



American University of Beirut



2007-08

# The PhD Program in Theoretical Physics

The Department of Physics offers a new doctoral program in Theoretical Physics will start as of 2008.

The educational objectives of the new program are:

- to provide an advanced training in physics
- to develop experience in independent fundamental research

The program provides students with opportunities to perform independent research in some of the most current vital areas of physics. The relatively small size of the department allows for close student-faculty interaction and individually-guided research and study.

## Admission Requirements

The applicant must hold a BS or MS degree in physics. Admission is determined on a competitive basis by evaluating the following:

- Academic transcript
- Three letters of recommendation
- GRE test results (general + subject)
- TOEFL score if applicable
- Interview that may be requested by the Department

The application procedure and the deadlines are set by the Admissions Office.

## Program Completion

- Completing of the course program of a minimum 27 credits beyond the BS level with a cumulative grade 85 or above
- Passing a Comprehensive examination
- Defense of a PhD thesis based on independent original research. Publication or acceptance of a research paper in an international refereed journal is required

## Financial Support

Graduate assistantships covering the tuition fees and stipend of \$800 per month are awarded upon admission to the PhD program. In return, students are expected to help in teaching undergraduate labs and recitations of introductory courses.

## Faculty Research Directions

**Khalil Bitar**, PhD Yale University: Theoretical high-energy physics, lattice gauge theories

**Ali Chamseddine**, PhD London University Imperial College Supergravity, supersymmetry, non-commutative geometry

**Mounib El-Eid**, PhD Darmstadt University Theoretical astrophysics, star evolution and nucleosynthesis

**Samih Isber**, PhD University of Montpellier Experimental solid state physics, magnetism and superconductivity in thin films

**Leonid Klushin**, PhD Polymer Institute, Russian Academy of Sciences. Theoretical soft matter physics, phase transitions in macromolecules

**Dimitry Polyakov**, PhD Rutgers University String theory, stochastic quantum field theory

**Wafic Sabra**, PhD London University Queen Mary College Black hole physics

**Malek Tabbal**, PhD École Polytechnique, Montréal Experimental thin film and plasma physics

**Jihad Touma**, PhD MIT Theoretical astrophysics, non-linear dynamics of self-gravitating systems

The PhD program will initially cover only theoretical directions of research. Experimental fields are to be included in the PhD program at a later stage. Current MS program includes theoretical as well as experimental directions of research.

## Facilities

- Up-to-date library facilities including electronic access to journals
- Computational Physics lab with a local cluster
- High-performance computing cluster at the Center for Advanced Mathematical Sciences

The PhD program in Theoretical Physics is supported by the Center for Advanced Mathematical Sciences at AUB, a premiere center of excellence for research in the mathematical sciences in the Middle East. The activities of the Center include organizing conferences, seminars and workshops, hosting international scholars and promoting regional and international cooperation.