



SESAME¹ and SOLEIL² have signed a collaboration contract

The collaboration between the two synchrotron facilities was set up officially at SOLEIL on 23 October 2007 by Prof. Khaled Toukan (Director of SESAME) and Prof. Michel van der Rest (Director of SOLEIL). This collaboration will enable SESAME to benefit from the expertise developed during the construction of SOLEIL by getting some help in designing or specifying some critical components of the storage ring. It will concern several technical aspects such as the construction of the pulsed magnetic devices required for the injection into the storage ring, the alignment of accelerators components, the distribution of the utilities (water and electricity supplies) and the support for the writing of the technical specifications concerning several equipment of SESAME synchrotron.



Amor Nadji, head of the Machine Physics group at SOLEIL guided the Jordanian delegation around the SOLEIL facility.



Prof. Michel van der Rest and Prof. Khaled Toukan

¹ Synchrotron-light for Experimental Science and Applications in the Middle East

² The LURE Optimised Intermediate Energy Light Source – French synchrotron radiation source.

SESAME, the Middle-Eastern Synchrotron Radiation Source

"SESAME opens the way to technological progress and the peaceful development of science in the Middle East."

*Herwig Schopper**, at the signing of a memorandum of agreement between CERN, SESAME and Jordan in 2003.

History of the project

It was in 1997-98 that Mr Winick (SLAC, USA) and Mr Voss (DESY synchrotron, Germany) came up with the idea of building an international synchrotron radiation source in the Middle East. At that time, the decision to dismantle the German synchrotron BESSY I to make space for BESSY II had just been made. The German government agreed to BESSY I being rebuilt in the Middle East at the request of a group of scientists from CERN, who also suggested that this new synchrotron should be created under the aegis of UNESCO.

The first resolution that officially launched the project was adopted in June 1999: a provisional council of 14 member states, including observer states, and various committees were then constituted. During the summer of 2000, the Allan campus of the University of Al-Balqa, 30 km from Amman in Jordan, was chosen to accommodate the synchrotron.

UNESCO gave its final approval to the project in late May 2002, and SESAME was created in January 2003. It was an autonomous international organisation, just like CERN, which had been constituted five decades earlier.

Since then, most of the countries that had belonged to the provisional Council have confirmed their status as members of what has become the permanent Council of SESAME. These are: Bahrain, Cyprus, Egypt, Israel, Jordan, Pakistan, the Palestinian Authority and Turkey. These countries were recently joined by Iran and Iraq.

The Council, presided by Herwig Schopper*, has full responsibility for the project and provides the annual budget for the centre, to which each member country contributes according to its GDP. Additional financing can also be provided by other countries.

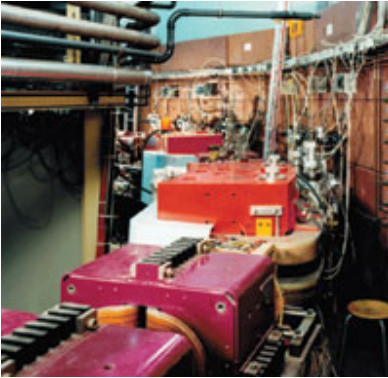
Morocco, the Sultanate of Oman and the United Arab Emirates are waiting to become members of the Council. Germany, France, Greece, Italy, Kuwait, Portugal, the Russian Federation, Sweden, the United Kingdom and the USA are observers. Spain and Japan are due to become observers soon.

In addition to the project management team consisting of a director (Khaled Toukan, the Jordanian Minister for Schools, Higher Education and Research), a scientific director (Hafeez Hoorani, Pakistan), a technical director (Amor Nadji, France) and an administrative director (to be appointed next December), there is a small group of people who work on the SESAME machine. They are local accelerator specialists, trained in synchrotron radiation laboratories in Europe and the USA.

* Former Managing Director of CERN and current Chair of the SESAME Council

Equipment from BESSY I, adapted for the SESAME Project

In June 2002, a ship from Germany arrived in Jordan carrying a microtron (pre-injector), a booster (injector) and a storage ring.



Partial view of the BESSY I storage ring



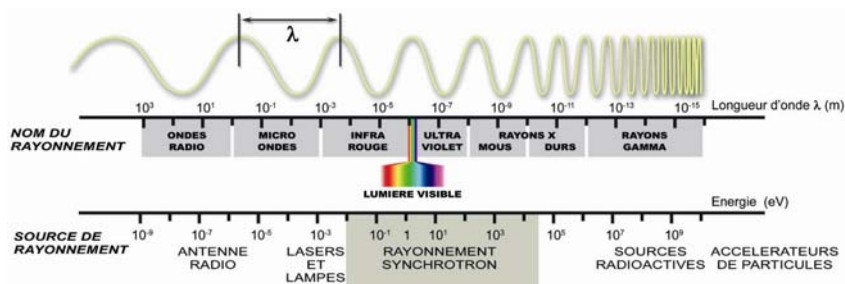
BESSY I in containers, heading for Jordan...

