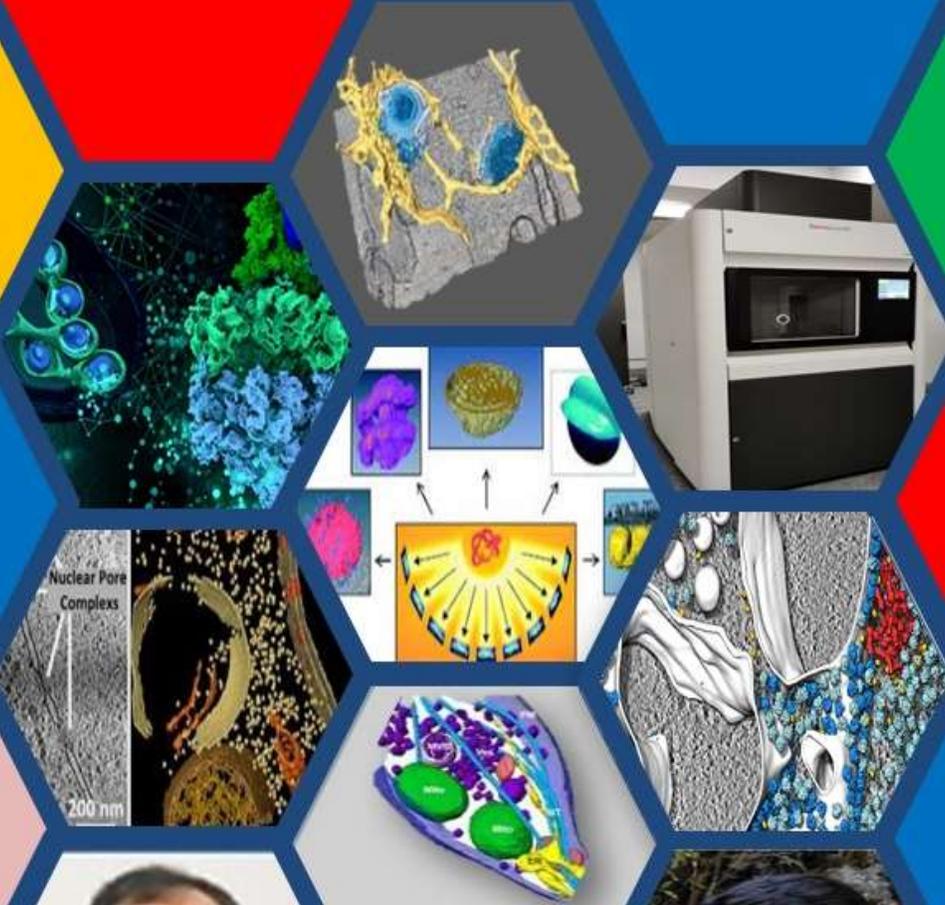


National Workshop Electron Tomography of Biological Specimens

May 9-13, 2022



सत्यमेव जयते
Department of Science & Technology
Govt. of India



सत्यमेव जयते
DEPARTMENT OF BIOTECHNOLOGY
GOVERNMENT OF INDIA

Electron Microscope Facility, Department of Anatomy
AIIMS, New Delhi

Conference Overview

Electron Tomography (ET) in conjugation with advanced 3D image reconstruction techniques has revolutionized biology and life science and emerged as a powerful tool for in situ macromolecular structure determination from their projections recorded at several angles. This can investigate the macromolecular complexes in the context of the cell or tissue in native environments with atomic-scale resolution in their spatial relationships and interactions with cells or tissues. Cryo-ET is now rapidly developing a diagnostic and research tool that enables structural biologists to determine the structure of proteins in their native cellular environment to sub-nanometer resolution. In a cryo-ET, a biological specimen is flash-frozen (preserves the sample in a hydrated, close-to-native state), thinned to an appropriate thickness, and multiple images are captured along with the tilt axis. The images are aligned and merged using computational techniques to reconstruct a three-dimensional picture or tomogram or by sub-tomogram averaging.

We are organizing a five-day workshop and training program (offline) that will focus on providing introductory knowledge of Electron Tomography (RT and cryo), hands-on for sample preparation using plunge freezing, cryo-ultramicrotomy, or cryo focused-ion-beam, glow discharge, growing cells on grids, transfer of grid to the EM, and handling, tilt series data collection, and processing with IMOD and eTomo software. The workshop will be planned with theoretical/methodological lectures and hands-on practical sessions simultaneously.

