

Doctorate at IMK-TRO at the KIT-Faculty of Physics

1) Get started: important links

- The **Doctoral regulations** (*Promotionsordnung*) include all the formal regulations for the doctorate: http://www.imk-tro.kit.edu/download/Promotionsordnung_Fak_Physik_27-3-2017.pdf
- As the *Promotionsordnung* is only available in German, the most important steps are summarized in this document.
- IMK-TRO homepage (some parts only in German): <https://www.imk-tro.kit.edu/english/index.php>
- Karlsruhe House of Young Scientists (KHYS): <https://www.khys.kit.edu/english/index.php>
- Summary about Doctorate at IMK-TRO: <http://www.imk-tro.kit.edu/english/7281.php>

2) Become a member of the KIT-Faculty of Physics

To be able to obtain a PhD degree at KIT, you have to register as a doctoral researcher and become a member of the KIT-Faculty of Physics (*KIT-Fakultät für Physik*). The steps are as follows (see [1] for possible changes in the procedure):

- Sign a **doctoral agreement** (*Promotionsvereinbarung*) with your main supervisor or first referee of your thesis. The document is available at [1] or [2]. For the **doctoral agreement**, you have to write a summary of the proposed work and a timeline/work schedule. It also includes a suggestion of qualification measures you want to do (e.g., stay abroad, conferences, soft skill courses, GRACE).
- For the application form for acceptance by the KIT-Faculty of Physics, you will need a “**Mentor**” (professor or teacher at the faculty, but in another institute than IMK). Usually, your main supervisor suggests someone but you can choose one by yourself if you want to.
- As soon as you have your KIT account (name of the type “ab1234”) and the doctoral agreement, you can **register at Docata** [3]. While registering at Docata, make sure to add information about your mentor even though it is not mandatory. Docata offers:
 - Registration as doctoral researcher at KIT;
 - Download of **application form for acceptance by the KIT-Faculty of Physics** (*Antrag zur Annahme als Doktorand(in) bei der KIT-Fakultät für Physik*);
 - Membership to **Karlsruhe House of Young Scientists** (KHYS); this is mandatory for all doctoral researchers!
- Send or bring the application form for acceptance by the KIT-Faculty of Physics, the registration confirmation from KHYS and your master certificate (in case you did not study at KIT, but in Germany) to the Dean’s office (currently Ms. Hühn). In case that you studied abroad, your master certificate first needs to be accepted by KIT. You only need to send the documents which are not uploaded in Docata (the Dean’s secretary has access to the documents in Docata).
- After a few weeks, you will receive a letter, confirming your acceptance by the KIT-Faculty of Physics, possibly with some obligations.
- This letter is accompanied by another letter asking you to enroll as a student at KIT. In case you are full-time employed at KIT (at least 50% position), you have the option to decline enrollment. This is only possible within two weeks after you have been accepted by the Faculty of Physics. For declining the enrollment, you have to sign the relevant form provided in Docata. Then, this document has to be signed by PSE to confirm that you are full-time employed at KIT and send to the Studierendenservice (Student’s Office).
- In case you enroll as a student, you have to fill in the respective form provided in Docata and follow the instructions there. Details for the enrollment process can be found here [4].

In case that you did not study Physics, Meteorology, Geophysics or Optics and Photonics, you will have to provide documents that proof your knowledge of the topic of your doctoral research.

During the three years of your PhD, make sure to meet regularly with your supervisor and your first referee. In these meetings, you should discuss the results of your research, problems you might have, scientific publications you are writing, your research stay abroad, and so on.

3) Consider to become a member of GRACE (Graduate School for Climate and Environment)

Discuss with you supervisor, whether you should become a member of GRACE [5]. The graduate school offers, among others, lectures, short courses, and summer schools. At the same time, it requires you to do a research stay abroad for 1-3 months and to attend topic related and cross-cutting lectures as well as competence skill courses that cover 12 ECTS in total.

Before you send your application to GRACE, you should talk to the scientific coordinator Andreas Schenk (andreas.schenk@kit.edu, Tel.: +49 721 608 43676) and Diana Lieber (diana.lieber@kit.edu, Tel. +49 721 608-41359). They will answer your questions and tell you, which documents are needed for the application. In general, the required documents are as follows:

- Motivation letter
- Curriculum vitae
- Proposal of a personal steering group
- Proposal of a training program (table of lectures, which you would like to attend, you can change this in the course of your PhD)
- Copy of your doctoral agreement
- Copy of the letter which confirms your acceptance by the KIT-Faculty of Physics

There is also the possibility to join the KIT graduate school Computational and Data Science (KCDS) [8] of the KIT center MATHSEE. For this graduate school, your PhD project has to be transdisciplinary, meaning that you apply mathematical concepts for an application in science. You also need 2 supervisors from the different disciplines. One from the mathematical side and one from the sciences' site. If you are interested in this graduate school, please contact Christian Grams (grams@kit.edu) for further information.

