

## **Text approved by the Doctoral Studies Committee in Physics on February 22, 2016**

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In view of art. 4, paragraph 2, of the Law July 3, 1998, n. 210, et seq. Modification. and additions  
Given the 45 of 02.08.2013 D.M (Regulation laying down rules for accreditation of the Institutions and doctoral courses and criteria for the establishment of doctoral courses by accredited bodies)  
In view of art. 26 of the Statute of the University of Parma, issued by D.R. n. 14 of 16.1.2012, modified by D.R. n. 253 of 04.03.2013 and subsequently with D.R. n. 3563 of 11/12/2015  
Given the University Academic Regulations, issued by D.R. n.3496 of 11/22/2013  
Given the Regulations of the Courses for the attainment of the PhD of the University of Parma, issued by D.R. 1143 of 31/3/2010  
Given the Regulations of the Courses for the attainment of the PhD at the University of Parma (in the DM application 45/2013 for the courses set up by the XXIX cycle), issued by D.R. n. 2275 of 06.27.2013 and amended by D.R. n. 1220 of 9 June 2014,  
Given the Regulations of the Graduate School of Science and Technology of the University of Parma, approved March 10, 2015

it adopts the following

### **REGULATION for the course of Doctoral Training activities in Physics from the University of Parma.**

#### **Art. 1 General**

The PhD in Physics aims to provide the skills that are necessary to carry out research of high scientific and professional qualification in the field of Physics.

The PhD program in Physics is part of the Graduate School in Science and Technology and inherits, therefore, also its general guidelines.

The PhD program in Physics is based at the Physics Section of the Dipartimento di Fisica e Scienze della Terra "Macedonio Melloni" at the University of Parma. As a result, fulfillment of pertaining administrative obligations of the course is carried out at the aforementioned Department.

The PhD program relies on the collaboration of other bodies and public as well as private entities of high cultural and scientific qualification, with which specific agreements may be activated.

#### **Art. 2 - Research Areas and Topics**

The PhD in Physics consists of the following research areas:

1. **Condensed Matter Physics and Materials**
2. **Theoretical Physics**
3. **Biophysics and Applied Physics**

for which exist common, as well as more specific, training activities.

In these areas, the Doctoral Studies Committee identifies specific research themes to which is given higher priority. These themes will be indicated in the call for admission to the PhD program, and advertised on the PhD in Physics website. The topics are selected by the Doctoral Studies Committee using information that the Chair collects from members of the Committee, regarding the availability of funds for the proposed research, the scientific production of the applicants (individuals or groups) and those candidates who have worked with them over the last 5 cycles, assignment of doctoral students to applicants (individuals or groups) in the last 5 cycles. The themes are chosen within the research areas listed above in order to meet the development plans for the research activities in Physics of the Dipartimento di Fisica e Scienze della Terra, and the possible availability of scholarships on projects and/or specific agreements. The selected topics are listed explicitly in the call for admission, in order to attract participants with a curriculum suitable for the advertised research activities.

The selection of candidates is carried out based on the evaluation of (i) the curriculum and a research project focused on one of the topics listed in the call, and (ii) an interview. When allowed, the interview may be held by videoconference and in English, as established by the current University Regulations.

### **Art. 3 - Tutors**

At the beginning of each cycle, and taking into account the choices made by the admitted candidates, the Doctoral Studies Committee assigns to each student one of the topics advertised in the call and appoint one or two **tutors**, at least one of whom must be a member of the Doctoral Studies Committee and is the representative for the theme chosen by the student.

The Tutors have the task to monitor the training of the student, checking for continuity of participation in various activities with particular regard to the quality and quantity of research results of the PhD student, and report to the Doctoral Studies Committee.

Within three months from the beginning of the PhD Course, upon invitation by the Chair of the Doctoral Studies Committee, PhD students are required to submit to the Committee their research projects, in the form of a written text and an oral presentation.

### **Art. 4 - Training Activity**

The training project of the PhD candidates is divided into:

- **Research activities;**
- **Study activities;**
- **Training periods** in other Universities, Institutes, Organizations or Research Laboratories at private public entities, in Italy and / or abroad;
- **Support to teaching activities** in line with the provisions of the University Regulations;
- **Outreach activities** (popularization of Physical sciences and promotion of the Physics degree with high school students).

