

Memorandum of Understanding

between

**The Faculty of Mathematics and Natural Sciences,
University of Bonn, Bonn, Germany
and
The Institute of Theoretical Physics,
Chinese Academy of Sciences (CAS), Beijing, China**

regarding a

Common Ph.D. program in Physics

1. Introduction

This document implements the Common Ph.D. program (from hereon called the program) in physics between the Faculty of Mathematics and Natural Sciences of Rheinische-Friedrich-Wilhelms Universität Bonn (from here on called Bonn University) (UB) and the Institute of Theoretical Physics of the CAS (ITP). The degree given at UB is called Dr. rer. nat. . Students participating in the program will be enrolled in the Ph.D. Programs of both Universities/Institutions. In recognition of the completion of the program, both UB and ITP will confer to the student a common certificate about the successful participation in the program. The Ph.D. degree will be granted from the student's home institution. The efficiency of the program management in the short term and its sustainability in the long term are considered important goals to all involved institutions.

To fulfill these goals, the program stakeholders are committed to pursue the integration of the objectives.

The objective is the construction of a coherent common Ph.D.-level program between UB and ITP. The program refers to the three year research phase of the Ph.D. program at UB and the students who have passed the core courses at ITP as specified in Section 2.1.

For an initial period of four years, the students are enrolled who perform research related to the Collaborative Research Center 110 "Symmetries and the Emergence of Structure in Quantum Chromodynamics" (from here on called CRC 110). If successful, this agreement will be extended to other fields of physics and astrophysics that are of common interest to both UB and ITP.

2. Program Structure

2.1. Admission

Admission to the doctoral program will be granted only to applicants who show convincing evidence of high-order analytical skills, intellectual curiosity, and the ability to work independently in pursuing scholarly research.

The admission requirements and criteria are set by both UB and ITP. Students from UB must have successfully passed their M.Sc. requirements (or equivalent) and the students from ITP must have successfully passed the core courses in advanced quantum mechanics, quantum field theory, group theory, quantum gauge field theory, and particle physics.

Candidates of the program come only from the students who have been admitted either by UB or ITP. Details on the selection process are given in Section 3.

2.2. Organization

All students are held to the highest scientific standards, and must satisfy all requirements of the involved programs, as mapped in the following common program structure:

- **Period of stay.** Students will stay typically 60%/40% at the home/guest institution, for an expected duration of three (3) years. Students must satisfy the minimum residency requirements of both institutions.
- **Co-supervision** - Theses will be co-advised, with at least two co-advisers, one from UB and one from ITP.
- **Non-course requirements** – Students must satisfy non-course requirements set by both Physics Ph.D. programs, for example, the minimal publication requirement at ITP.
- **Defense of dissertation** – Involves delivery of a dissertation deliberately written for the purpose, its corresponding discussion, and approval. The dissertation will be defended in a public oral examination, recognized by both contracting parties, at UB or at ITP or at both, as agreed on a case by case basis. Video-conferencing will be allowed and encouraged.

3. Management Model

Leadership of the Common Ph.D. programs

The Dean of the Faculty of Mathematics and Natural Sciences and the Director of the ITP will appoint at least two Ph.D. co-directors, one in ITP and one in UB, and form a Common Program Committee led by them. The committee will be responsible for (i) recommending students who will be considered for admission to the program, (ii) day-to-day managing of each program, and (iii) representing the program in all instances.

Announcement and Application

- The Common Ph.D. Program will be announced in several ways by both sides.
- The students who have been admitted by either UB or ITP will be notified of the program promptly.

Admission and Selection

- The Common Program Committee will recommend students for the common program from a pool of students who have already been admitted by either UB or ITP.
- Every student who applies should have one initial contact point both at UB and ITP. Initial contacts should be co-advisors of his or her choice.
- Final decisions on admissions to the program will be made by each institution according to its own policies and procedures.

Funding Process

- Students replying positively to the acceptance letter are enrolled in the program.
- The individual faculty members co-advising a Common Program graduate student are responsible for the expenses. They are generated in the first four (4) years from funds provided to the CRC 110 and individual funds of the Principal Investigators of that project. But we anticipate using the program as the foundation for application of funding to support other fields of physics and astrophysics of mutual interest to UB and ITP. This will allow both partners to expand their participation.
- This MoU shall not create a financial obligation for either party.

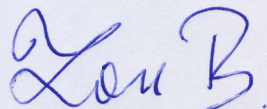
Compliance with Official Requirements

- All thesis examination boards are appointed and approved in agreement with the rules at UB and ITP.
- The thesis must be in English.
- Protection of the intellectual property developed during the research will be carried out in compliance with the specific procedures of each of the countries and institutions involved in this protocol.
- Subject to legislation on doctoral studies in force in each contracting university, the selected candidates will register for study at both UB and ITP. All Ph.D. candidates must pay tuition and other required fees at their home institution if applicable. The host institution will provide tuition waivers, as relevant.
- If issues not covered by this Agreement arise, the parties will reconvene to decide them.

Institute of Theoretical Physics
Chinese Academy of Sciences

Date: 2012-09-17

Director of the Institute

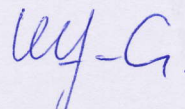


Professor Bing-Song Zou

Faculty of Mathematics and Natural Sciences
Bonn University

Date: 2012-09-17

Dean of the Faculty



Professor Ulf-G. Meißner