4) Teaching IMK-students

- Teaching is not mandatory, but highly recommended. For further information see: https://www.imk-tro.kit.edu/kitintern/download/Leaflet_Teaching_Participation_IMK_PHD_v20220927.pdf
- Discuss with your supervisor, which lecture/topic fits best
- Teaching is part of your education:
 - It supports the academic qualification and increases chances of a career in academia.
 - It increases your skills to present clearly and well-structured, to give feedback, and to react spontaneously to questions.

5) Writing your dissertation

- Discuss the outline and content of your thesis with your supervisor(s) and referees.
- Agree with your supervisor(s) on the language of the thesis (English or German).
- Use the official LaTeX template for your dissertation (available at [4]). You will first have to hand in a version ("version 0") of your thesis to your referees (digital or printed version, preferably A4 format; see below).
- The dissertation must be written in the form of a monograph; cumulative dissertations are not allowed at the KIT-Faculty of Physics.
- Useful hints for writing:
 - Do not only write your thesis from your "expert" perspective, but in a way a scientist with basic knowledge can follow your study.

- o Make clear what your personal contribution to the topic is; highlight the “gap” that you want to fill.
- o Find meaningful headlines; if possible, highlight in the headlines what is new in your work.
- o Level of detail (e.g., in data and methods chapter): Which information do you need to understand the results? Is this part of the overall story of your thesis?
- o Use an appendix for additional information (e.g., skill scores, additional graphics and tables).

6) Organizational procedure before the exam

6.1) Registration procedure for the exam (defense)

- Talk to your supervisor(s) and referees: present the status of your work and show that your dissertation can be finished in the remaining time. Discuss possible dates for the exam.
- Ask for an exam date at the Dean’s office (current secretary: Regina Hühn: +49 721 608-42052). You will get several dates, so that you can find a suitable date for you **and your referees**. You can only apply for exam dates, which are up to three months in the future and which are **in the lecture period** (*Vorlesungszeit*).
- Communicate the exam date to the secretary of the Dean’s office (together with the names and institutes of your referees).
- If the date is still available, the secretary will send you an e-mail with the exam date confirmation. The e-mail also contains further things that you have to keep in mind (e.g., the submission date at which you have to hand in your “vorgelegte” version of the dissertation; see below).
- The secretary will ask for documents, you have to send to her approx. 1 week before the submission date of your “vorgelegte” version:
 - o **Admission application, addressed to the Dean** (*Zulassungsgesuch an den Dekan*). This must be sent within four years after acceptance as doctoral researcher at the KIT-Faculty of Physics, otherwise your status as doctoral researcher ends.
 - o Your **CV** (including your office address and private address, the date and place of birth), and your list of publications (may be part of your CV).
 - o Copies of **university-entrance diploma** (*Abiturzeugnis*) and **diploma/Bachelor’s + Master’s certificate(s)** (*Diplom-/Bachelor- und Masterzeugnis[se]*)
 - o **Declarations as per attachment 3, 4, and 5b of the doctoral regulations from March 27, 2017** (*Erklärungen nach Anlage 3, 4 und 5b der Promotionsordnung vom 27.3.2017*)

6.2) Hand in your dissertation

1. Discuss your version 0 of the dissertation with your supervisor and referees, and give them a comb- or glue-bound book form of version 0 approx. 2-3 weeks before the submission date. Add a cover letter/write an e-mail with a summary of the important dates and deadlines (e.g., deadline for referee reviews [=submission date], date of exam).
2. Make necessary changes as proposed by the referees. Some referees ask for a second iteration. When you have done all changes, this version is your “vorgelegte” version for submission.
3. You need the following copies of your “vorgelegte” version of the dissertation:
 - one copy for the Dean’s office: Hand in a hardcover/glue-bound version of your “vorgelegte” dissertation to the Dean’s office (on the submission date, 10 a.m. at the latest). Make sure that it says “**vorgelegte Dissertation**” and not “genehmigte Dissertation” on the title page of your dissertation too! The first is the version, which is graded, the latter is for final publishing after the exam (see below).
 - up to four/five copies for the examiners: Examiners who are referees in personal union might not need a copy of the “vorgelegte” version if they have already a printed book of version 0. You can

provide them with a digital version of your dissertation with tracked changes. Moreover, some examiners who are not referees might not want a printed version to save paper.

