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भारत सरकार  
GOVERNMENT OF INDIA  
परमाणु ऊर्जा विभाग  
DEPARTMENT OF ATOMIC ENERGY

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अणुशक्ति भवन  
छत्रपति शिवाजी महाराज मार्ग,  
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## MoU between Bhabha Atomic Research Centre & Directorate of Archaeology and Museums, Government of Maharashtra

Archaeological sites and cultural heritage artifacts are of great importance for defining the characteristics of a nation. Moreover, cultural tourism by interested tourists to national monuments, national buildings, national museums, contributes substantially to the creation of national wealth. Therefore, effective conservation and preservation of the cultural heritage is a necessity of hour. During the conservation of artefacts it is of paramount importance that the structure and composition of the artifact is thoroughly understood. Cultural-Heritage artefacts, in particular ancient ones, still pose many interesting and important challenges, such as the correct determination of their historical and cultural timeframe, their location and method of production, and the choice of suitable treatments and environmental conditions for their restoration and conservation.

Amongst the large variety of physical and chemical techniques, neutron-based imaging methods are able to provide unique information, thanks to their particular interaction mechanisms with matter. Neutrons by the virtue of non-destructive nature and large penetration depth provide an invaluable tool to Conservation scientists by deciphering the internal morphological structure, thereby providing an important insight into the craft ship and manufacturing practices of our ancestors.

Therefore, to promote the use of neutron-based methods in cultural and heritage sciences, the Directorate of Archaeology and Museums (DOAM), Government of Maharashtra, has entered into an MoU with Bhabha Atomic Research Centre (BARC) to explore the potential of neutron-based non-destructive techniques set up by Technical Physics Division of Physics Group, BARC at the Dhruva and APSARA-U nuclear research reactors in the characterization of ancient artifacts in their collection. The MoU was signed at BARC by Dr. S. M. Yusuf, Director, Physics Group, BARC and Shri. Sujitkumar Ugale, Director, Directorate of Archaeology and Museums, in presence of officials from DOAM, Government of Maharashtra, Shri. Hemant Dalavi and Dr. Mayur Thakare and BARC including Dr. L M Pant, and Dr S. Adhikari on 02.09.2024.

Mr. Vivek Bhasin, the Director of the Bhabha Atomic Research Centre, extended his felicitations to both sides regarding this initiative and expressed his optimism that this Memorandum of Understanding will facilitate the utilization of neutron imaging within the domain of archaeological sciences.

Dr A. K. Mohanty, the Chairman, Atomic Energy Commission, stated that this MoU will facilitate the utilization of DAE research reactors for the societal cause and contributing to appreciation of the intricate and sophisticated craftsmanship that has been meticulously developed and perfected by our illustrious ancestors throughout the annals of history.

*Daniel Babu P*  
30/9/2024

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