This equipment was designed to produce and store electrons at 0.8 GeV, the nominal energy of BESSY I. SESAME, however, was intended to operate at an energy of 2.5 GeV, which is why the components had to be modified or even re-designed from scratch (as in the case of the storage ring).

This revision is the mission of the SESAME technical team, directed since August 2007 by Amor Nadj, head of the Machine Physics group at SOLEIL.

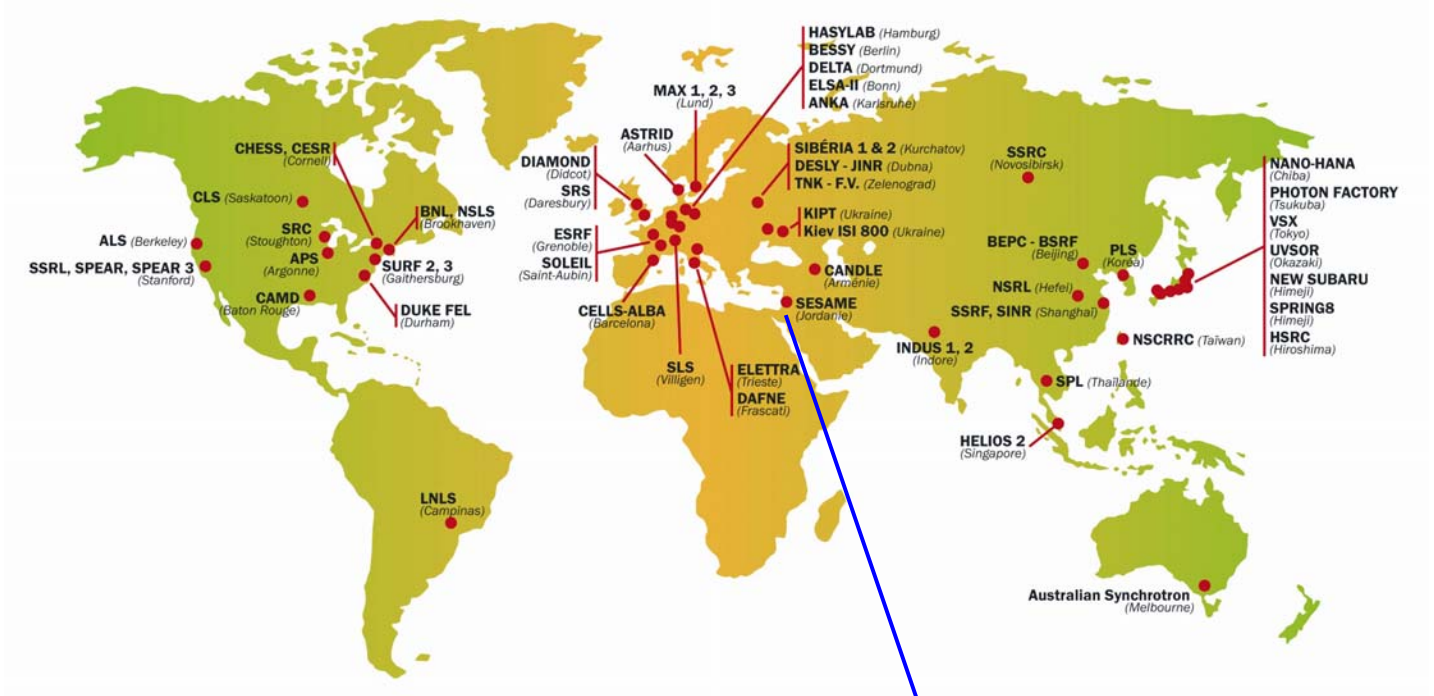
The synchrotron radiation produced by SESAME will cover a spectral range from the infrared region to hard x-rays: an energy range comparable to that of third-generation synchrotrons such as PLS (Korea), SLS (Switzerland) and SOLEIL (France).

The proposed scientific programme covers the following areas in particular: structural molecular biology, environmental science, surfaces and interfaces, x-ray imaging, archaeological microanalyses, characterisation of materials, and clinical medical applications. Scientists from all disciplines and all countries will therefore be working together at SESAME by 2011.



Range of energies and wavelengths covered by the synchrotron radiation of SESAME

The main synchrotrons worldwide



For further information on SESAME and SOLEIL

Please visit the websites of both synchrotrons:

<http://www.sesame.org.jo>

<http://www.synchrotron-soleil.fr>

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