- One copy for you.
4. After submission: When the Dean's office has received the dissertation and the referee reviews, they will send you details about the exam (date and time, room, examiners) via "Hauspost" and by mail to your address which is given in your CV. Get in touch with your examiners who are not referees and agree on a date for a personal/digital meeting (approx. 30-60 min). Be prepared to present a summary of your work. The sooner, the better for your preparation time in the last days before the exam.
 5. The Dean's office also sends you an e-mail with the time for a short meeting with the Dean and the other examinees (PhD students). The Dean will explain the exam's procedure and show you the rooms. Be prepared to present a 5-minute summary of your work.

Important Deadlines:

- 3 months before the exam date: Save your date for the exam (date must be in lecture period!). The submission date will be 5 weeks before the exam at the latest (10 a.m.!).
- ~ 2-3 weeks before the submission date: Hand in version 0 of your thesis to your supervisor and referees (agree on a date, so that the referees have enough time to read and comment the thesis and you have enough time to make necessary changes. **(Print version 0 necessary)**)
- ~ 1 week before the submission date: Hand in further "official" documents requested by the Dean's office (see below).
- Submission date: Hand in revised version of your thesis (version 0 + necessary changes asked for by referees; "vorgelegte" version) to the Dean's office. The same deadline applies for the referee's reviews, make sure that your referees hold this deadline. **(Print "vorgelegte" version necessary)**
- Exam date: Exam

7) Preparation of presentation and oral exam

7.1) Preparation of the presentation

- Present your work with logical structure, central theme; focus on important findings rather than rushing through many results.
- Provide a good introduction; you could try to show simple schemes to explain certain processes/phenomena in the introduction (keep in mind that some examiners are not related to your research topic).
- Mention your publications.
- Give trial presentations about 1-2 weeks before your exam to your referees, to other PhD-students and Post-doctoral researchers to get feedback on your presentation. Take into consideration a second trial presentation within your working group a few days before the exam.
- Do a technical test of the presentation in the exam room 6/1 in the Physics building at Campus South (check if your figures are not truncated and easy to read).

7.2) Preparation of the exam

- Think about possible questions. Physicists out of your topic likely focus on related topics (e.g., functionality of your measurement device, physical basics of your topic).
- With the doctoral regulations from March 27, 2017, the questions will be in the context of the topic. Nevertheless, it can be helpful to read some protocols from other exams to get an idea about how the examiners pose their questions (but note that an examiner sometimes gives hints on potential questions/topics, which is not necessarily mentioned in the protocol). Katharina Maurer (Student Advisory Service, Campus South, Physics building 30.23, 13. floor, room: 13.08, Phone: +49 721 608-46752, katharina.maurer@kit.edu) has a folder with a collection of questions from previous exams.
- Read books/papers/texts related to your topic.

8) Defense talk/presentation and oral exam

- The presentation and exam take place in two different rooms in building 30.23: room 6/1 for the presentation and room 9/16 for the exam.
- Take an HDMI-to-VGA adapter with you if necessary.
- Exam:
 - You will stand in front of a blackboard and the examiners sit at a meeting table. One at a time, they will ask you questions for about 10 minutes each. The first referee will start; the Dean is the last one.
 - You can/should use the blackboard to draw a sketch or write down an equation.
 - In case that you do not know the answer to a question, do not panic or keep silent. Try to refer to the topic. It is not expected that you can answer all questions.
- You will be informed about the outcome by the head of the board of examiners.

9) Publishing your dissertation - printed and online version

9.1) Steps for publishing your dissertation (in order to receive your PhD certificate):

1. Ask your referees, if final changes in the dissertation are needed. Make all necessary changes (also check for typing errors). Change the title page to „genehmigte Dissertation“.
2. Ask in the Dean's office for the print permission document (*Druckerlaubnis*). Here, your referees have to sign that the thesis can be published in its current form.
3. Hand in the signed print permission document and a printed version of the final thesis („genehmigte Dissertation“) at the Dean's office.
4. Publish your thesis at the KIT library (see below). The Dean's office will be notified by the KIT library.
5. You will receive an e-mail from the Dean's office as soon as you can pick up your doctoral certificates (*Promotionszeugnis* and *Promotionsurkunde*).

