

**Statutes of the selection procedure for the
Wilhelm and Else Heraeus Dissertation Prize
awarded jointly by the
Departments of Physics
within the
Faculties for Natural Sciences and Mathematics
at the
University of Wuppertal
and the
Heinrich-Heine-University Düsseldorf
(translated from the German version of December 2019)**

§1 Preamble

The Wilhelm and Else Heraeus Foundation supports, initially for a limited period of five years, with an annual amount of € 5000, a dissertation prize jointly awarded by the Physics Department of the Bergische University Wuppertal and the Physics Department of the Heinrich Heine University Düsseldorf. The “Physics Dissertation Prize” is awarded in accordance with the following rules and regulations.

§2 Application requirements

At the time of application eligible applicants have completed their doctorate with Summa Cum Laude or Magna Cum Laude. Application is possible once within a year after completion of the doctorate degree. Evidence of the latter is the date of the oral doctoral examination on the provisional (doctoral) certificate, in conjunction with the closing date for applications as stated in the announcement for the respective year.

In addition to the cover letter, the following documents should be included: copy of the master transcript; copy of the doctoral certificate; copy of the dissertation; if available, copies of publications resulting from the dissertation. Applications are sent electronically to the address provided on the announcement. The validity of applications requires that the aforementioned documents are submitted in PDF format.

§3 Selection procedure

3.1 Commission - The award recipients are selected by a joint commission of the two physics institutions listed in the preamble, consisting of members from the corresponding sub-groups for these institutions in equal proportion. The commission includes 4 professors, 2 permanently employed researchers with doctoral degrees and 2 members of the physics student councils. The student council members must have completed a bachelor's degree in the natural or engineering sciences or in mathematics or computer science. However, they

must not have started their doctoral studies¹. The commission members are nominated by the physics institutions named in the preamble for a period of 2 years. It is important to ensure that commission members do not belong to the same research group or chair. The commission elects a chairperson and a deputy. In this order, they are also spokespersons for the commission. The commission is quorate in all phases of the selection process if 6 out of 8 members are present. Resigned members of the commission must be replaced promptly for the remaining term of office of the commission.

All meetings must be logged. Minutes must be approved by the commission at the next meeting. In addition, all documents arising in the course of the selection process must be kept in a dedicated secretariat five years after the end of this selection process². The documents should only be accessible to the respective chairpersons and their deputies. Other commissioners can view them on request. All information on the procedures must be treated confidentially by all commissioners.

3.2 Details of the selection process consisting of pre-selection and colloquium -

Ranking - Each commission member first creates an individual ranking of the applications based on the above-mentioned documents as well as the assessment of the dissertation according to the criteria catalog in Appendix A. The best 4 applicants based on this ranking of all commission members are invited to the "Wilhelm and Else Heraeus Dissertation Prize Colloquium". Should one of these four invitees cancel the participation, then a maximum of a fifth person can be nominated on the basis of the ranking. After acceptance of all colloquium participants, the remaining applicants will receive a corresponding written notification from the commission spokesperson.

3.3 Prepossession - in case of prepossession of a commission member (supervisor or thesis reviewer of an applicant; research group member, ...) this applicant may not be ranked by this commission member. Commission members are obliged to inform the spokesperson of the commission of any possible prepossession.

3.4 Colloquium - The "Wilhelm and Else Heraeus Dissertation Prize Colloquium" is open to the public and will be announced by the news media associated with the two universities under this name (if possible with a list of the lecture titles and the names of the speakers). It takes place annually at one of the two locations. Each of the four selected applicants will give a 30-minute lecture on the content of their dissertation. The lecture is followed by a public question and answer period of a maximum of 10 minutes. The moderator of the event is usually the spokesperson for the commission. The members of the commission

¹ It should be noted here that student members have the same voting weight as the other commission members. They should therefore possess relevant basic knowledge for assessing the written and oral presentation of scientific projects. On the other hand, prejudice should be avoided that could result from being too close, including temporal proximity, to the research group of an applicant.

² The five year period begins with the date of the award ceremony.

independently evaluate the lecture and the answers to the questions according to a criteria catalog previously defined by the commission in accordance with Appendix B. Following the colloquium, the commission meets and determines the first place and thus the winner of the award in accordance with Appendix B.

§4 Announcement and award ceremony:

4.1 Announcement - Within two weeks of the colloquium, the speakers will be informed of their personal result in writing by the spokesperson for the commission or, if necessary, by the deputy.

4.2 Award Ceremony - The award ceremony takes place during a joint ceremony of the two physics facilities mentioned in the preamble. This can be done in alternating order in Wuppertal and Düsseldorf. The ceremony may e.g. for reasons of better prominence, take place as part of an annual graduation ceremony. However, it is explicitly identified in the program under the heading "Awarding of the Wilhelm and Else Heraeus Dissertation Prize in Physics".

