

FOURTH SESAME USERS MEETING SUMMARY
Dead Sea Spa Hotel Jordan
6–8 December, 2005
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SESAME (Synchrotron Light for Experimental Science and Applications in the Middle East, www.sesame.org.jo) is being built in Jordan under the umbrella of UNESCO as an international synchrotron radiation source. Scientists from the members (Jordan, Israel, Egypt, Turkey, Bahrain, Pakistan and the Palestinian Authority) and observer countries (Iran, Greece, Kuwait, Russia, USA, UK) have been meeting annually since 2002 with the aim of presenting their work in the field, discussing the latest developments in the project and spreading the word about SESAME and strengthening contacts in the SESAME users' community.

The fourth SESAME users' meeting was held at the Dead Sea Spa Hotel Jordan from 6th to 8th. December, 2005. This meeting is in continuation of a series of the SESAME users meetings organized each year. The first SESAME Users Meeting was held in Amman, Jordan in 2002, the second meeting in Isfahan, Iran in 2003 the third meeting in Antalya, Turkey in 2004. These meeting have been playing an important role in creating the awareness about this multinational project, facilities to be made available and to attract young researchers for its utilization. The success of these users meeting is reflected from the gradually enhanced number of participants in each meeting. For this meeting we received more than 170 applications from twenty countries. However, due to the budgetary constraints we have to limit the invitation to about 60 applicants from the region: Algeria (1), Egypt (10), Iran (10), Iraq (4), Israel (10), Morocco (2), Pakistan (8), Turkey (10), Palestine (7), UK (2), USA (2), Yemen (1) and Germany (1). There were about 50 local participants from different universities and research organization form Jordan. Most of the participants from the region were financially supported therefore we have to limit the number of participants to 100, including the local participants. The participation of Iraqi Scientists in this meeting was an encouraging sign for the expansion of the future user community in the region.

The timing of the 4th SESAME users' meeting was intentionally prearranged to have a joint session of the SESAME Council and the Users Meeting. The idea behind this understanding was to encourage the SESAME users to meet the council members and the other officials who are the key players and supporters of this project. The joint meeting was attended by more than 140 participants including dignities, Ambassadors and delegates from the European Commission, Egypt, Turkey, Jordan, Germany, Greece, Iran, Pakistan and Russian Federation. This session was chaired by the president of the SESAME Council, Prof. Herwig Schopper. The presentations were made by the President of SESAME Council (Prof. H. Schopper), the Director of SESAME (H.E. Prof. Khaled Toukan, Minister of Education and Minister of Higher Education and Scientific Research, Jordan), The Secretary of the SESAME Council (Dr. Maciej Nalecz, Director Division of Basic and Engineering Sciences, UNESCO), and Dr. Ana-Maria Cetto, Deputy Director General and Head of the Department of Technical Cooperation of the International Atomic Energy Agency (IAEA).

The fourth SESAME Users meeting had wide ranging response from the SESAME community with more than 100 participants from 16 countries including Iran, Pakistan, Israel, Egypt, Palestinian Authority, United Arab Emirates, Yemen, Jordan, Bahrain, UK, USA, Germany, Belgium, France and Switzerland. The invited speakers were very carefully selected who are the leading figures in their respective fields. The organizers put strong emphasis on trying to attract as many young scientists from the region as possible and provided almost all participants with varying financial support for attending the meeting. The meeting was generously sponsored by International Agencies such as UNESCO, ICTP, and Canon Foundation-UK, Jordanian National SESAME Committee, Department of Energy

(DOE, USA) and a number of Jordanian organizations such as Ministry of Education (MOE), Ministry of Higher Education (MOHE), Jordanian Atomic Energy Commission (JAEC), HCST, NCHRD, JPRC, JPMC and Jordanian Universities. Some of the member countries also supported their participants.

The scientific program of the meeting was started in the afternoon which was chaired by Dr. Samar Hasnain (Chair, Beamline Committee). The first talk was delivered by Dr. Michael Hart (UK) who presented an overview of the impact of Synchrotron Radiation on Science. The next talk was by Dr. Paul Dumas (SOLEIL, France) who described the details of an Infra-red Beamline and its application. The third talk on the first day was by Dr. Hideo Kitamura (Japan) and his talk was entitled, "Most Advanced Synchrotron Devices: 1n-vacuum Undulators". Dr. Aslam Baig (Director Science, SESAME) presented the Science Program for SESAME. This session was finally concluded by Dr. Zehra Sayers (Chair, Scientific Committee).