9.2) Publication possibilities at KIT:

There are three main ways of publishing your dissertation at the KIT library:

1. online publication (DIN A4 format) at the repository KITopen
2. online publication (DIN A5 format) at KIT Scientific Publishing (KSP)
3. online and print (DIN A5 format) at KSP

More information about the different publication possibilities can be found on the website of the KIT library (<https://www.bibliothek.kit.edu/dissertationen.php>).

If you include already published material in your dissertation (e.g., articles from scientific journals), you have to make sure that the copyright policy of the journal agrees with the license at KIT (e.g., KITopen license, open access license).

9.3) Details for publishing at KSP:

Your dissertation at IMK-TRO may be published printed **and** online within the book series „Wissenschaftliche Berichte des Instituts für Meteorologie und Klimaforschung des Karlsruher Instituts für Technologie“ by KIT Scientific Publishing (KSP). Each dissertation (volume) gets its own ISBN-number. This enables everyone to order your dissertation in a bookshop as “print on demand”. Online publication is done by KSP using Eva Star of the KIT-library.

The costs for printing of 25 copies of your dissertation is covered by IMK-TRO (upper limit approx. 700 EUR). Covering of additional costs by IMK-TRO due to a higher number of copies or many color figures in your dissertation has to be discussed with the head of your research group – ideally before publication.

The design of the cover and the layout of the first pages are fixed for the book series by IMK-TRO and KSP. For the overall layout of your volume there is a KSP-template in Latex and Word, which **MUST** be used (<https://www.bibliothek.kit.edu/ksp-toolbox.php>) or you can use the version on the IMK-TRO webpage (recommended; format is A5; the templates are designed to fit the final format).

Important formal requirements of the template, which you have to meet, are collected in a very helpful PDF: <https://www.bibliothek.kit.edu/downloads/KSP/KSP-Basic-Layout-Guidelines.pdf>

Further remarks:

- Detailed printing information for your dissertation are given on the KSP homepage: <https://www.bibliothek.kit.edu/cms/ksp-weg-zum-buch.php> (English translation possible via built-in Google translator)
- Before printing answer the KSP technical questions as follows:
 - Cost absorption for printing: by IMK-TRO (if agreed by the head of your group);
 - Form of publication: print on demand;
 - Series of publication: IMK-TRO institute series;
 - Title of series: Wiss. Berichte des Instituts für Meteorologie und Klimaforschung;
 - Book format: DIN-A5.
 - Number: leave blank
- The KSP printing offer has to be approved by the head of your group. Payment is done by IMK-TRO at Campus North (Großforschungsbereich).
- Currently 9 copies have to be handed out to Mrs. Beideck at IMK-TRO, CS for IMK and other libraries. The remaining 16 copies are provided for your individual purposes.
- If you have any questions concerning the print of the thesis, you can ask Michael Kunz (kunz@kit.edu).

Authors publishing at KSP are entitled to benefits of an allowance paid by the „Verwertungsgesellschaft Wort (VG Wort)“, in case that you are registered at „VG Wort“ (see <https://www.vgwort.de/die-vg-wort.html> for details, German only).

References

- [1] Karlsruhe House of Young Scientists registration: https://www.khys.kit.edu/english/registration_with_khys.php
- [2] Doctoral agreement: https://www.khys.kit.edu/english/conclusion_doctoral_agreement.php (This is part of the KIT intranet. Thus, you have to be in the KIT network and you need a KIT account to access this website.)
- [3] Docata: <https://docata.khys.kit.edu/welcome?1>
- [4] LaTeX template for dissertation: <http://www.imk-tro.kit.edu/8317.php> (Templates in German) or <https://www.imk-tro.kit.edu/english/8317.php> (Templates in English)
- [5] GRACE: <http://www.grace.kit.edu/english/index.php>
- [6] MATHSEED: <https://www.mathsee.kit.edu/english/gradschool.php>
- [7] Enrollment as a student: <https://www.khys.kit.edu/english/enrollment.php>
- [8] KCDS: <https://www.kcde.kit.edu/index.php>

Contact

Contact persons for specific tasks/questions regarding your doctorate are given in the text above.

For question concerning your PhD you may contact the **PhD representative** of your institute.

Contact persons for comments/feedback to this IMK-TRO doctorate guideline document:

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