Report of the Webinar

on

“Excitonic Photovoltaic Technology: Development, Structure, Working Mechanism, Materials, Optimization, and Device Fabrication”

Conducted on **23rd December, 2025**

Organized by

Department of Basic Sciences & Humanities,
College of Engineering and Management, Kolaghat, WB, India.
KTPP Township, Purba Medinipur, WB – 721171

Platform: Online (Google meet)

I. About the College

The College of Engineering and Management, Kolaghat, is a premier engineering institute established in September 1998 and run by the Vidyasagar Society for Integrated Learning (VSIL) under the Department of Power, Government of West Bengal. The institution is governed under strong leadership, with the Hon'ble Minister-in-Charge of the Department of Power, Government of West Bengal, serving as the Chairman of the college.

The college is approved by the All India Council for Technical Education (AICTE) and is affiliated with Maulana Abul Kalam Azad University of Technology, West Bengal (formerly known as WBUT). Spread over a lush 32-acre campus, the college is located within the integrated township of the Kolaghat Thermal Power Plant, managed by WBPDCL.

The institution offers six undergraduate B.Tech programs, namely Computer Science and Engineering (NBA accredited), Artificial Intelligence and Machine Learning, Information Technology, Mechanical Engineering, Electronics and Communication Engineering, and Electrical Engineering. The college provides an ideal academic environment for students and faculty members to pursue excellence in education, research, and overall professional development.

II. Background of the Webinar

Excitonic photovoltaic technology converts solar light into electrical energy through the generation of excitons (bound electron–hole pairs) rather than free charge carriers as in conventional silicon solar cells. Growing interest in this technology is driven by advances in organic, polymer, dye-sensitized, and perovskite materials, which offer low-cost processing, flexibility, and tunable optoelectronic properties. These devices typically consist of layer-by-layer architectures with nanometer-scale thickness that facilitates light absorption, exciton generation, diffusion, dissociation at donor–acceptor interfaces, efficient charge transport to electrodes and finally charge collections through carefully engineered interfaces and energy-level alignment. Ongoing research focuses on improving light absorption, charge mobility, interfacial engineering, morphology control, phase separation, device stability and fabrication techniques for practical and commercial applications.

III. Organizing Committee

Prof. Dilip Kumar Gayen (Patron)
Director, CEMK
Email id: director@cemk.ac.in
Mobile: 9434032803

Dr. Anirban Das (Advisor)
Head of the Department, Basic Sciences and Humanities
Email id: hodbsh@cemk.ac.in
Mobile: 9749359882

Dr. Amit Kumar Jana (Coordinator)
Assistant Professor, Department of Basic Sciences and Humanities
Email id: amit@cemk.ac.in
Mobile: 9434506732

IV. Resource Person

Welcome Address by Dr. Anirban Das
Head of the Department, Basic Sciences and Humanities
Email id: hodbsh@cemk.ac.in
Mobile: 9749359882

Keynote Address by Prof. Dilip Kumar Gayen
Director, CEMK
Email id: director@cemk.ac.in
Mobile: 9434032803

Plenary Talk by **Dr. Asit Patra**
Senior Principal Scientist, CSIR-National Physical Laboratory, New Delhi.
Email: apatra.nplindia@csir.res.in
Mobile: 9899496641

V. Audience: Faculty members, Staff members and Students

Registration fee: NIL

Link to join the webinar: https://meet.google.com/pov-sqbd-nwf
(Not active now)

