

# SIMBio 2026



భారతీయ సాంకేతిక విజ్ఞాన సంస్థ హైదరాబాద్  
भारतीय प्रौद्योगिकी संस्थान हैदराबाद  
Indian Institute of Technology Hyderabad

Hosted by  
Department of Biotechnology

## International Conference cum Workshop on Single-Molecule Biophysics

In association with  
DBT-SAHAJ National Facility, IIT Hyderabad  
Nikon Centre of Excellence, IIT Hyderabad  
India Biolmaging, Fluorescence Society

The International Conference cum Workshop on Single-Molecule Biophysics (SimBio2026) brings together leading scientists and innovators to explore cutting-edge advances in single-molecule biophysics.

This five-day event features expert talks and poster sessions, followed by a hands-on workshop on STORM/PALM/DNA PAINT, smFRET, live-cell single-molecule tracking, and smFISH.

# CONFERENCE SCHEDULE

**Venue** Auditorium 1 and 2 Convention Centre

**Dates** 19th - 21st January



# DAY 1 - Monday, 19th Jan | Audi 1

Time	Genome Organization, Replication, Transcription, Translation, Cell Division
08:00	<b>REGISTRATION</b>
09:00	<b>Inauguration Ceremony</b> Lamp lighting, Inaugural addresses by Prof. B.S.Murty (Director, IIT Hyderabad), Prof. G.N. Sastry (Dean SRC), Prof. A. Bhargava (HOD, Department of Biotechnology), Dr. Gunjan Mehta (Convenor of SiMBio2026), and Prof. Masahiro Ueda (Co-convenor of SiMBio2026)
09:30	<b>Keynote: Kazuhiro Maeshima, National Institute of Genetics, Mashima, Japan</b> Linker histone H1 functions as a liquid-like glue to organize chromatin in living human cells.
10:15	Studying DNA replication and the cell cycle using live-cell single-molecule microscopy. <i>Rodrigo Reyes Lamothe, McGill University, Canada</i>
10:40	<b>Industry Talk: Nagisa Katou, Yokogawa, Japan</b> Accelerating life science research with Yokogawa's confocal imaging solutions.
11:05	<b>Group Photo and High Tea</b>
11:30	Transcription factor dynamics: the long and short of it. <i>Arpita Upadhyay, University of Maryland, USA</i>
11:55	Single molecule imaging and simulation insights into transcriptional condensates. <i>Tsuyoshi Terakawa, Kyoto University, Japan</i>
12:20	Single molecule tracking in live yeast cells to quantify the dynamics of aurora kinase B at the kinetochores. <i>Gunjan Mehta, IIT Hyderabad, India</i>
12:45	<b>Lunch</b>
14:00	<b>Keynote: Philip Tinnefeld, Ludwig-Maximilians University, Munich, Germany</b> Superresolution and molecular computing with DNA nanotech.
14:45	RecG in action: real-time single-molecule views of fork reversal and DNA unwinding. <i>Padmaja Prasad Mishra, Saha Institute of Nuclear Physics, Kolkata, India</i>
15:10	Molecular choreography of nucleoid-associated proteins in sculpting the bacterial genome. <i>Mahipal Ganji, IISc Bangalore, India</i>
15:35	Single-molecule insights into the energy landscape and assembly pathways of pore-forming toxins. <i>Rahul Roy, IISc Bangalore, India</i>
16:00	<b>High Tea</b>
16:30	Forensic analysis of calcium mobilizing enzyme. <i>Srinivas Pentylala, Stony Brook School of Medicine, USA</i>
16:55	Deciphering the toxicity mechanisms of nanoparticles toward microalgae at the molecular and cellular scale. <i>Audrey Beaussart, CNRS, Université de Bordeaux, France</i>
17:20	<b>Industry Talk: Prabal Chakraborty, Nikon, India</b> Spatial Array Detection and Localization Technologies for Biomedical Microscopy: NSPARC and N STORM.
17:45	<b>Cultural Evening</b> (sponsored by MEDLAB solutions)
19:00	<b>Dinner</b>

