

## *Fellowship Announcement – Graduate School “Symmetry Breaking”*

One of the key ideas in modern physics is the realization that symmetries are of fundamental importance for our understanding of the laws of nature and the structure of matter. The hallmark of the Graduate School *Symmetry breaking in fundamental interactions* is the application of a range of complementary theoretical and experimental methods for pursuing a common research goal. Research activities range from experiments at high-energy particle colliders to precision measurements using ion traps or ultra-cold neutrons. Three main areas form the basis for the Graduate School: "The origin of mass and the structure of matter", "The Standard Model and beyond", and "Breaking of fundamental symmetries". Precision measurements are the key to understanding of the role of symmetries in nature. The participating scientists are internationally renowned experts and have access to unique local facilities at Mainz, which play a special role for the training of graduate students. These include the electron accelerator MAMI-C, the research reactor TRIGA, and high-performance computing clusters. The principal investigators also contribute significantly to research activities at national and international laboratories, such as CERN, Fermilab, GSI, and ILL:

- [Theoretical High-Energy Physics](#) (Matthias Neubert, Stefan Weinzierl)
- [Experimental Particle and Astroparticle Physics](#) (Lutz Köpke, Stefan Tapprogge, Volker Büscher)
- [Experimental Atomic Physics](#) (Werner Heil, Jochen Walz)
- [Theoretical Hadron Physics](#) (Marc Vanderhaeghen, Hartmut Wittig)
- [Experimental Nuclear Physics](#) (Achim Denig, Concettina Sfienti)

### *What we offer*

The Graduate School offers up to 12 **PhD Fellowships** *at any given time* on a competitive basis. They are awarded solely on the basis of scientific excellence of the applicants. Fellowships come with a very attractive salary (gross monthly income up to 2200 EUR), as well as with individual travel grants (up to 2000.00 EUR p.a.). Admission to the Graduate School is open to all graduate students holding a Master's of Science degree (or equivalent) with a specialization in one of the areas listed below:

- Elementary Particle Physics
- Hadron and Nuclear Physics
- Atomic Physics
- Nuclear Chemistry
- Quantum Field Theory
- Lattice Gauge Theory

Admitted students have access to all resources of the school, can participate in the advanced lectures, seminars, semester meetings, annual retreats or summer schools and can apply for travel grants.

## Requirements

Besides meeting the basic formal requirements given by the regulations for PhD studies of the faculty, our candidates are only accepted to our program if they also meet the excellence criteria imposed by the graduate school. These include:

- excellent marks in the final degree from a recognized and internationally acknowledged university;
- top references;
- exceptional performance of the applicant in general,
- high qualification of the applicant for the advertised research project.

For outstanding applicants with a Bachelor's degree we offer a fast-track option but applicants will be asked to fulfill additional requirements/training (up to 14 months) before the start of the PhD.

Interested candidates who are about to receive or have already obtained an excellent Master's or outstanding Bachelor's degree in physics can apply, if there is mutual interest from a professor of the Graduate School. While fluency in English is required and must be proven knowledge of German is not essential.

To evaluate the quality of the exams, we follow international standards. Competition for the available positions is strong. To be considered for the program, the final grade of the degree must be equivalent to the grade "very good" for diploma and Master's students (final degree at least 1.5 equivalent to the German educational system). The following guidelines for selected countries and regions indicate an approximation of the required minimum level:

- China: Minimum 85% or GPA 3.4/4.0
- South Korea: 85% or B+
- Europe: Minimum grade of B+ (ECTS Grade)
- India: First Division with distinction (80% or GPA 9/10).
- Pakistan: Minimum of 80% or GPA 4.0/5.0
- Iran: Minimum 15/20

## How to apply

**Application is possible until December 14, 2014.**

Once we have received your complete application (incl. all letters of recommendation and the GRK referee form) it will be evaluated in the next meeting of the selection committee. There, all complete applications will be discussed and new fellows will be admitted. The starting dates of the fellowships are flexible.

Application to the Graduate School *Symmetry breaking in fundamental interactions* is only possible through our online-application system. Please note that there is no application fee.

Step-by-step application process:

1. Sent your curriculum vitae, transcripts and Bachelor's and Master's certificate to our Graduate Recruiter Dr. Kevin Anding ([anding@uni-mainz.de](mailto:anding@uni-mainz.de)) and up to 2 names of research teams you would like to join (Deadline 14.12.2014)
2. If you meet our basic requirements you will receive a link for online-registration
3. Register online (Deadline 06.01.2015)
4. Log-in to your online-account and submit the required information and documents before the deadline:

**Required documents (only PDF-files in upright position will be accepted):**

- Motivation letter outlining your research interests, how you intend to pursue those interests and your motivation to apply for a PhD position of the Graduate School *Symmetry breaking in fundamental interactions*
- Curriculum Vitae
- Bachelor's and Master's degree certificates and certified English or German translations
- University transcripts of Bachelor and Master showing your academic record (lists of courses and individual grades) in the original language as well as certified English or German translations. Please add a certificate about the grading system (i.e. minimum and maximum passing grade) of the University attended if it is not shown on your transcript.
- Proof of English language proficiency (preferably TOEFL, IELTS or on the basis of the certificate of having passed the German "Abitur")

Please note that it is **your obligation to inform your two referees** to submit a filled referee form (download [here](#)) and a letter or reference on your behalf directly from their institutional email to us. Should they not have such an email they need to send a scan of the referee form (as PDF-file) bearing the seal of their host institution and their handwritten signature. References sent from private email accounts (googlemail, yahoo, hotmail etc.) will not be accepted!

The online application system will only allow you to submit your application if all documents have been uploaded. Please make sure, that the size of single files does not exceed 1 MB.

Once we have received your **full application including the references** you might be asked to send supplementary material via email. In some cases, applicants will be invited for an interview before a final decision is made concerning their admission to one of our programs.