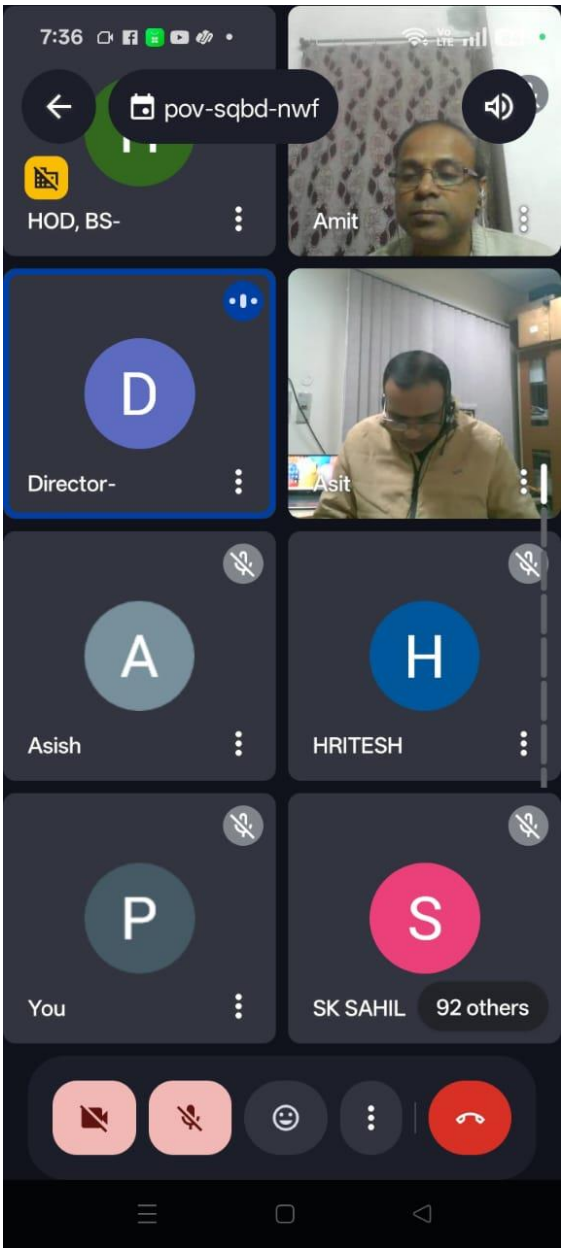
VI. Program Schedule

1. Introduction by Moderator/Coordinator	7.30 PM to 7.32 PM
2. Welcome Address by HOD	7.33 PM to 7.35 PM
3. Keynote Address by Director	7.36 PM to 7.39 PM
4. Plenary Talk by Speaker (including interactions with the participants)	7.40 PM to 8.30 PM
5. Vote of Thanks by Coordinator	8.31 PM to 8.33 PM

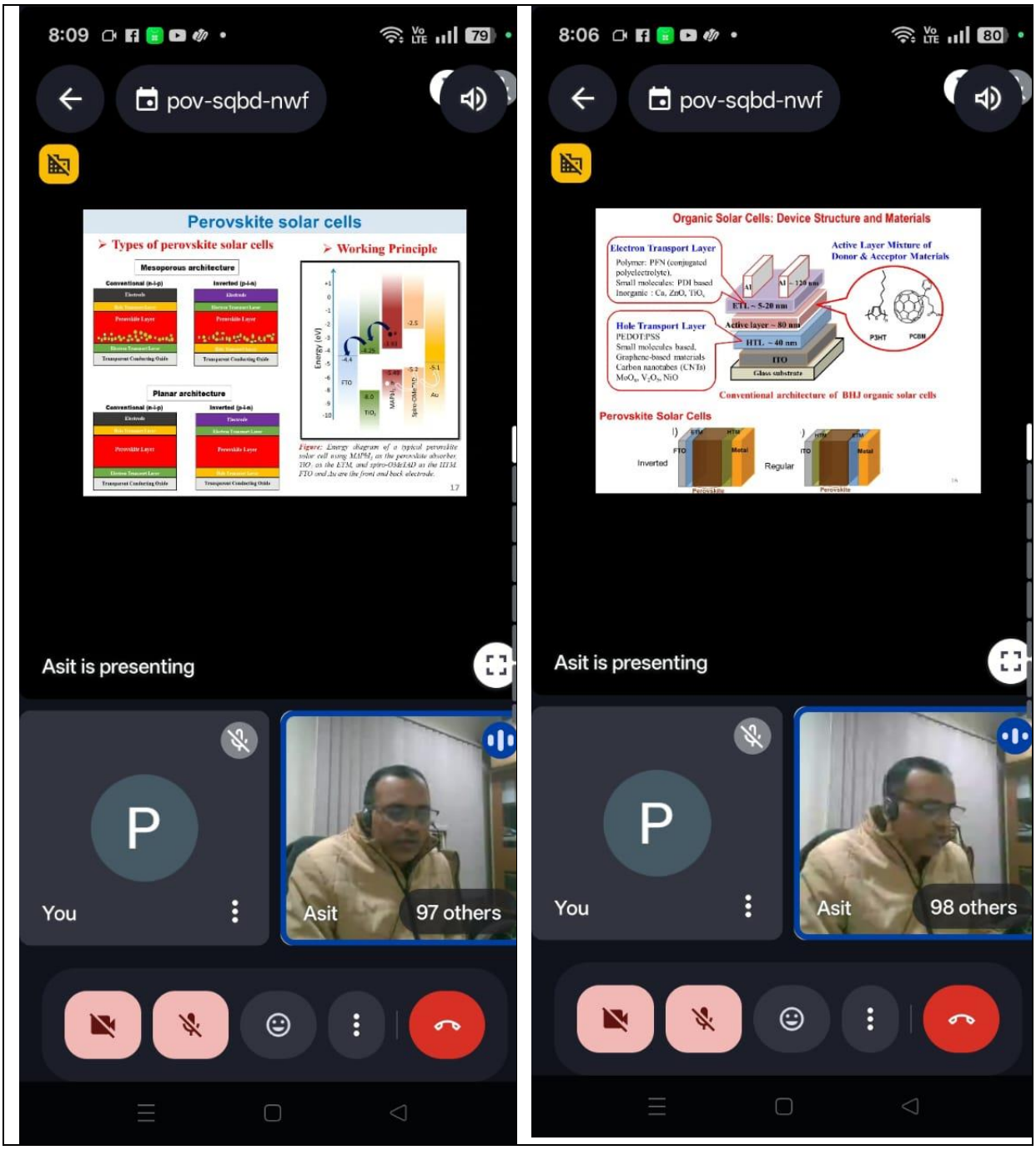
VII. PPT of the Talk attached

VIII. Screenshots of online session:

(a) Key note address by the Director



(b) Plenary talk by Dr. Asit Patra



IX. Feeback Form

The feedback form is sent through the following link:

https://docs.google.com/forms/d/e/1FAIpQLSfwIaP8PDcuNlnBkopcgObaQJtKbDk4quEhp48hFsX-AGVhhA/viewform?usp=publish-editor

X. Number of participants

Total 100 participated in the program.

XI. Certificates

Certificates are being provided to all participants. A sample copy is attached.