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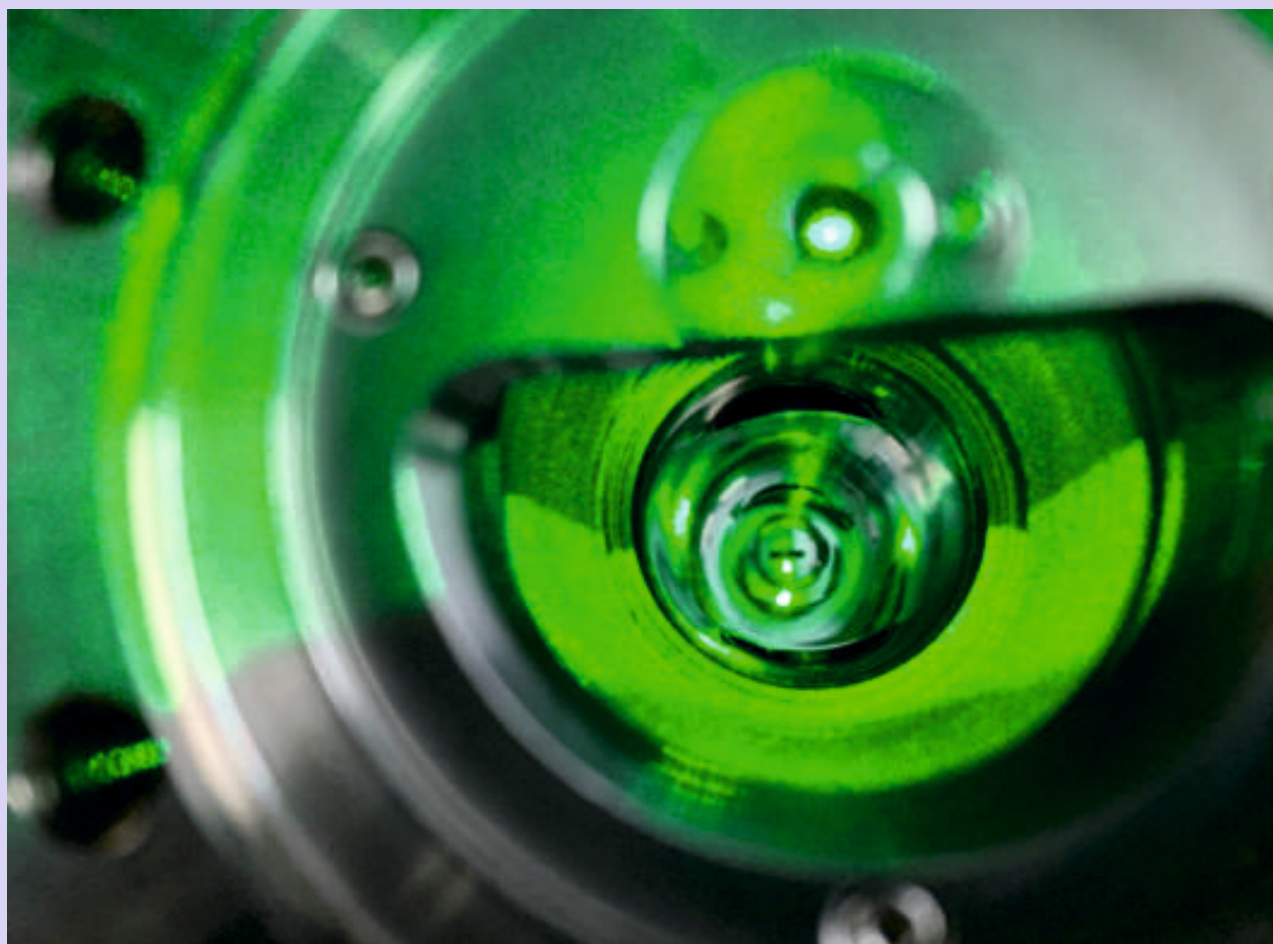
# THE INDIAN ASSOCIATION OF PHYSICS TEACHERS