The second day of meeting was started by a visit to the SESAME site which was very much appreciated by the participants as they could see the progress being made in the construction of the building. The scientific program resumed after lunch by a fascinating talk, "Targeted Structural Genomic-Its Relevance to SESAME, by Dr. Joel Sussmann (Weizmann Institute, Israel). The next talk was by Dame Louise Johnson (DIAMOND, UK) on Structural Biology: Key to Understanding Biology and Human Disease. The Technical Director, Dr. Gaetano Vignola presented the Technical Design of SESAME. After the Tea, two parallel sessions were organized. The session-1 was on "Materials and Medical Applications Chaired by Dr. Herman Winick (USA). In this session, three talks were presented, "Iran's Plan for Medical Research by Dr. Mehdi Ghorbani (Iran), Application of Synchrotron Radiation in Medicine by Dr. Pekka Sourti (Finland), and Structural Properties of LIBC by Dr. Engin Ozdas (Turkey). The second parallel Session was on "Structural Biology and Structural Genomics" chaired by Dr. Awni Hallak (Jordan). In the session, three presentations were made, Dr. Mohammad Yousef (Egypt & USA) on "Rational Design of a Novel Molecular Switch for Nano-Biotechnology", Dr. Magid Al-Sherbiny (Egypt) on "Application of Synchrotron Beam in Identifying Praziquantel Target Epitopes in Schistosomiasis" and Dr. Iqbal Chaudhary (HEJ-Karachi, Pakistan) presented his work on "Unique Natural Product Resource". In the evening, the Poster session was attended by all the participants. There were more than thirty posters covering the fields of structural molecular biology, material science, physics, chemistry and medicine. The contributions by the participants were adjudged "high quality" by the experts and it also reflected the motivations of the regional researchers for the future usage of SESAME.

On the third day, the Plenary Session was chaired by Dr. Zehra Sayers (Chair, Science Committee) and four invited talks were presented. Dr. Manolis Pantos (UK) presented his work on "Great Pyramids of Giza", Dr. Soichi Wakatsuki (Japan) on "Structural Genomics in Japan", Dr. Zahid Hussain (Berkeley, USA) gave a talk on "VUV-Soft X-Ray Beamline at SESAME and its Application" followed by a second talk by Dr. Paul Dumas (SOLEIL, France) on "An Infra-red Beamline and its Application". The afternoon was dedicated to selected contributions from the users. In this session, three presentations were made, Dr. Mohammad Ghazi (Iran) gave a talk on "Resonance X-Ray Scattering", Dr. Mehmet Aslantas (Turkey) talked about "Macromolecular Crystallography: should we collect a room temperature data set?" and the third presentation was by Dr. Yahia Swilem (Egypt) on "Nanocrystallisation Process". In the afternoon the fourth plenary session, two talks were delivered Dr. Ercan Alp (Turkey & APS-USA) on "Application of Inelastic Scattering for Nanoscience" and the last talk on "SAX/WAX Beamline for Material and Biological Sciences" was given by Dr. Wim Brass (ESRF-Netherlands).

The most important session was the "concluding session" which was attended by all the participants. It was very impressive to see the full attendance, attitude and concern of all the

stakeholders for the future of the SESAME project. This session remained very active for more than two hours. Different aspects of the project were discussed and a number of suggestions were made by the participants.

The following convergence points were reached:

- Development of the users' community.
- Development of the scientific program.
- Development of the Training programs.
- Start of the first phase beamlines and user operation (-2010).

It was also agreed that the second phase of the beamlines will also be initiated after the completion of the phase-I Beamlines. In order to maintain high standard in the Technical and Scientific Programmes, an evaluation of the project by an International Independent Panel be made every 5th year of its operation.

Phase One Beamlines

No.	Beamline	Energy Range	Source type	Science Area (traditional disciplines indicated)	Possible Champion & committee advisers
1	MAD Protein Crystallography	4 – 14 keV	In-vacuum undulator (6mm gap, 1.5m)	Structural Molecular Biology (Biomedical)	Shoham, Salman, Yousef (Hasnain & Wakatsuki)
2	PES and Photoabsorption spectroscopy	50-2000 eV	Elliptically polarising undulator ($\lambda_u=50$ mm, $k_{max}= 5.5$, ID length= 2.6 m)	Atomic, Molecular & condensed matter physics (Physics, Chemistry, Materials)	Hamdan, Shoaib Ahmed , (Zahid Hussain)
3	SAX/WAXS	8-12 keV	Undulator	SMB & Material Sc (Biomedical, Physics, Chemistry, Materials engineers)	Changizi, Semra Ide (Zehra Sayers)
4	XAFS/XRF	3-30 keV	2.0 Tesla MPW	SMB, MS, Environmental Sc., Archaeological	Sagi, Mahmood, Hallak (Hamdan & Hasnain)
5	Powder Diffraction	3-25 keV	2.4 Tesla MPW	MS, Environmental Sc., Archaeological	Engin Ozdas , and Shoaib Akhtar
6	IR Spectro-microscopy	0.01-1 eV	Large Aperture Bending magnet	SMB, MS, Environmental Sc., Archaeological	El Bayyari & Sagi