§5 Prize money:

5.1 The Wilhelm and Else Heraeus Foundation provides, initially for a limited period of five years, funds of up to € 5000 annually for the best dissertation in the Physics Departments of the Bergische University Wuppertal and the Heinrich Heine University Düsseldorf.

5.2 Of the total amount of up to € 5000, € 4000 is to be used as prize money and the remaining sum of up to € 1000 is to be used in support of the colloquium and/or the award ceremony.

Appendix A.

- Criteria catalog of the individual ranking and final overall ranking of applicants in the pre-selection -

- *A.1 Individual ranking in the preselection:* Each commission member independently and independently compiles a complete ranking (1,2,3, ...) of the applications received ³, whereby number 1 is the best application, number 2 the second best, etc. This ranking list signed and dated by the commission member must be submitted to the chairperson in a sealed envelope.

³ The documents are made available electronically to the commission via a dedicated and specially protected server (BSCW).

Basically, the following documents have the greatest weight in the evaluation: the dissertation itself, the review reports of the dissertation, as well as publications that have emerged from the dissertation or are directly related to it ⁴.

Possibly known citations of the dissertation or of the aforementioned publications can also be taken into account. If, based on these documents, two applications are tied, the transcript of the course achievements can be used as a supplement. The following points should be considered in particular: (i) Technical quality, informative value and transparency of the expert opinion. In principle, the final grade "summa cum laude" should not be given a priori priority over the final grade "magna cum laude". A background check of the referees at e.g. Google Scholar is recommended. (ii) Duration of the doctorate, whereby the special quality of a research achievement must also be taken into account. Delays that are not the applicant's fault, such as serious illnesses, periods of upbringing or the unforeseen failure of research facilities, must also be taken into account. However, the corresponding periods should be credibly documented ⁵. (iii) Own impression of the scientific quality, timely provision of the doctoral achievement as well as the quality of the presentation of the scientific work and its result in the dissertation.

A.2 Final ranking in the preselection: The opening of the envelopes and the evaluation of the individual assessments is carried out by the chairperson of the commission in the presence of another commission member. The result is to be recorded and is presented to the entire commission at a meeting. The final ranking of application A is based on the formula

$$R(A) = \sum_{k=1}^6 \frac{1}{LP(k)}$$

The sum extends over the top 6 entries LP of the individual evaluations of the commission members for application A. Example: Application A was evaluated by 6 committee members. Two commission members were biased and thus were not allowed to submit a rating. In total, application A received the grades (1,1,2,3,4,1, -, -) according to the evaluations of the individual commission members. Hence $R(A) = 3 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} = \frac{49}{12} = 4,083 \dots$ Another application B has been evaluated by 8 commission members. The result is (2,2,1,1,3,2,5,3). From this follows $2 + \frac{3}{2} + \frac{1}{3} = \frac{23}{6} = 3,833 \dots$ The grade 5 and one of the 3 grades were not counted here. In comparison, application A has the higher rank and tops application B. Should there be one or more unexpected ties between the top five applications, the commission must resolve these in a joint discussion of the applications concerned.

Appendix B.

⁴ Publications that are not directly related to the dissertation, e.g. since they come from a previous degree, should not be taken into account.

⁵ As a rule, such downtimes are mentioned in the supervisor's report. However, they can also have already been specified in the application letter.

- Catalog of criteria for determining the award winner based on the “Wilhelm and Else Heraeus Dissertation Prize Colloquium” -

B. 1 The lecture is permitted in German or English.

B.2 Criteria:

1. Content - in particular: concrete, no factual errors, essential information is presented
2. Lecture style - in particular: linguistic expression, eye contact, free text
3. Structure - in particular: clarity and logic of the structure 'follows a common thread'
4. Effectiveness - in particular: the material presented is essential and allows a good understanding of the topic on the basis of undergraduate physics; is the listener convinced of the significance and scientific quality of the underlying work?
5. Duration - in particular: how well the available time is kept
6. Layout and technical quality of the presentation - in particular: spatial layout, legibility
7. Questions - in particular: Are the answers specific and to the point? Are the answers appropriate in length? Does the lecturer make a confident impression (including appropriate respect for the questioner)?

B.3 Each member of the commission assigns a 1, 2, 3 or 4 for each point in the catalog of criteria including, if appropriate, ± 0.3 (e.g. 1.3 or 2.7). From this, each commission member determines the overall grade of the lecture (= arithmetic mean of the partial grade).

In the meeting of the commission following the colloquium, an overall grade for each lecture is determined from these grades (= arithmetic mean of the individual grades). In the event of an existing bias, this member's grade will not be taken into account. The award winner is the person with the best grade. In the case of equal censorship, the ranking of the preselection is decisive.

The Commission's decision is not subject to appeal.