BITS Pilani
Pilani Campus

Central Instrumentation Facility & Department of Biological Sciences, BITS Pilani, Pilani Campus in association with Carl Zeiss

Organize

Two days Workshop on Confocal and Fluorescence Microscope

12th -13th April, 2024

About the training program

The proposed training program aims to enhance research skills in life sciences organized by Central Instrumentation Facility and Department of Biological Sciences at BITS Pilani, Pilani campus, Rajasthan in association with Carl Zeiss India. The program includes hands-on training sessions to guide participants in advanced, sophisticated techniques such as fluorescence and confocal microscopy. These techniques are used in many scientific fields, and significant discoveries in biology, medicine, and materials research rely on microscopy advancements. The program is divided into two days. The first day covers basics theoretical and practical aspects of fluorescence microscopy and data acquisition. Fluorescence microscopy helps to illuminate cells or tissues with specific wavelengths, causing them to emit visible light for study; participants will learn fundamental principles and applications through research lectures by external and internal experts. Hands-on training commences on the same day, focusing on the critical components of fluorescence microscopy. Cell and multi-scale imaging across different dimensions, spanning from 2D to 3D using confocal microscopy, will be explored on the Second day. Cell morphological studies and co-localization will be demonstrated alongside Tile Scanning imaging. The workshop aims to train young scientists in advanced techniques like fluorescence and confocal microscopy to generate high-resolution 3D images of organelles within cells or tissues, encompassing fixed and live cell imaging. Confocal microscopy advancements, including optimized laser systems, mitigate cell damage, enable precise physiological analysis, reduce photo toxicity, and enhance image quality. Participants will also learn best practices in microscopy, troubleshooting, and microscope maintenance. The workshop will discuss recent trends and new developments in the field, thereby providing the participants with an opportunity to keep themselves updated with the latest advancements in the field of microscopy.

About BITS Pilani

BITS Pilani is a leading higher education institute in India and a deemed university under Sec. 3 of the UGC act. Established in technical collaboration with MIT (USA), it spreads over 328 acres, housing all amenities and buildings required for international standards. With 14 hostels for boys and one hostel complex for girls, over 5000 students reside on campus. The library complex covers 65,000 sq. ft. and has a rich collection of about 2,30,000 volumes of books and manuscripts. The research facilities include several laboratories focused on all aspects of science and technology, attracting research funding from government grants and private bodies.

About CIF

The Central Instrumentation Facility (CIF) houses multiple high-end and analytical instruments to facilitate research and teaching. The SIF provides services to both internal and external users on a payment basis. The details of instruments housed under CIF can be accessed at **https://discovery.bits-pilani.ac.in/SIF/** Services are booked online.

Only a limited number of seats are available:
Registration will be closed after the available number is reached.

Registration process:
Last date of registration: 7th April, 2024
Registration Charges: Rs. 2500/-
Registration link: https://docs.google.com/forms/d/e/1FAIpQLSf9Ifk-IKr0E6kTIHOQcekQnapRnTOdcEDh26gZotqUqbdMMA/viewform?usp=sf_link

For any further query, please write to: cifservices@pilani.bits-pilani.ac.in

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ZEISS ON YOUR CAMPUS
Technology Talk

BITS, Pilani
Central Instrumentation Facility &
Dept. of Biological Science
12th - 13th April, 2024
9:30am - 5:00pm

Trending Microscopy Technologies

Hands-on Training of Confocal and Fluorescence Microscope

Fluorescence microscopy is the most popular imaging method in cell biology because it permits molecule-specific labeling, minimal perturbation and three-dimensional (3D) imaging with single-molecule sensitivity. With the introduction of automated LSM Systems , super-resolution (SR) imaging techniques and High Speed Volumetric Imaging systems has enabled the visualization of structural details of cells and organelles with high precision, resolution and optimal S/N data. The diffraction-imposed spatial resolution has been extended by an order of magnitude and has also enabled complex experimental data to be acquired with much ease.

Systems Available:

LSM 880 with Airyscan

Highlights of this technology

- High-end Spectral Laser Scanning Confocal for 3D and other Confocal based applications including Live Cell imaging, FRET, FRAP and Photo Activation
- Perform 3D imaging, Stitching Applications or Multi Position Live imaging or all in combinations
- With Airyscan, take the advantage of going further to resolution improvement to 120nm in XY allowing you to reveal the subcellular structural details more prominently.

Axio Observer 7 with Apotome

Highlights of this technology

- An inverted microscope platform for demanding multimodal imaging of living and fixed specimens.
- Combine Axio Observer with a wealth of technologies such as apotome and AI Sample finder and refine it to support your experiments precisely.

Speakers:
Rishi Kant - Product Application & Sales Specialist LM Life Sciences, APAC
Sujoy Dey - Head of Business Development & PASS (LM), India

Rishi Kant

Sujoy Dey

ZEISS
Seeing beyond

Note : Last day to register is April 7, 2024

Agenda for ZEISS on your campus workshop
(Up to 15 students Max.)

Day 1, Friday 12th April 2024

Time	Activity
09:45 -10:15 AM	Registration
10:15 -11:00 AM	Welcome and Setting the Agenda: Introductory talk at BITS Pilani on the Need for microscopy in current research (45 min) by BITS R&D Faculty
11:00 -11:15 AM	Tea Break
11:15 -12:30 PM	Fundamentals of Microscopy: Basics of Microscopy and its Optics and Hardware
12:30 - 1:30 PM	Lunch Break
1:30 - 3:00 PM	Demonstration & Hands-on for Batch 1 on ZEISS LSM 880 with Airyscan
	Demonstration & Hands-on for Batch 2 on Axio_observer 7 with Apotome
3:00 – 3:15 PM	Tea Break
3:15 – 4:15 PM	Lecture: Super Resolution Technology (Advancements and Updates)
4:15 – 4:45 PM	Doubt Clearance(Q&A) Session

Day 2, Saturday 13th April 2024

Time	Activity
09:45 -11:00 AM	Lecture: Introduction to Light Sheet 7 Technology
11:00 -11:15 AM	Tea Break
11:15 -12:30 PM	Lecture: Automated and easy-to-use lattice light-sheet microscope technology for long-term volumetric imaging of living cells at subcellular resolution
12:30 -1:30 PM	Lunch Break
1:30 –3:00PM	Demonstration & Hands-on for Batch 1 on Axio_observer 7 with Apotome
	Demonstration & Hands-on for Batch 2 on ZEISS LSM 880 with Airyscan
3:00 - 3:15PM	Tea Break
3:15- 4:00 PM	Test and Evaluation
4:00 - 4:45 PM	Certificate Distribution and Closing Remarks