



## Report on International Conference on Recent Advances in Materials & Biological Sciences

Venue: Centre of Excellence, Govt. College Sanjauli, Shimla – 06

Dates: November 19 -20, 2024

The Department of Sciences at Centre of Excellence, Govt. College Sanjauli, under the DBT Star College Scheme, successfully hosted an International Conference on Recent Advances in Materials & Biological Sciences on November 19 and 20, 2024.

### Day 1: Inaugural Session

The conference began with a warm welcome to the dignitaries, followed by the felicitation of the Chief Guest, **Sh. Rakesh Kanwar**, Secretary of Education, Government of Himachal Pradesh; the Guest of Honour, **Dr. Mahavir Singh**; the Keynote Speaker, **Dr. Ravi Kumar**; and other esteemed guests.



In her inaugural address, the Principal of the college, **Prof. Bharti Bhagra**, highlighted the theme of the conference, focusing on the synergy between material and biological sciences. She also announced the inauguration of the **Nanomaterial Research Laboratory** in the Department of Physics.





The Chief Guest, **Sh. Rakesh Kanwar**, emphasized the importance of scientific temperament, cultural harmony, and the role of science in everyday life. He encouraged students to read popular science literature to broaden their perspectives.







The Coordinator of the Conference & DBT Star College Scheme, **Dr. Kirti Singha**, outlined the objectives of the conference and its role in fostering scientific growth.



The abstract book was unveiled by the Chief Guest, **Sh. Rakesh Kanwar**, Secretary of Education, Government of Himachal Pradesh, during the inaugural session of the conference.



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 Shimla Bypass, Sanjauli, Shimla, 171006, Himachal Pradesh, India  
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The Keynote Speaker, **Dr. Ravi Kumar** from NIT Hamirpur, delivered an insightful talk on "Exposition of P-type Transparent Conducting and Magnetic Oxide Materials," focusing on the development of  $\text{Cr}_2\text{O}_3$ -based transparent conducting oxides (TCOs).

The Guest of Honor, **Dr. Mahavir Singh**, explored topics like Fourier transforms, magnetism, green energy, and alternatives to lithium-ion batteries. He also emphasized the significance of coding and data science in modern academia.

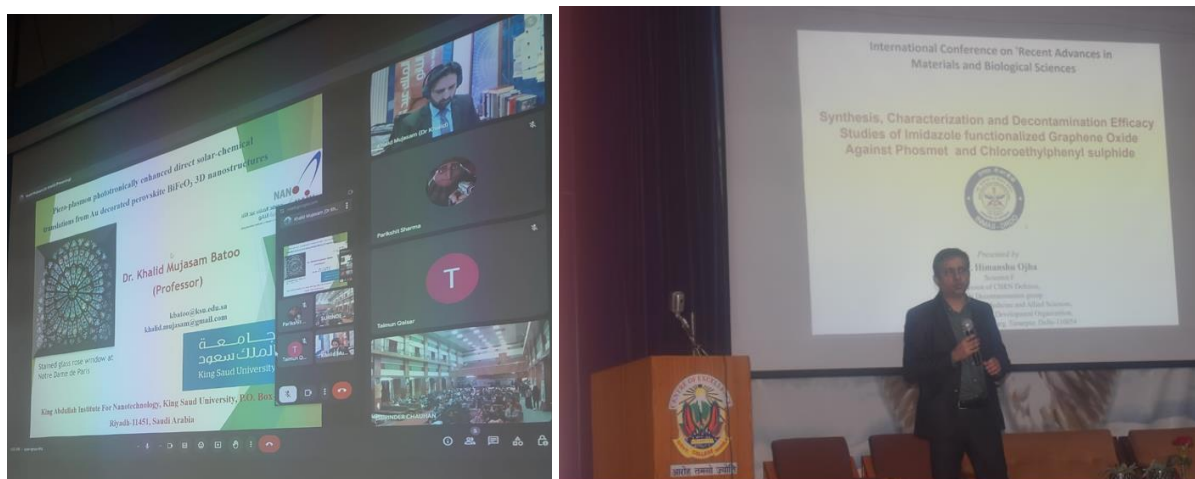


The session concluded with a vote of thanks by **Prof. Deepti Gupta**, acknowledging the contributions of all dignitaries and participants.