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The CREX Collaboration, a large group of researchers from different universities worldwide who are involved in the Calcium Radius Experiment (CREX), has recently collected a precise measurement of the broken mirror symmetry in the elastic scattering of longitudinally polarized electrons in  $^{48}\text{Ca}$  which is a signature of the nuclear weak force. Their measurement allowed them to determine the difference in the distribution of neutrons and protons within the  $^{48}\text{Ca}$  nucleus. Their experiment was performed at the Thomas Jefferson National Accelerator Facility (JLab), in Newport News, Virginia. The image (above) shows the electron-beam's eye view of the green laser light in the Compton beam polarimeter used for CREX in Hall A at Jefferson Lab.  
(<https://phys.org/news/2022-08-precise-neutral-weak-factor-ca-.html>)

## Training Program on Advanced Research Instruments

**Venue:** Department of Physics, AMU, Aligarh (U.P.)

**Duration:** July 18 -24, 2022

A “One Week Training Program on DST Supported Advanced Research Instruments” under the “Synergistic Training program, Utilizing the Scientific and Technological Infrastructure (STUTI)” supported by the Department of Science and Technology (DST), Government of India was held at the Department of Physics, Aligarh Muslim University, Aligarh, India during July, 18 – 24, 2022. The training programme commenced with the inaugural function on 18.07.2022 in the Conference Hall of the Physics Department and culminated on 24.07.2022. As part of the “Azadi Ka Amrit Mahotsav” celebrations, the training programme consisting of scientific lectures, demonstrations and hands on training sessions were organized for the benefit of the faculty members/research scholars/scientists of nearby colleges/universities using the DST sponsored FIST supported equipments.



**Inaugural Function of the STUTI programme**

**(L to R): Prof. Avinash C. Pandey (Chief Guest), Prof. Mohammad Gulrez (Pro-VC, AMU, Aligarh), Prof. Mohammad Ashraf (Dean, Faculty of Science), Dr. Jai Prakash (Co-PI, STUTI) and Prof. B.P. Singh (Coordinator-PMU, STUTI, AMU)**

### About the STUTI training program

Synergistic Training program Utilizing the scientific and Infrastructure (STUTI) scheme is intended for the capacity building of human resources through open access to Science & Technological infrastructure across

the country by organizing specialized training programs on DST-supported R&D equipment targeting Ph.D. Scholars, Post-Doctoral Fellows, Scientists, Faculty members, etc., actively involved in research. The role of Science and Technology is pivotal for the evolution of mankind. The program consists of both theory as well as hands on training with various instruments, supported by DST and FIST. The uniqueness of the program includes minimum four hours theory and remaining 50% of the duration on practical training on the equipment. Efforts are made for hands-on use of equipment for demonstration/ characterization by each participant. The program's aim is to promote the research collaborations to the maximum extent.

The program is open to a broad audience interested in acquiring in-depth knowledge on the analytical instruments such as XRD, TEM, SEM, EDX, NMR, UV-visible spectroscopy, FTIR spectroscopy, Polarizing optical microscopy, TGA/DSC, etc. After completion of the workshop, participants can appreciate how these techniques help in understanding materials, correlating structure-property relation and eventually for elucidating the structure of existing and newly discovered materials. This training program provides a platform for interaction and exchange of innovative ideas on current trends in the fields of Science and Technology. The Chief Guest, Prof. Avinash Chandra Pandey, the Director, Inter University Accelerator Centre (IUAC), New Delhi, India inaugurated the programme. The brochure of the week-long programme was also released by the Chief Guest during the inaugural function. Prof. Pandey presented his valuable views on the occasion. He highlighted the long association of AMU with IUAC, New Delhi through the utilization of research facilities at IUAC by AMU faculties and research scholars. Prof. Pandey also mentioned the contribution of early AMU Physics faculties in the inception of IUAC. He emphasized on capacity professional development, which is also initiative of Government of India, through multidisciplinary research. Pro-Vice Chancellor, Prof. Mohammad Gulrez also appreciated the achievement and long legacy of the Physics department in his presidential address. He mentioned that such training programmes help

in the development of career of a young researcher. He also ensured to provide all possible support by the University to the department for conducting quality research and organization of such science outreach activities. The Guest of Honour, Prof. Mohammad Ashraf, Dean Faculty of Science, discussed the importance of such training programme in context of growth of early career researchers. He congratulated Physics Department for getting STUTI Project by DST, New Delhi and organizing a week-long program for youngsters. Prof. B. P. Singh, Chairperson, Physics Department, and PMU coordinator, welcomed the Chief Guest and all the faculty members as well as participants of the training programme. At the very start of the programme Prof. Singh highlighted the importance and usefulness of organizing training programme.