Selection Criteria:

This workshop accommodates a maximum of 15 participants. Participants required to submit a small write-up explaining the statement of purpose regarding the importance of electron tomography in their research would be essential. The applicants must substantiate the relevance of attending the training program to their current research project or interest.

Registration:

The complete application form must contain the following details- (1) Name (2) Age (3) Department and University/Institute Postal address (4) e-mail ID (5) mobile no. (6) Educational qualifications from graduation onward indicating a year of passing and marks obtained (7) Present affiliation & research experience in brief (8) letter of recommendation from the present employer/research supervisor (for Ph.D. candidates) (9) write-up of present work/research interest including a statement of purpose regarding the importance of electron tomography in your research.

The complete application form forwarded through proper channels may be sent to emfdbtsahaj@gmail.com before April 10th, 2022.

Only, the finally selected candidates will be informed by email on 12 April 2022, and they must deposit/transfer the nonrefundable registration fee before 20 April 2022.

Registration Fee:

Rs 7500/- (For Government Institution/University)

Rs 15000/- (For Private Institution/University, and Industries)

(Registration fee includes workshop fee, workshop materials, catering during the day including lunch for all five days)

NOTE: The course fee does not include **boarding**. Participants are advised to **arrange for boarding well ahead of the training**.

Organising Committee:



Dr. Ravi Prakash

Organizing Secretary



Dr. S.C. Yadav

Course Organizer



Prof. T. C. Nag

Course Coordinator

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Sciences, New Delhi (AIIMS), Tel: +91-011-26593568; 26549121; 26549127

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Advisory Committee:

Prof A. Shariff, Head of the Department, Anatomy, AIIMS, New Delhi

Prof. Manidipa Banerjee, Kusuma School of Biological Sciences, IIT, Delhi

Prof. Suneel Kateriya, School of Biotechnology, JNU, New Delhi

Dr. Gopaljee Jha, NIPGR, New Delhi

Dr. C. V. Srikanth, RCB, Faridabad

Dr. Prabhakar Singh, EMF, Anatomy, AIIMS, New Delhi

Confirmed Invited Speakers

Prof. Atanu Basu
Scientist G and Head of
Pathology & Electron
Microscopy, ICMR-National
Institute of Virology



Prof Wah Chiu
Stanford University,
USA



Prof. Partha Ghosal
Scientist G & Head-Electron
Microscopy DMRL,
Hyderabad



Dr. Saikat Chowdhury
CSIR-Centre for Cellular and
Molecular Biology (CCMB)
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Dr. Vidya Mangala Prasad
Assistant Professor Indian
Institute of Science,
Bangalore, Karnataka



Dr. Tofayel Ahmad
MPI of Biophysics
Germany

Dr. Moumita Dutta
Scientist C, ICMR-National
Institute of Cholera and
Enteric, Diseases, Kolkata,
West Bengal



Dr. Vineet Chaudhary
Assistant Professor,
Dept. of Biotechnology,
AIIMS, New Delhi



Dr. Sandip Kaledhonkar
Department of Biosciences
and Bioengineering , IIT
Bombay



Dr. Digvijay Singh
University of California,
Sandiego, USA



Electron Microscope Facility at AIIMS-New Delhi is organizing a five-day workshop/training program from **May 09-13, 2022** on **“Electron Tomography of Biological Specimens”** for the Ph.D., post-docs, and faculties of Indian Institutions, Universities and Industries.

This training program introduces the principles, technique, instrumentation, and application of Electron Tomography in 3D ultrastructural imaging at RT and cryo condition for biological samples. This training program provides the basics and hands-on training in sample preparation for electron tomography, tilt series data collection, tomogram generation, sub tomogram averaging, segmentation, and model building.

The workshop covers theoretical /methodological lectures and practical sessions with hands-on training on specimen preparation for Electron tomography such as glow discharge, growing cell on grid, plunge freezing, cryo-ultramicrotomy, transfer grid to the electron microscope, microscope handling, tilt series, data collection, and data processing with software IMOD and eTomo.

This training is scheduled for the capacity-building under the DST STUTI, DST SAIF and DBT SAHAJ programs for the Indian national researchers, post-docs, faculties, scientists and R&D industries working in the relevant area. This training would be beneficial to improve their research quality in the respective area. A one-page write-up explaining the statement of purpose regarding the importance of electron tomography in their research would be essential. The applicants must substantiate the relevance of attending the training program to their current research project or interest.