

The 3rd SESAME Users' Meeting

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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 first Users' Meeting was held in Amman, Jordan in 2002 with the generous help of Japanese Society for Physical Sciences followed by the second meeting in Isfahan, Iran in 2003 and the third SESAME Users' Meeting was held in Antalya, Turkey from October 11 to 13th 2004.

The third meeting had wide ranging response from the SESAME community with more than 100 participants from 15 countries including Iran, Pakistan, Israel, Egypt, Palestinian Authority, United Arab Emirates, Yemen, Jordan, Bahrain, UK, USA, Germany, Austria and Switzerland. 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 amounts of support for attending the meeting. The meeting was generously sponsored by international agencies such as UNESCO, ICTP, and Canon Foundation and in Turkey local funds were raised from Turkish Atomic Energy Foundation, Turkish Council for Science and Technology, Sabancı University and Hacettepe University. Countries like Iran and Egypt have also supported some participants.

The scientific program of the meeting included, on the first day, discussions on the new developments in the project followed by talks by experts on the design and use of SESAME first phase beamlines. The following two days were dedicated to contributions from users on applications in the fields of structural molecular biology, material science, physics, chemistry and medicine. More than 20 poster presentations were exhibited throughout the meeting.

The session on developments in the project included the report by the Chair of the SESAME council (H. Schopper), activities of the training committee (J. Rahighi) and the presentation by the recently appointed Scientific Director of SESAME (A. Baig). The latest design and final specifications of the storage ring (G. Vignola) and SESAME performance (H. Winick) were also discussed.

The first phase beamlines planned for SESAME are those for protein crystallography, X-ray fluorescence, small/wide angle X-ray scattering, powder diffraction, X-ray photoemission and photoabsorption and infrared. Specific beamline designs that were presented were that for X-ray fluorescence (A. B. Hallak) and for powder diffraction (E. Ozdas). Characteristics of the SAX/WAX beamline in Elettra was presented (P. Amenitsch), as a possible example for the beamline planned for SESAME and its applications in the fields of material science and structural molecular biology were discussed (S. Ide, Z. Sayers).

Latest developments in infrared beamlines and applications in biology, geology, environmental remediation and medicine were highlighted (C. Hirschmugl, Z. El-Bayyari, A. Mammoon). Possibility of a combined protein crystallography/EXAFS beamline was presented (S. Hasnain) and insights provided by crystal structure data on the mechanisms of action of DNA repair enzymes (G. Shahom) and respiratory chain enzymes (T. Soulimane) were discussed. Effects of radiation damage on biological samples were brought into focus as

a challenge to be overcome (M. Aslantas). Studies on metalloproteins were presented as an application of time-resolved X-ray absorption spectroscopy (I. Sagi and B. Akabayov). Applications of high energy resolution inelastic X-ray scattering in materials science (E. Alp) and evolution of the structure at liquid surfaces (M. Deutsch) provided examples of applications of synchrotron radiation to fine structure analysis of matter at atomic resolution. Nanotechnology and biotechnology applications using synchrotron radiation were also discussed (N. Moazzami). Several presentations focused results on surface and material characterization (D. Ulku, A. Iraji zad, N. Tabet, B. Kalkan, M. Ghazi, M. Tabriizchi, A. Rozatian, M. Faiz, M. Akhtar, M. Karabıyık, W. Salah) and use of time resolved XPS in the millisecond range for material characterization was emphasized (U.K. Demirok).

The users meeting also had a session on clinical applications of synchrotron radiation. Possibility of such a beamline on SESAME was presented (A. Dilmanian) and therapeutic applications were discussed (B. Laster, V. Serror). The medical group proposed a 7T superconducting wiggler which will extend SESAME's spectral reach to well over 100 keV and be useful for studies in other fields such as high pressure diffraction.

The users meeting found an audience also among high-energy physicists from the region. They were there to meet the scientists from a related field as well as exploring the possibility of using SESAME should they come back to the region.

The high attendance and the scientific level of the presentations were indicative of the capacity of the rapidly growing SESAME user community in the region. The meeting also emphasized the importance of the project as a symbol of hope for communication, collaboration and exchange in a region burdened by continued conflicts.

Figure Legends

Figure 1. Group photo of the 3rd SESAME Users' Meeting participants.

Figure 2. Prof. Nasrin Moazami (Iran) presented a lecture on "Application of synchrotron radiation in nano-biotechnology and biotechnology" at the SESAME users' meeting.



Figure 1.



Figure 2.