

Dissertation at the Paul Scherrer Institute – a Guideline (RL-13-10-01)

Relevance of a PhD thesis

A dissertation is an original piece of scientific work, containing results and insights that have never been obtained before. In this sense, carrying out a PhD thesis is an exciting endeavor and a unique period of your life. While continuing your scientific education, you are expected to prove your ability for independent scientific work, and generate your own novel results. Of course, great science is carried out in teams in which your work is embedded. Take this chance and consider the years of your thesis as a challenge, in which motivation, perseverance and dedicated work will bring you to the forefront of science, and will expand the boundaries of scientific knowledge by the results and insights of your doctoral dissertation.

Guidance

Your PhD work is guided by a scientist and mentor at PSI; other persons may be involved depending on the project. The work is supervised by your thesis advisor, who is a professor at the university where you are inscribed as a PhD student, and may be internal or external to PSI. This constellation has been made known to you when you interviewed for the PhD position. At a later stage, additional external co-referee(s) will be appointed for judging your thesis and taking part in the final exam.

Guidelines

- **Research plan**
You are expected to submit a research plan at the academic institution where you are inscribed, typically within 6 months after definite admission. A skeleton for this plan has often been formulated within the framework project of your thesis. You will supplement this draft based on your reading and experience during the first few months, and will discuss it in detail with your advisors prior to submission. All involved persons are aware that progress in science is based on sometimes unexpected discoveries, on successes and failures, and that it may become necessary to modify the plan in the course of the thesis.
- **Experimental work**
PSI provides cutting edge and unique experimental facilities, and strives for highest standards of safety and professionalism. Your direct advisor or mentor will introduce you to the experimental techniques as required. If you are in need of additional instructions, in particular with respect to safety, do not hesitate to ask – members of staff will be glad to assist you.
- **Reporting**
We are keeping complete and transparent records of our experimental results for future reference. Periodically, the progress achieved, difficulties encountered, and (preliminary) results obtained should be analyzed and documented in intermediate reports, which will form the basis for an in-depth discussion with your advisors. There are various ways in which this can be achieved, and you should agree upon the form and sequence of these reports with your advisors.

- **Ethical guidelines**
Scientific integrity is one of the highest assets in academic research. Corresponding guidelines are available at PSI, based on international and national recommendations. You must consult these guidelines and consider them carefully in your daily work.
- **Publications**
Peer reviewed publications are one important output category in scientific research. In submitting a publication to a journal, you are exposing your results to the peer review by the community in your field, and – after acceptance for publication – make them available to researchers worldwide. Your advisor will introduce you to this process, and encourage publication as soon as adequate results have been achieved. Ideally, the main results of the work would be published or submitted before the completion of the thesis.
- **Duration**
The target time for your thesis is three years, and exceptionally the duration can be extended to four years. Completing a thesis within this timeframe is an ambitious target that requires motivation, dedication, and perseverance. With reference to your thesis plan, the regular meetings with your advisors will help you to relate your progress to the envisaged schedule, and to take auxiliary measures if required.
- **Writing the thesis**
Your thesis should be structured according to established standards, for which examples are available within your laboratory and department. Publications that you have formulated before will provide input material, and facilitate your writing. Please allow for adequate time for your advisors to give you feedback on the complete thesis draft or parts of it, as agreed.
- **Thesis exam**
The oral exam will represent an opportunity to discuss your results, but also to demonstrate your familiarity with the wider field of research. In addition to the formal exam, you will be offered an opportunity to present your results to a broader audience in an institute seminar, which takes the role of the classical "thesis defense" in academic tradition.
- **After the exam**
Examiners may have made suggestions that you need to incorporate before submitting printed copies of the final version of your thesis. Perhaps there are plans to complete additional publications, which you should discuss in advance with your advisors. As we are obliged to maintain records of our work according to the PSI guidelines, please make sure to deposit an ordered documentation with your project head, including laboratory journals or equivalent material. Confidentiality with respect to proprietary information to which you have been granted access, and other legal obligations from your project and contract persist also after you have completed your time at PSI.

We are glad that you have chosen PSI for carrying out your PhD thesis. Completing a dissertation is a challenge, but it should also represent a rewarding and enjoyable experience within a supporting team. Colleagues and responsible persons are committed to help you to succeed.

PSI, January 2010