Open SESAME: a new light from West Asia

Jordan's King Abdullah inaugurates the International Centre for Synchrotron-Light for Experimental Science and Applications in the Middle East, known by the acronym SESAME, an international research centre on May 16, 2017. | Photo Credit: AFP

A new radiation project called SESAME in Jordan has emitted a 'new light' of single wavelength for the first time on November 22, indicating the start of the lab's experimental programme and opening of a new area of research. According to a press release, the new light, which falls in the X-ray spectrum, can be used to carry out research "from solid state physics to environmental science and archaeology".

SESAME stands for Synchrotron-light for Experimental Science and Applications in the Middle East. The synchrotron is a vast circular apparatus containing a ring of a 133-metre circumference (longer than a football field). Along the ring, beams of electrons travel at near-light speed. They circulate for several hours, completing millions of revolutions each second. As they circulate and get deflected by magnets in the loop, they give off radiation called synchrotron light. This light can be collected and used to study the properties of materials.

The synchrotron light has better brightness and resolution than conventional X-ray or infrared sources. The light can be used to study new drugs for cancer therapy and study of cultural heritage like bio-archaeology (the study of our ancestors) and also for investigating ancient manuscripts.

"We are…starting with an experiment to investigate heavy metal contamination… in the soil," said SESAME scientist Messaoud Harfouche in a press release.

"There is always an excitement when you see the first light from a new set-up. This new light can also be used for imaging of molecules and for dissociation studies (to understand splitting of a molecule into smaller molecules, atoms, or ions),"says Sourabh Dube, Assistant Professor, Department of Physics, Indian Institute of Science Education and Research, Pune.

The project was officially opened in Allan, Jordan, in May 2017. It is a cooperative venture by scientists and governments of the region of CERN (European Organisation for Nuclear Research). It is West Asia's first major international research centre with members from Cyprus, Egypt, Iran, Israel, Jordan, Pakistan, the Palestinian Authority, and Turkey. It was developed with the help of UNESCO.

The SESAME is currently operating with a beam current of 80 milli amps while it is capable of up to 400 milli amps. The researchers are planning to gradually increase the current in the coming months and study its capabilities.

Tux brushing tussar, cards being exchanged like cocaine packets, billionaires mingled at Illuminating India

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