Aalto University
School of Electrical
Engineering

Quality of doctoral dissertations

Antti Räisänen
Chairman
Doctoral Programme Committee

16th August 2011

GUIDELINES FOR PRE-EXAMINERS OF DOCTORAL DISSERTATIONS

Detailed guidelines for pre-examiners of doctoral dissertations

Aalto University School of Electrical Engineering, Doctoral Programme Committee

According to the Degree Regulations, a doctoral dissertation may consist either of a single monograph or of several publications or manuscripts accepted for publication, supplemented with a compendium of these publications summarizing the goals, techniques and discoveries of the research. The articles may include co-authored publications, provided that the doctoral candidate has created independent contributions to them.

A publication here is taken to mean a refereed (peer reviewed) scientific article which has been published or accepted for publication in a scientific journal or other refereed printed work.

The manuscript of the dissertation submitted for pre-examination must be complete and its language must be faultless.

GUIDELINES, continued

Tasks of a pre-examiner

The purpose of the pre-examination is to establish whether the manuscript fulfils general quality requirements. Therefore, particular attention should be paid to the following aspects:

1. A dissertation must contain new scientific findings in its area of research.

2. Methods, experimental setups, measurements, and the data presented in a dissertation should withstand the scrutiny appropriate for scientific research.

3. The author is to present his/her achievements and assertions clearly and scientifically.

In his/her statement on a dissertation manuscript, the pre-examiner should estimate whether the candidate's contribution to the dissertation has been sufficient. The pre-examiner should approach an article dissertation as a whole, regardless of the fact that the separate articles have already been accepted for publication in refereed series. It is required that an article dissertation, examined as a whole, fulfills the scientific requirements of a scientific dissertation. When examining a dissertation manuscript, the pre-examiner may compare it against the standard of the dissertations accepted in his/her own university.

GUIDELINES, continued

If necessary, a pre-examiner may discuss the thesis with the doctoral candidate or with the supervising professor in order to confirm arguments, aspects or data presented in the thesis. Owing to the time limit imposed on the pre-examination, the examiner should not embark on an actual supervision of the research by the doctoral candidate. The pre-examination statement shall concern the original manuscript submitted to examination and not a possible later revised version. In his/her final statement, a pre-examiner may propose additions, corrections, and deletions to the thesis (monograph) or to the compendium part of the thesis (article dissertation).

The pre-examiners shall submit their statements directly to the Chairman of the Doctoral Programme Committee, not to the supervisor, the department or the doctoral candidate, with the exception of minor stylistic corrections, which may be submitted directly to the doctoral candidate. If such corrections have been suggested, this should be noted in the statement.

GUIDELINES, continued

The pre-examiner should clearly state a judgment on whether permission to publish the dissertation should be granted (as is, after minor revision, after major revision, possibly after major revision and re-examination by the pre-examiner(s), or not acceptable).

After the Doctoral Programme Committee has received the pre-examination statements, it may, at its discretion, request from the doctoral candidate a response to the pre-examiners' comments and a list of corrections made accordingly, confirmed by the supervising professor. The Doctoral Programme Committee may also decide to send the revised manuscript for additional review to the pre-examiners.

A pre-examiner is requested to present his/her statement within 8 weeks from the initial receipt of the official request, so that the examination process of the dissertation can be completed within the time set by the regulations of the Aalto University School of Electrical Engineering. In case of the statement not being obtained within a reasonable time, the Doctoral Programme Committee may be obliged to consider appointing another pre-examiner.

General quality requirements; monograph or article dissertation

The candidate shall pay special attention to the following points:

1. The dissertation shall contain new scientific knowledge in the field it represents.

- **o The dissertation shall clearly set forth the new findings.**
- **o The new scientific knowledge presented in the dissertation, or in the articles constituting it, shall be up to date.**
- **o The candidate's own contribution to the research shall be clearly stated.**

2. Methods, experimental setups, measurements and the data presented in a dissertation should withstand the scrutiny appropriate for scientific research.

- **o The research findings and the analysis of results shall be so explained and described that they can be replicated and confirmed.**

3. The doctoral candidate shall present the results and conclusions clearly and in such a way as to meet the scientific demands.