**Release of Brochure of Training Program during inaugural session:**

**L to R: Dr. M. Wasi Khan (Co-PI STUTI), Prof. B.P. Singh (Chairman), Prof. Avinash C. Pandey (Chief Guest), Prof. Mohammad Gulrez (PVC, AMU), Prof. Mohammad Ashraf (Dean, Faculty of Science), and Dr. Jai Prakash (Co-PI STUTI)**

Dr. M. Wasi Khan, Convener, introduced the STUTI initiative of DST to the audience and students and discussed its main features and components. Dr. Jai Prakash, as one of the conveners, convened the activities undertaken “One Week Training Program on DST Supported Advanced Research Instruments” in the department.

### **Prominent Lectures by Eminent Speakers**

Lectures delivered by the eminent speakers were the major part of the event, where students were given

theoretical knowledge of the subject covered. There were a number of enlightening lectures delivered by the faculty members/scientists. Dr. Subir Nath from IUAC, New Delhi delivered his lecture on “*Physics with Recoil Separators*”. In his talk, he discussed the importance of Recoil Separators in the separation and detection of reaction products formed in heavy ion-induced reactions amidst large background events. Dr. D. K. Shukla from UGC-DAE CSR, Indore delivered an excellent lecture on “*Synchrotron X-ray Radiation Based Material Characterization Methods*”. He discussed the importance of synchrotron radiation and discussed its wide applications.

Dr. Jai Prakash talked on “*The fascinating world of liquid crystal*”. He discussed in depth the properties of Liquid Crystal (LCs) and its applications. Prof. Absar Ahmad, Founder Director, INC, AMU Aligarh spoke on “*Translational research on bio inspired nanomaterials & drugs from endophytes*”. In his talk, he discussed the biosynthesis of various nanomaterials along with versatile applications of the same in medical, industry etc. Dr. M. Wasi Khan delivered an enlightening lecture on “*Transmission electron microscopy (TEM): A versatile tool for nonmaterial's characterization*”. He discussed the widespread application of the microscopic technique, Transmission Electron Microscopy (TEM), for the complete characterization of nonmaterial's and devices. Prof. Shahid Husain lectured a scientific topic on “*X-ray Diffraction: A Probe for Structural Analysis*”. He talked about the properties of X-ray diffraction and explained that X-ray diffraction is a versatile, non-destructive characterization technique that reveals detailed information about the chemical composition, crystallographic and microscopic structure of all types of natural and manufactured materials. He delivered another lecture on “*Role of Dielectric Measurement in materials Characterization*”. In this talk, he discussed the importance of dielectric measurement in material characterization. A prominent lecture was delivered by Dr. Sudhir Kumar Gupta, Department of Physics, AMU on “*The super-symmetric Universe*”. In his lecture, he discussed symmetries, explaining that symmetries are the guiding principles behind theories governing the Universe in terms of a set of elementary particles and the fundamental forces. An invited lecture was delivered by



Dr. Gautam Singh from Amity University. He delivered the lecture on "Liquid crystal nanoscience: Recent advances and future perspectives". In his lecture, he emphasized the importance of liquid crystal nanoscience in the field of liquid crystals. Another lecture was delivered by him on "*Characterization tools for liquid crystals and their composites*" where he discussed the properties of Liquid crystals (LCs) and their wide applications in ubiquitous liquid crystal displays (LCDs) and other electro-optical devices. Prof. B. P. Singh spoke on the topic "*Basics of experimental study of nuclear reaction dynamics at low energies in light and heavy ion reactions*". Prof. Singh explained in detail about the formation of compound nucleus. Dr. S. S. Z. Ashraf delivered a scientific talk on "*Graphene: A Prototype Dirac Matter*". In his lecture, Dr. Ashraf discussed the fact of how the low energy excitations are governed by Dirac equation in graphene and consider one illustration of it through the relativistic phenomena of Klein tunnelling in Graphene.

