



Babeş-Bolyai University
Faculty of Physics
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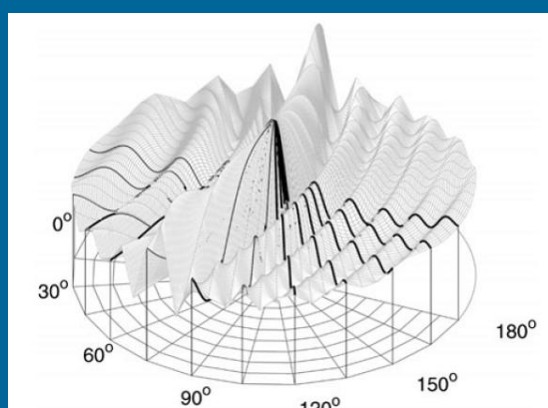
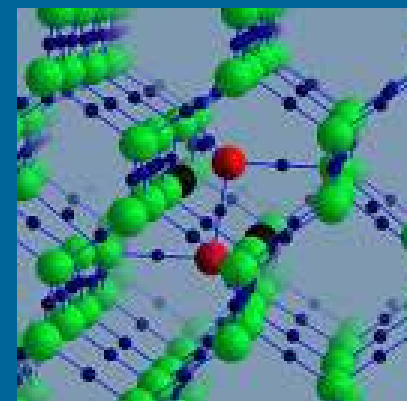
Master in Computational Physics

Short presentation of the masters programme

The Computational Physics Masters is an English language program. In 2008 will start in two different course structures. For students graduating after 4 or 5 years of BSc studies the classical three semester programme will be available, and for students who followed the basic 3 year study scheme in the Bologna system a four semester version will debut. The targeted students are graduates from the Physics, Mathematics, Chemistry, Informatics and Engineering Departments. However, students from other departments are also welcome, assuming that they have the necessary knowledge in informatics, mathematics and physics. During the courses, seminars and laboratory hours several programming languages (C++, Fortran, Java) and basic scientific program packages (Matlab, Mathematica, OpenGL, etc...) will be used for developing modelling skills and for solving several modern scientific problems. Simulation techniques and numerical methods will be used for modelling and studying physics, biology, chemistry and economics related modern and fascinating problems. Graduates of this Master programme will achieve the basic computational and modelling skills that are necessary in various domains of modern sciences. They can find jobs as researchers, computer scientist, programmers, computer technicians, or specialist in modelling complex sociological and biological systems. For those interested in following a PhD programme there are several possibilities under the supervision of Prof. Dr. Titus Beu, Prof. Dr. Ladislau Nagy and Prof. Dr. Zoltan Neda, all of them lecturing basic courses within this Masters program. There are also possibilities to conduct PhD studies under the supervision of other colleagues from BBU or for continuing the studies abroad at Institutes or Universities that have tight collaborations with this master program.

Entrance exam

It will consist of an interview, where the programming skills, research motivations and English language knowledge of the candidates will be tested. The final grade will be established as the average of the grade obtained at the interview (50%) and the average grades obtained during the undergraduate studies (50%). There will be 8 budgetary sponsored places for the three semester version and 9 budgetary sponsored places for the four semester version.



Representative courses that would attract students to this program

Representative and most important courses are: simulation of structure and dynamics of molecules, image processing, stochastic simulation methods with interdisciplinary applications, numerical methods in atomic physics, symbolic calculations, object oriented programming, digital signal processing, etc. In both the three and four semester version there is one semester dedicated to research practice. A considerable part of the students will spend research periods abroad studying and performing research at famous European Universities through the sponsorship of the Socrates-Erasmus program. Those who will choose to spend the research semester at home will benefit of modern parallel supercomputer facilities and appropriate supervision from specialists in computational physics. In the four semester version one semester will be dedicated for courses in some advanced topics of modern physics.

