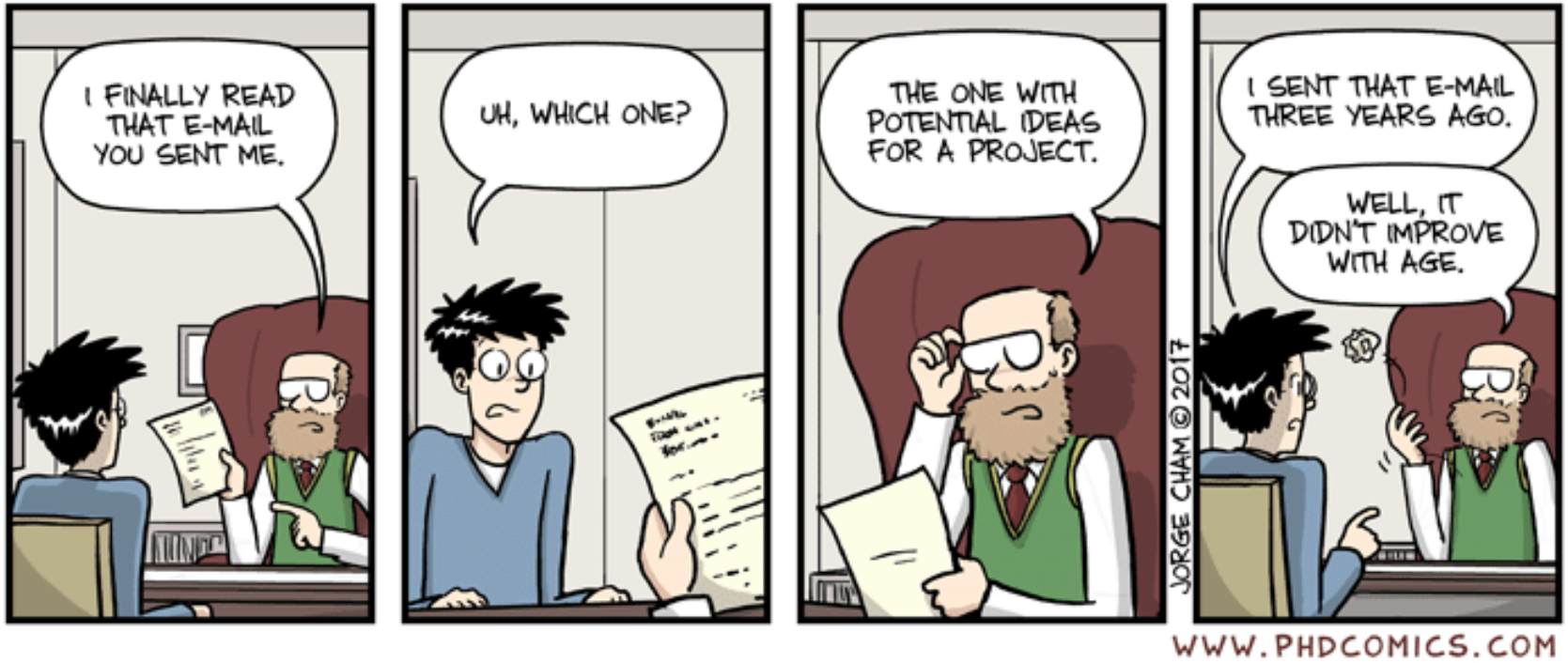
Jan van der Linden's dissertation entitled "Inclusive and differential cross section measurement of ttbb production and studies of tt production with additional jet radiation" is characterized by its high relevance for research at the LHC, its excellent methodological standards and its exceptional quality. In addition, the award recognizes Jan van der Linden's creative use of machine learning methods in particle physics and his commitment to the education of students. Jan van der Linden's dissertation at the Institute of Experimental Particle Physics (ETP) was supervised by Dr. Matthias Schröder and Prof. Ulrich Husemann.

Jan van der Linden has already started the next step of his scientific career. Funded by a Junior Postdoctoral Fellowship from the Belgian Research Foundation Flanders, he investigates the production of top quarks and Higgs bosons at the University of Ghent.

Organising your research

- **Regular meeting with your PhD advisor on your progress**

  - group meetings are important, but insist on a **Jour fixe** with your advisor: is my research going in the right direction, are the methods adequate, what are the future goals, when is my work ready to publish, and where to publish



Organising your teaching

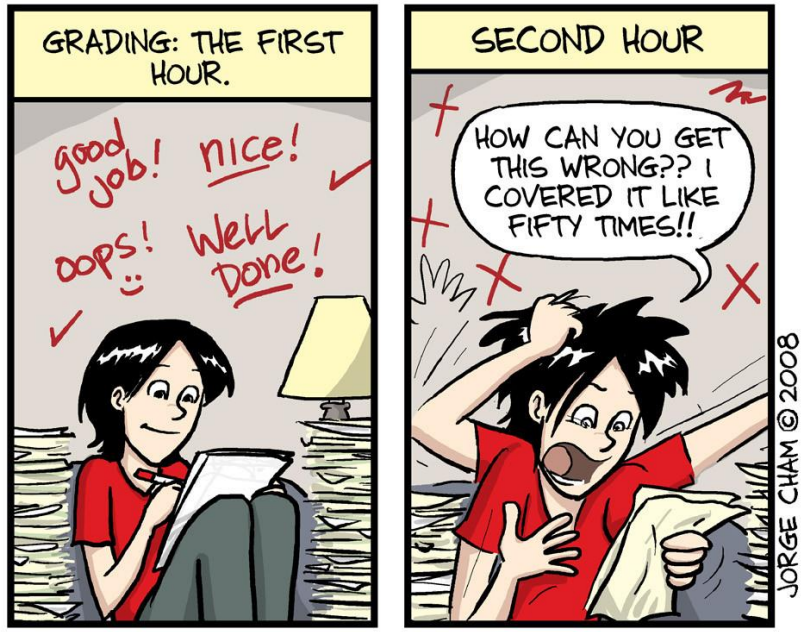
- **Teaching: lab courses, exercises, tutorials, …**

  - ***KIT*** is **the ´Research University** in the Helmholtz Association´

  - teaching is an important element in your further **development of skills**, and not a ´waste of time to endure´

  - skills: better understanding of underlying **principles**, **methods of calculation**, experimental **techniques**

  - **communication skills** within a group



Conclusion

- **Your PhD work: an important step in your future career**

- see you at your successful **defense of your thesis**!!

It's Over!