### Hands-On Training

The second most important part of the training program was hands-on training where the participants were given opportunity for practical training with various high-quality and modern equipments available in various research labs of the Department of Physics, AMU. The participants were divided equally into three groups and visited three different laboratories viz., the Liquid Crystal, Nuclear Physics and the Condensed Matter Physics Laboratories. There the participants were introduced to various experimental techniques and were provided with information about various laboratories of the University, where they gained practical knowledge of various characterization techniques, synthesis etc.

### Valedictory Function

The week-long training program ended on July 24, 2022. In valedictory session, Chief Guest Prof. Qudsia Tehseen, Department of Zoology, Aligarh Muslim University graced the program with her presence. Prof. B. P. Singh narrated how Physics Department of AMU received the STUTI project and explained to the students the importance of such training programs for them. He encouraged and motivated the students to participate in

such training program in future as well.

The Chief Guest Prof. Qudsia Tehseen appreciated the department for organizing such an event and providing an opportunity to the students to explore various informative and enlightening things. She said that this would lead overall development of the students. She was mesmerized by the collection of students from different states of the country and regarded it as unity in diversity. In her address, she emphasized on quality of research. She motivated the students to work hard for quality research instead of running for many publications. She also stressed upon the students to work for the ideas where the society can be benefited more as the aim of science is to help society. She urged to organize such events in the respective areas in future also. In the valedictory session, the certificates, Prizes for the winners of quiz competition and Memorabilia were presented to the participants.



### Valedictory Session:

(L to R) Dr. M. Wasi Khan (C0-PI, STUTI), Dr. S. S. Z. Ashraf, Prof. B. P. Singh, Prof. Qudsia Tehseen (Chief guest) and Dr. Jai Prakash (Co-PI, STUTI).

### Feedback

All the participants were happy with the excellence of the training program and the quality of the content and subject matter of the lectures covered during the training. The students were very much satisfied with the practical training provided to them by the faculty members and research scholars and appreciated the facilities provided to them for conducting experiments in the laboratories. Also, the participants appreciated the organization of the visit to the University. All the participants appreciated the efforts made by the organizing team to make their stay comfortable and provide them with all the necessary support. The participants were appreciative of all the team



Participants (showing certificates and mementos), Volunteers, attendees, PMU Coordinator, Prof. B. P. Singh, Programme conveners, Dr. M. Wasi Khan and Dr. Jai Prakash, Prof. Qudsia Tahseen (Chief Guest, concluding function) after successful completion of the training programme.

**B. P. Singh**  
**M. Wasi Khan**  
**Jai Prakash**

## OBITUARY

### An Obituary **Prof P.L. KALE**

Prof. P.L. Kale passed away on 28<sup>th</sup> July 2022, after a prolonged illness for more than five years. He was my senior colleague in Abasaheb Garware College, Pune. We were close friends for the last 57 years. Prof Kale was very popular physics teacher. He had remarkable dexterity to explain difficult abstract concepts in physics. Thousands of students still remember him because of his elegant handwriting and attractive board work. Throughout his life he used to wear a white trouser and a white shirt. In annual social gathering every year there was a popular fish pond “ Prof. Kale- a man in white”. He was an efficient administrator-he worked as HOD-physics, life member of Maharashtra Education Society (parent body of Garware College ) and Vice Principal of the college.



Prof. Kale has unforgettable contribution to IAPT. He had a lion's share in organizing 10<sup>th</sup> IAPT convention in 1995, at Garware College, Pune. We shared the same room at about ten IAPT conventions. When I was NSE coordinator, he helped me a lot in the exam work for nearly twelve years. Prof. Kale was the resident secretary of IAPT central office in Pune for about ten years.

Prof. Kale and myself have worked together for several projects/programmes over a long period of about 40 years. He helped me and offered valuable advice/guidance at a number of difficult situations in my personal life. By his sad demise, I have lost a loving friend, an active well wisher and also an elder brother. I offer my deepest condolences to Kale family and pray the god for eternal peace of the departed soul.

**M. L. Ogalapurkar**