**Research activities** related to the doctoral thesis must bring original contributions. It is required that the results are published in international scientific journals of recognized prestige and that, as a rule, at the time of the final exam, at least one article appears accepted by the journal to which it was submitted.

The **study activity** is defined by the Doctoral Board in the PhD outline for each cycle and is divided into:

- a) specific courses for Ph.D. students
- b) Teachings borrowed from other courses (mostly Laurea Magistrale in Physics)
- c) Seminar attendance
- d) participation in workshops and national and international specialist schools
- e) participation in cross-training activities intended to develop soft skills, as defined in art.4, paragraph f of D.M. M 45 of 08.02.2013 (activities, also shared between multiple doctorates, disciplinary and interdisciplinary training and language and computer training, as well as, in the management of research and knowledge of European and international research systems , the exploitation of research results and intellectual property).

In order to organize the training activities, the Doctoral Board prepares a list of the courses offered to PhD students.

Students are required to provide documentation to the Doctoral Board certifying attendance of course with positive evaluation by the teacher(s).

The **training periods** in other Universities or Institutes or Research Laboratories at public or private entities, in Italy and / or abroad for at least three months are strongly recommended (from XXXI cycle).

The **support to teaching activities**, to be carried out compulsorily, must be in line with the rules established by the University Regulations and be approved by the Doctoral Board. The educational activities will consist in:

- a) assignment of supplementary or ancillary educational tasks (support to exercise and laboratory activities carried out within courses activated in Laurea triennale and Magistrale courses at the University of Parma)

b) collaboration with students in research activities relating to the final examination and thesis.

**The outreach activities** (popularization of Physical sciences and promotion of the Physics degree with high school students) is considered among the duties of PhD students and takes place within the promotional schemes of the Physics degrees at educational institutions (e.g. high schools) and outreach activities organized by the Department.

#### **Art. 5 Credits**

Each PhD student will have to acquire **60 Credits (CFU) per year, for a total of 180 credits over three years**. Of the 180 credits total, **at least 26** must be earned through **study activities** and **outreach activities** (defined in accordance with those reported in the previous art. 4), taking into account the following schematic conversion:

- **Study activities** (range = 20-60 credits in three years):

- for university courses, 1 CFU is equivalent to 7 hours of lectures and 12 hours of exercises / laboratory;
- for workshops and schools, 1 CFU per day of activities;
- for cross training activities, 1 CFU per day of activities;

To attend courses in other universities PhD students must submit the appropriate authorization request.

- **Support to teaching activities** (range = 3-9 CFU, in the three years)

- 1 CFU equals 12 hours of exercises and support to laboratory activities;

- **Outreach activities** (range = 3-10 CFU, in the three years)

- 1 CFU is equivalent to 8 hours, considering both the preparation and the actual carrying out of the activities;

- **Training periods** in other Universities or Institutes or Research Laboratories at public or private entities, in Italy or abroad:

- 5 credits for every month spent at the host institution;

- **Research** at the University of Parma

for each year, this activity is conventionally assigned a number of credits in addition to those obtained with other activities, up to the 60 credits required.

#### **Art. 6**

##### **Rights and duties of Ph.D. students**

For the general aspects on the rights and duties of PhD students, it refers to Article 6 of the University Regulations for the Attainment of the PhD title.

It is the duty of the PhD student to report periodically to the tutor(s) assigned to him/her about the training activity and progress of the project.

It is mandatory for each PhD student:

- to follow the planned educational activities (educational activities, support teaching activities, outreach);
- to submit to the Doctoral Studies Committee, at the end of each year of the PhD, a written report, previously approved by the Tutor(s), in which the main results of research and other training activities are summarized;
- to present to the Doctoral Studies Committee, at the end of each year of the PhD (except in cases where the PhD student is doing an internship at another location), the main research results.

#### **Article 7:**

Final note

For anything not expressly covered by these regulations, please refer to the University regulations and the Graduate School of Science and Technology, mentioned in Art. 1.