SESSION CHAIR: Dr. Savita Devi, Rashmi Yadav

SESSION CHAIR: Dr. Chayan Kanti Nandi, Sheetal Paliwal

# DAY 2 - Tuesday, 20th Jan | Audi 2

Time	Cellular Dynamics
09:00	<b>Keynote: Masahiro Ueda, The University of Osaka, Japan</b> AI-empowered single-molecule imaging: decoding cell signaling to discover new drugs.
09:45	Submolecular video imaging of biological macromolecules in action by high-speed atomic force microscopy. <i>Noriyuki Koderu, Kanazawa University, Japan</i>
10:10	Luminescent nanomaterials for super resolution microscopy of cellular organelles. <i>Chayan Kanti Nandi, IIT Mandi, India</i>
10:35	<b>Industry Talk: Somenath Ghatak, Zeiss, India</b> Zeiss LightField 4D: Revolutionizing Fast Volumetric Imaging.
10:50	<b>High Tea</b>
11:20	Single molecule imaging conformational dynamics of MERS coronavirus spike trimers during cellular entry. <i>Dibyendu Kumar Das, IIT Kanpur, India</i>
11:45	Watching NusG in action: live-cell single-molecule tracking of conformational dynamics using FRET. <i>Abhishek Mazumder, Ashoka University, Sonapat, India</i>
12:10	Protein dynamics in bacterial extracellular electron transfer. <i>Peng Chen, Cornell University, USA</i>
12:35	<b>Industry Talk: Raphael Jorand, ONI, USA</b>
12:50	<b>Lunch</b>
14:00	Combined Line-excitation based fluorescence correlation spectroscopy and Imaging for morphogenetic events in developmental biology. <i>Senthil Arumugam, Monash University, Australia</i>
14:25	Single-molecule imaging analysis of an excitable system of a small GTPase, Ras, in spontaneous signal generation for eukaryotic cell motility. <i>Satomi Matsuoka, The University of Osaka, Japan</i>
14:50	Single molecule protein sequencing: fluorescence approaches. <i>Sung Hyun Kim, Ewha Women's University, Korea</i>
15:15	Decoding the binding mechanisms of antimicrobials on living Staphylococci using single-molecule and single-particle AFM. <i>Sofiane El-Kirat Chatel, CNRS, Université de Bordeaux, France</i>
15:40	<b>Industry Talk: Benjamin Compans, Abbelight, UK</b> Abbelight nanoscopy solution - unlocking spatial proteomics at single-protein resolution.
15:55	<b>Poster Session with high tea</b>
17:30	<b>Departure for conference dinner</b>
19:00	<b>Conference Dinner</b>

SESSION CHAIR: Dr. Padmaja Mishra, Kirti Garg

SESSION CHAIR: Dr. Abhishek Subramanian, Partha Dey

# DAY 3 - Wednesday, 21st Jan | Audi 2

Time	Neuroscience, Mechanobiology, Signal Transduction
09:00	<b>Keynote: Sudipta Maiti, BITS Pilani Hyderabad, India</b> Single molecule photobleaching reveals how individual amyloid oligomers interact with lipid membranes.
09:45	From synaptic molecular dynamics to neurodegenerative diseases: single-molecule insights into synaptic physiology and Alzheimer's disease <i>Hiroko Bannai, Waseda University, Japan</i>
10:10	Single molecule nanoscopy of in-situ protein architecture: neuronal synapses and synaptopathies. <i>Adish Dani, TIFR Hyderabad, India</i>
10:35	<b>Industry Talk: Gurjeet Arora, Hamamatsu Photonics, UK</b> TBA
10:50	<b>High Tea</b>
11:20	Single particle investigation of the role of apoE in promoting liquid to solid transition of the Tau condensates. <i>Kanchan Garai, TIFR Hyderabad, India</i>
11:45	Single-molecule analysis of spatiotemporal EGFR behavior dynamics in cells. <i>Michio Hiroshima, The University of Osaka, Japan</i>
12:10	The other DNA: How BRCA1 deciphers non-canonical structures? <i>Nibedita Pal, IISER Tirupati, India</i>
12:35	<b>Industry Talk: Sebastian Raja, Leica Microsystems, India</b> Leica FALCON: Quantitative fluorescence lifetime imaging for functional and molecular contrast in confocal microscopy.
12:50	<b>Lunch</b>
14:00	<b>Keynote: Deepak Nair, IISc Bangalore, India</b> From pixels to polygons: unveiling nanoscale plasticity at excitatory synapses.
14:45	Single molecule conformational dynamics of T-cell receptor and DNA holiday junction. <i>Dibyendu Kumar Sasmal, IIT Jodhpur, India</i>
15:10	Single-molecule imaging for actin dynamics. <i>Naoki Watanabe, Kyoto University, Japan</i>
15:35	<b>Industry Talk: Aishwarya Sivakumar, Oxford Instruments, UK</b> Streamlined 3D/4D image analysis with Imaris 11 for confocal microscopy.
15:50	<b>High Tea</b>
16:30	Super-resolution imaging reveals nanoscale lysosomal adaptations to nutrient signaling. <i>Nitin Mohan, IIT Kanpur, India</i>
16:55	Revealing the mechanics of life one molecule at a time with DNA origami tools <i>Mitsuhiro Iwaki, National Institute of Information &amp; Communication Technology, Japan</i>
17:20	Spatial regulation mechanism of GPCR signaling. <i>Masataka Yanagawa, Kyoto University, Japan</i>
17:45	Nano- and Micro- Electromechanical Mass Sensor with Sub-zeptogram Resolution; Towards Single Molecule Protein Identification. <i>SangWook Lee, Ewha Women's University, Korea</i>
18:10	India Bioluminescence: The Growing Bioluminescence Network in India. <i>Santosh Poddar, IISER Pune, India</i>
18:25	<b>Concluding remarks</b> Dr. Mahipal Ganji and Prof. Naoki Watanabe (Co-convenors of SiMBio2026), Poster Awards, Sponsor Awards
19:00	<b>Dinner</b>

