

# Student project: HGSFP Winter School 2007

**When** 16<sup>th</sup>–21<sup>st</sup> December 2007

**Where** Universitycenter Obergurgl, Austria ([www.universitycenter-obergurgl.at](http://www.universitycenter-obergurgl.at))

**Who** Students from all branches of the HGSFP

## Abstract

Within the framework of the student activities of the *Heidelberg Graduate School of Fundamental Physics* (HGSFP) we arrange a 5-days winter school at the Universitycenter Obergurgl, Austria. Lectures are planned for the three branches of the HGSFP both interdisciplinary, i.e., connecting several branches of the HGSFP, and specialized on the topics of each branch. Besides the guest program, the participating students should also prepare a short presentation of their Ph.D. project. Apart from the scientific training, a further concern of the winter school is to establish the graduate school as a platform to share both scientific knowledge and personal interests.

## Registration

The registration is open for all students of the HGSFP. The number of participants is restricted to 10 students per branch following the first come - first served principle, but there will be a waitlist in case of cancellations. Furthermore, if there are less than 10 registration for a certain branch, the spots will be filled by students belonging the other branches. Each participant it is expected to give a brief presentation about his/her Ph.D. work. There will be no application fees, the following benefits are included:

- bus transfer Heidelberg ↔ Obergurgl
- accommodation in a 2- to 3-bed room including demipension

## Program

There will be both separate and joint lectures for all three branches of the HGSFP. Each day, there will be a morning and afternoon session with an extended lunch break in between. The latter is at the students disposal, e.g., for further interdisciplinary discussions. For the last day, a joint lecture is planned which not necessarily has to deal with fundamental physics. In order to reduce the organizational efforts and to encourage collaborations within the Department of Physics and Astronomy, it is planned to invite preferentially current or former junior researchers of the HGSFP as speakers. However, the selection of topics and speakers is by far not completed thus suggestions are warmly welcomed. Possible topics are:

- formation of stars and planets (Astronomy & Cosmic Physics)
- functional renormalization group (Complex Quantum Systems; Cosmology)
- dark energy and modified gravitation theories (Cosmology; Cosmic Physics)
- nonlinear aspects of the Gross-Pitaevskii equation (Quantum Dynamics & Complex Quantum Systems)
- introduction to Floquet – Theory (Quantum Dynamics)
- dynamical symmetries (Quantum Dynamics & Complex Quantum Systems)
- statistical and numerical methods in High Energy Physics (Particle Physics)
- calculation of Feynman graphs (Particle Physics)

Besides the guest lecture program, at least one session is reserved for the presentation of the Ph.D. projects of the participating students. Another session is planned for non-scientific joint social activities.