Synergistic Training Program Utilizing the Scientific and Technological Infrastructure (STUTI)

On

High-End State of the art Scientific Equipment

7th Dec, 2022 – 13th Dec, 2022

काशी हिन्दू विश्वविद्यालय BANARAS HINDU UNIVERSITY

Organized by:

Sophisticated Analytical and Technical Help Institute (SATHI),
Banaras Hindu University, Varanasi
In association with National Institute of Technology, Warangal

Funded by:

Department of Science and Technology (DST), New Delhi

Patrons

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About the Institute

The Banaras Hindu University campus is among the world's largest residential universities with over 27000 graduate and post graduate students, over 5000 Research scholars and 2200 serving faculty members. The campus is spread over 1300 acres at Varanasi and 2700 acres in its South campus at Barkaccha, Mirzapur. It was established in the year 1916 jointly by the Maharaja of Darbhanga Rameshwar Singh, Maharaja of Banaras Prabhu Narayan Singh, Madan Mohan Malaviya, Sunder Lal and British Theosophist and Home Rule League founder Annie Besant. With over 30,000 students residing on campus, it is the largest residential university in Asia. The Banaras Hindu University is among the world's largest residential universities, comprising 6 institutes, 16 faculties, 140 departments, many centers of advanced studies, 05 interdisciplinary schools with a vast knowledgebase. The Banaras Hindu University has been given the status of Institution of Eminence (IoE) by the Ministry of Human Resource and Development, Government of India in September 2019. The Vision of University is to develops several technologies as well as technological leads and generates patents. These will require dedicated start-ups for translating them into technologies for products, processes and services and make it available for society.

About the Department

Sophisticated Analytical & Technical Help Institute (SATHI) has been created at Banaras Hindu University (BHU) with the generous support of the Department of Science and Technology (DST), Government of India (GoI). This is a professionally managed facility which is expected to provide quantum leap to its innovative & translational research outputs. To cater to the needs of Indian Industries, SATHI-BHU is providing globally acceptable analytical services related to drug discovery, testing food, nutraceuticals, drugs, biologicals and materials under GLP certification & NABL accreditation. We are committed to train the motivated researchers of other institutions of the region to make optimal use of our facilities.

About the STUTI Program

The role of Science and Technology is pivotal for the evolution of mankind. The program being organized as part of Azadi ka Amrit Mahotsav consists of both theory and as well as hands on experience with various instruments, supported by DST. The uniqueness of the program includes minimum four hours theory and remaining 50% of the duration is on practical training on the equipment.

Effort would be 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 spectroscopy has almost become essential tool for the chemist. It has made quantum leaps in the last decade, being a powerful field as physics, chemistry, material science, biology and medicine.

The STUTI DST supported training program is aimed to impart basic principles and advanced knowledge related to the basic sciences and open new vistas for students. The science awareness program provides a platform for interaction and exchange of innovative ideas on current trends in the fields of Science and Technology, with talks by eminent people in the field.

Objective of the Training Program

The objective of the training program is to acquaint the researchers / teachers with the know how of sophisticated state-of-the-art instruments along with basics of magnetic resonance and expose them to the state-of-the-art NMR Spectroscopy, High Resolution – Isotope Ratio Mass Spectrometry, HR-IRMS, HRAMS, Photoacoustic Ultrasound Imaging Platform with their applications. During this training program, attendees will have the opportunity to visit Banaras Hindu University (BHU) which harbour most advanced and sophisticated state-of-the-art instruments. Additionally, the attendees will have an opportunity to closely interact with eminent scientists from this field.

Registration and Eligibility Criteria

Eligibility:

- Person of Indian origin.
- Minimum qualification – Post Graduate (Science/Engineering/Technology)
- Teaching faculty up to the level of Assistant Professor / Associate Professor/Scientist C / Post-Doctoral Fellows/Ph.D. Students/ Industry persons who are actively involved in research and development
- All the applicants are required to provide following essential details,
    1. A write up of 200 words about candidate's ongoing research program.
    2. How the proposed training NMR Spectroscopy, HR-IRMS, HRAMS, Photoacoustic Ultrasound Imaging Platform will enable the participant in his ongoing or future research program.
    3. Publication if any reflecting use of referred equipment by the applicant.
- To register yourself free of cost please fill below registration form:

  https://forms.gle/8EiDZ6uBiUinyLKf8
- Last date for registration : **06-11-2022**
- Notification to selected participants on or before: **11-11-2022**
- The shortlisted candidates will be intimated through email. All the selected participants have to submit the uploaded bio-data form physically for the confirmation of participation.

STUTI Training Assessment and Feedback

- Eminent Professor from BHU, IIT BHU, Central Universities and Application Scientist from National (CSIR) Labs will deliver the lectures physically and hands-on sessions through physical mode.
- Ultimate goal of this event is to develop the faculty members/ research scholars/ scientists/ PDFs in the new pedagogy and emerging areas of science and technology.
- As per DST guidelines, mandatory anonymous training feedback shall be taken in the stipulated format.

About NIT Warangal

National Institute of Technology Warangal, formerly known as Regional Engineering College, was established in 1959. Over the years it has developed into a premier institute of higher learning and is ranked among the top technical education institutions in India. There are 14 Departments offering eight undergraduate, 35 post-graduate programs and guiding 952 PhD scholars besides postdoctoral programs. About 6864 students across the country including international students' study on the campus. It is a fully residential campus spread across 250 acres with excellent infrastructure in the form of state-of-the-art library, seminar halls, guest houses and research laboratories.

STUTI Organizers

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SATHI-BHU (STUTI TEAM)

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Mr. Adarsh Kumar Pandey, SPA, SATHI-BHU, Varanasi
Mr. Shailendra Kumar, TA, SATHI-BHU, Varanasi

Training Highlights

During the Hands-on training program participants will learn about handling of the High-resolution mass spectrometer, Instrument understanding related to (Mass spectrometer) calibration process, Sample preparation for metabolomics and Mass spectrometer database search using compound discoverer 3.2 and data analysis. Photoacoustic and ultrasound imaging platform system and its application on animal models and in the field of biological and medical sciences. Hands-on training on tumor detection and imaging using photoacoustic and ultrasound imaging system, Image processing and quantitative analysis of the data acquired from photoacoustic and ultrasound imaging system. How an NMR spectrometer works. NMR Magnet Safety. Preparation of NMR Samples. Set up of 1D 1H and 13C NMR Experiments. Processing and Presentation of NMR Data. Acquire good knowledge and deep understanding of the basic principle, working, and applications of HR-IRMS. Learn the operational procedure for analysis of stable isotopes (C, N, O & H) for tracking of the physical, chemical, and biological reactions of diverse fields. Understand the utility of HR-IRMS for analyzing samples from diverse fields of Earth Sciences, biological sciences, food sciences etc. Understand the well-established procedure to identify the sources of the groundwater, aquifer recharge, and discharge. Understand some of the industrial applications such as identifying adulteration in food and aroma industries.