SESSION CHAIR: Dr. Avanthi Althuri, Diksha Panwar

SESSION CHAIR: Dr. Nibedita Pal, Akriti Kumari

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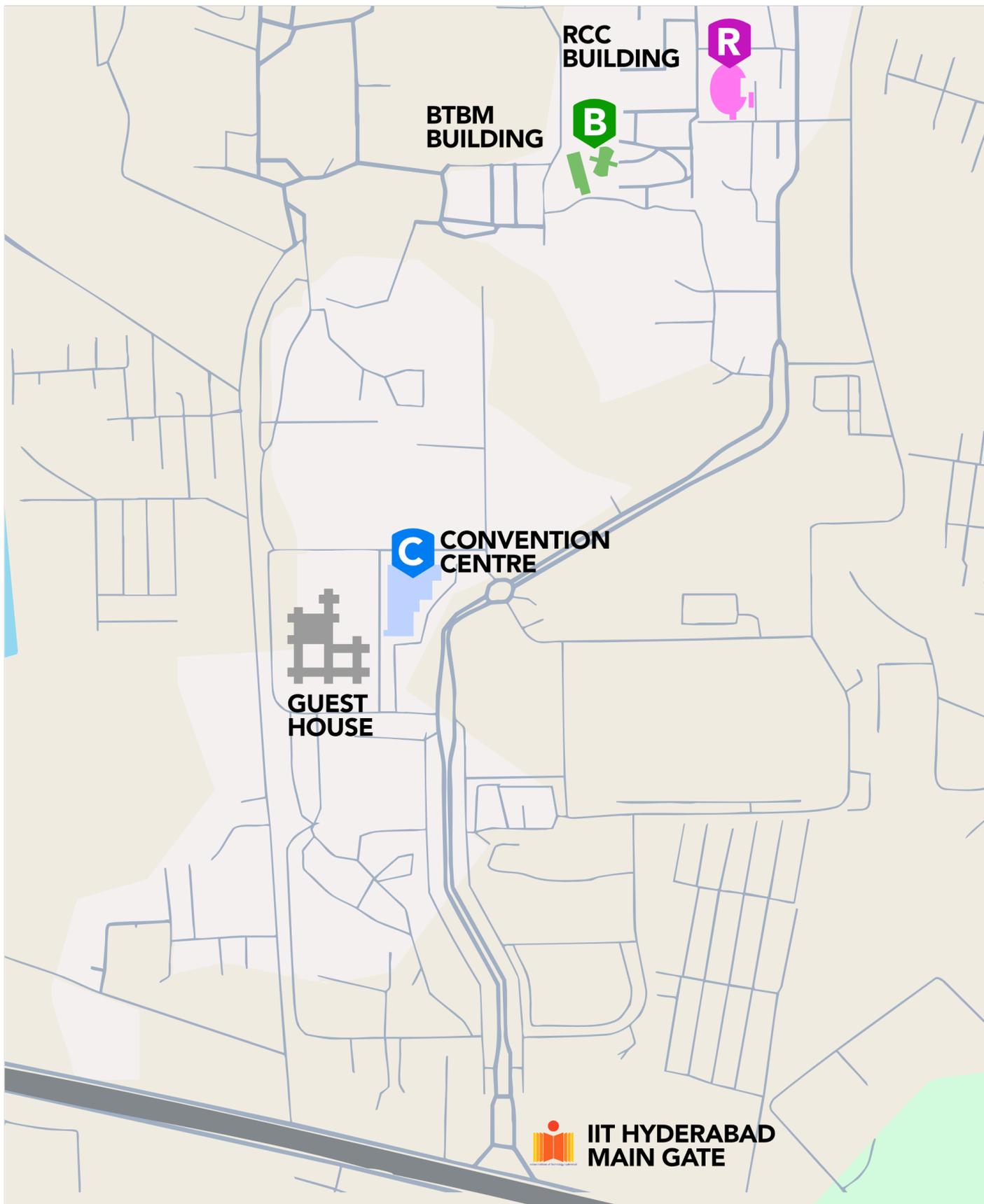
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