

ECCE Birzeit: Establishing a Centre of Excellence in Mathematics and Theoretical Physics at Birzeit University, Palestine

<http://www.physik.uni-augsburg.de/ifk/ecce/>

► **Idea**

A Centre of Excellence in Mathematics and Theoretical Physics at Birzeit University in Palestine shall be established in response to the need to build university capacity that will contribute to reconstruction and development of the Palestinian society. The Centre will serve as a focal point for research, programme development, training and knowledge sharing. It will facilitate cross-border cooperation through linkages with universities and research centres in different parts of the world and hence will open avenues for state-of-the-art technology to enter Palestine. A high, internationally competitive scientific level will attract leading scientists from all-over the world. There will also be opportunities for Palestinian academics to undertake short-term study or attachments abroad and to cooperate in setting up well equipped laboratories. In addition the Centre will enhance the quality of teaching at the Palestinian universities, and develop teaching materials and methodologies for secondary education.

The Centre will concentrate on **Mathematics** and **Theoretical Physics**, two disciplines which have enriched each other for several centuries. In the present context it must be emphasised, that a thorough education in these disciplines is mandatory for every modern, technologically oriented society – especially in a region which cannot rely on natural resources – and that such an education will have a long-lasting positive effect since students will be trained in areas most useful for today's and future job markets. Finally, mathematics and physics are fields based on 'hard' facts, to be judged by logic and experiment only, and not to be influenced by political opinion: hence in these disciplines difficulties of communication across frontiers will be alleviated.

► **First steps**

The basic idea was developed late in 2003 in discussions between two mathematicians (B. Aulbach, S. Elaydi) and a physicist (U. Eckern) at the University of Augsburg, Germany. In the following months successful contacts with potential supporting scientists were established, as well as with the authorities of Birzeit University and with PEACE Network of European and North American universities, which promotes academic cooperation with those in Palestine. At the same time a webpage was established. The project was publicly announced, and discussed in detail, during the PEACE Bethlehem conference (25-27 February 2005). BZU's administration developed a detailed budget plan a few months later. On various occasions, support from UNESCO's Division of Higher Education was sought and confirmed by its director, Georges Haddad, who also suggested preparing an application within the UNITWIN programme.

► **UNITWIN / UNESCO Chair & Network**

The proposal to establish an UNESCO Chair & Network was submitted at the end of April 2006. "To establish a UNESCO Chair will be essential for the success of ECCE Birzeit: the chair holder will play a vital role for the further preparations of the project, in particular for the detailed planning of the scientific programme and the indispensable – scientific and organisational – contacts." The proposal was agreed upon by the core partners: Birzeit University (N. Kassis), University of Augsburg (U. Eckern), Trinity University (S. Elaydi), University Paris-Sud 11 (A. Suzor-Weiner), and PEACE (R. Hamdallah). A contract for establishing the UNESCO Chair at Birzeit University is close to being signed. The duties of the Chair will include:

- building local contacts with mathematicians and physicists in Palestine, as well as with the administrations of the Palestinian universities; conduct, on a regular basis, workshops and symposia in mathematics and physics, as well as on pedagogical issues pertaining to mathematics and physics education; build contacts to local politicians and the Palestinian ministries concerned; establish contacts with local and international organizations and businesses, to obtain the necessary funding for the Centre and to assure its launching on time and its sustainability as a benchmark institution in the region.

► Financial aspects

Intensive financial effort is required in order to establish a centre of highest scientific reputation and international renown. We envisage about 20 faculty members, half in mathematics and half in theoretical physics, at the full, associate, and assistant professor level, in addition to the Director. Furthermore, 20 postdoctoral associates and 35 supporting staff are needed. The professors and postdocs will supervise several M.Sc. and Ph.D. students. On this basis, estimates have been made for the costs involved. The land area will be donated by Birzeit University: an area of approximately 35,000 m² will be needed, corresponding to 2.8 million euros at current value. Capital investments (buildings, library, computers, etc.) are approximately 7.5 million euros, and annual maintenance and running costs (salaries, library, equipment, international travel, visiting scientists, etc.) amount to about 4.2 million euros.

While counting on support from all possible sources – funding agencies, UNESCO and other IGOs, NGOs of higher education and individual universities and academics – it is hoped that the European Union will become a major partner in the project. Initial contacts with the EU have been established, as well as with a number of potential private sponsors.

► Timetable

It is important to establish the UNESCO Chair at BZU as soon as possible in order to proceed with the preparations for the Centre. A workshop is envisaged for 2007 to discuss structural aspects and scientific objectives of the Centre. The support from the EU needs also to be secured as soon as possible to ensure the financial basis. Optimistically speaking, while preparatory work will begin early in 2007, site planning could start late in 2007, construction in 2008, and the Centre might become fully operational in 2009.

► Supporters and partners

In addition to about 25 individual scientists, the following institutions pursuing closely related goals have confirmed their support of the project:

- Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy
- Center for Advanced Mathematical Sciences, American University of Beirut, Lebanon
- Center for Applied Mathematics and Theoretical Physics (CAMTP), Maribor, Slovenia
- European Physical Society, Interdivisional Group Physics for Development
- International Society of Difference Equations
- International Union of Pure and Applied Physics (IUPAP), C13: Physics for Development

► Implementation

The Centre will be established in cooperation with the administration of BZU and other member universities of the Palestine Council of Higher Education. The Centre will retain a clear independent status but will abide by the local laws governing institutions of higher education in Palestine.

In order to ensure effective procedures as well as clear responsibilities, a Steering Committee with 6 members from the group of proposing scientists, 3 representatives from Palestinian Universities, and 3 representatives from institutions/organisations (e.g. EU, UNESCO) will be established. The Steering Committee will be responsible for ensuring the highest, internationally competitive scientific standard of the Centre. It will also be responsible for the overall direction and strategic planning of the Centre.

► Final remarks

Although ECCE Birzeit is a large-scale project, with several foreseeable and unforeseeable difficulties to overcome, it has received worldwide encouragement during the past two years from numerous scientists as well as from the Palestinian universities. It is hoped and expected that PEACE member-universities will support the efforts to implement this project, which – by furthering the education of people at all levels, thus enhancing scientific and consequently also non-scientific communication – could also contribute towards a lasting peaceful development in Palestine and in the region.