- **o The research shall be set in the correct frame of reference by referring to the research results and methods of other researchers relevant to the candidate's research; particularly important are references to the latest published results, not forgetting primary sources.**
- **o The dissertation should avoid verbosity; a concise style is appropriate for scientific presentation. Matters of opinion or emotional reactions are inappropriate to scientific style.**

Pre-examination -> publishing permit

Two independent experts, preferably at least one from abroad

The Doctoral Programme Committee requests the pre-examination statements, receives them, and decides with the help of them:

- **The manuscript can be published as is.**
- **The manuscript can be published after minor revision, revision is to be made to the satisfaction of the supervisor.**
- **Major revision is needed before publication, revision is to be made to the satisfaction of the Doctoral Programme Committee after supervisor's review.**
- **Major revision is needed, a revised manuscript and a report on corrections/changes/counter-arguments must be sent back to the pre-examiner for re-examination.**
- **Reject, the current thesis manuscript is not acceptable.**

Shortcomings of submitted manuscipts

The following shortcomings are too common in the manuscripts submitted for pre-examination:

- **Symbols in the list of symbols are not in the correct alphabetic order.**
- **Mathemathical symbols and abbreviations are mixed together in one list.**
- **List of references has shortcomings.**
- **The text has not been checked by a native English speaker.**

Shortcomings of submitted manuscipts

Symbols in the list of symbols are not in the correct alphabetic order.

Remember that both Roman and Greek alphabets have their own alphabetic orders, but they cannot be mixed. For example, omega (ω, Ω) is definitely the last symbol of the Greek alphabets and has no place in the Roman alphabet system.

Mathematical symbols and abbreviations are mixed together in one list.

Symbols and abbreviations should have their own lists both in the correct alphabetic order, otherwise the lists are often useless.

List of references

- Remember, that only one standard of presenting the references is allowed in one article or in one thesis manuscript.
- The IEEE standard is recommended, because we are at the **School of Electrical Engineering!**
- But this does not mean that you go to the IEEE Xplore Digital Library and copy the references from the list. The IEEE Xplore deliberately presents its publication names in a reversed order.
- One should always open the reference and observe there the correct name of the publication (name of journal or name of conference proceedings). One may ask why do you refer to an article if you do not care to open and read it?
- On the other hand, using the IEEE standard does not mean that the title of the article is copied directly from the article (upper case first letters) but the style should be copied from any IEEE publication reference list (lower case first letters in the article title and upper case first letters in the publication, i.e. journal or proceedings name). At least, one should be consistent in presenting all references in the same way!
- Another very important matter is that the standard requires also presenting the page numbers (all journal articles have page numbers!) and most conference articles have either pages numbers or a paper identifier number.

List of references

As the title and authors of an article appear in the journal:

IEEE TRANSACTIONS ON ANTENNAS AND PROPAGATION, VOL. 46, NO. 8, AUGUST 1998 1189

A Large Planar 39-GHz Antenna Array of Waveguide-Fed Horns
Tomas Sehm, Arto Lehto, and Antti V. Räisänen, Fellow, IEEE

As it appears in IEEEXplore:

A large planar 39-GHz antenna array of waveguide-fed horns
Sehm, T.; Lehto, A.; Raisanen, A.V.;
Antennas and Propagation, IEEE Transactions on
Volume: 46 , Issue: 8
Digital Object Identifier: 10.1109/8.718574
Publication Year: 1998 , Page(s): 1189 - 1193

As it appears as a reference in the same journal:

T. Sehm, A. Lehto, and A. V. Räisänen, “A large planar 39-GHz antenna array of waveguide-fed horns,” *IEEE Trans. Antennas Propagat.*, vol. 46, no. 8, pp. 1189–1193, Aug. 1998.

List of references

As the title and authors of an article appear in a conference proceedings:

Proceedings of the Fourth European Conference on Antennas and Propagation

mm-Wave DRW Antenna Phase Centre Determination
P. Padilla, P. Pousi, A. Tamminen, J. Mallat, J. Ala-Laurinaho+ M. Sierra-Castañer, A. V. Räisänen

As it appears in IEEEXplore:

MM-wave DRW antenna phase centre determination
Padilla, P.; Pousi, P.; Tamminen, A.; Mallat, J.; Ala-Laurinaho, J.; Sierra-Castaner, M.; Raisanen, A. V.;
Antennas and Propagation (EuCAP), 2010 Proceedings of the Fourth European Conference on
Publication Year: 2010 , Page(s): 1 - 4

As it appears as a reference:

P. Padilla, P. Pousi, A. Tamminen, J. Mallat, J. Ala-Laurinaho, M. Sierra-Castañer, and A.V. Räisänen, “Mm-wave DRW antennas phase centre determination,” in *Proc. of the 4th European Conference on Antennas and Propagation, EuCAP2010*, Barcelona, Spain, 12-16 April, 2010, p. Thur-64/1843763.

Dissertation: high quality

High scientific quality: new scientific findings obtained with acceptable methods and reported clearly and honestly.
Work mostly published or at least publishable in high-quality peer-review journals!

Also the appearance and readability must be of high quality!

Remember, that the instructions concerning the doctoral thesis manuscript state:
"The manuscript of the dissertation submitted for pre-examination must be complete and its language must be faultless."