### Plenary Session (Post-Lunch)

The plenary session, chaired by **Dr. O.S.K.S. Sastri**, Professor at Central University, Himachal Pradesh, featured the following notable presentations:

- **Dr. Khalid Mujasam Batoo** (King Saud University) discussed "Piezo-Plasmon Phototronically Enhanced Direct Solar-Chemical Translation from Au-Decorated Perovskite, BiFeO<sub>3</sub> Nanostructures," highlighting their piezoelectric and plasmonic properties.
- **Dr. Himanshu Ojha** (DRDO) presented "Synthesis, Characterization, and Decontamination Efficacy Studies of Imidazole-Functionalized Graphene Oxide," elaborating on its properties, SEM analysis, and decontamination efficacy.



The session ended with a vote of thanks by the chairperson, **Dr. O.S.K.S. Sastri**.

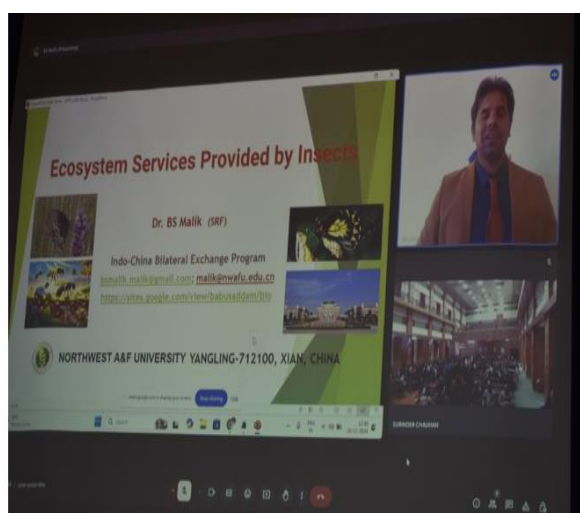
### Technical Sessions

1. **Technical Session I:** Chaired by **Dr. Pawan Kumar** (HFRI, Shimla), with 12 paper presentations in the Conference Hall.
2. **Technical Session II:** Held in the Computer Lab, chaired by **Dr. Sandeep Chauhan** (H.P. University), co-chaired by **Dr. Gaurav Mittal** (LSRB-DRDO), featuring 10 presentations.
3. **Technical Session III:** A poster presentation chaired by **Dr. Kartik S.M. Chauhan** and **Dr. Arun Kumar**, with 20 posters displayed in the College Auditorium Gallery.

### Day 2: Plenary Session

The second day began with a plenary session chaired by **Dr. B.S. Kaith**. Key presentations included:

- **Dr. Sanjeev K. Thakur** (Central University, Punjab) on "Crop Resilience to Climate Change, Sustainable Agriculture, and Food Security," addressing global temperature impacts and sustainable solutions.
- **Dr. B.S. Malik** (Northwest Agriculture and Forestry University, China) on "Ecosystem Services Provided by Insects," emphasizing their ecological roles and benefits.



**Dr. B.S. Kaith** concluded the session with his gratitude to the speakers for their valuable insights.

#### Technical Sessions

4. **Technical Session IV:** Chaired by **Dr. Sumesh Sood** (HPU), co-chaired by **Dr. Anant Vidya Nidhi** (GDC Solan), featuring 16 paper presentations.
5. **Technical Session V:** Chaired by **Dr. Minakshi Sharma** (CoE, Sanjauli), with 20 papers presented in the Biology Lecture Theatre.
6. **Online Technical Sessions VI & VIII:** Moderated by **Prof. Mona Sharma**, chaired by **Dr. Sapna Sharma**, Associate Professor (St. Bede's College) and **Dr. Suresh Kumar** (HPU), with 09 papers presented.

#### Model Display and Innovative Award – 2024

Students from six schools participated in the **Innovative Model Display and Demonstration**. The **Innovative Award – 2024** was won by **Govt. Uttkrisht Sr. Sec. School, Chhota Shimla**, followed by **Swarn Public High School, Tutikandi**, and **Govt. Uttkrisht Sr. Sec. School, Phagli**.



#### Valedictory Session

The valedictory session, chaired by **Dr. O.S.K.S. Sastri**, began at 2:45 PM. The Vice Principal, **Dr. Deepak Kaprate**, welcomed the dignitaries and attendees. **Prof. Anuj Sharma** (Department of Physics) presented a detailed report of the two-day conference.





In his valedictory speech, **Dr. Pawan Kumar Sharma** (Principal, GDC Shree Renuka Ji) commended the organizers. Feedback was shared by **Dr. Needhi Dhatwalia** (Govt. College Theog), **Mr. Rohit Duglate** (HPU Research Scholar), **Mr. Jyoti Prakash** (Shoolini University), and a **B.Sc. 1st-year student** from the host college.

The Chief Guest, **Dr. O.S.K.S. Sastri**, delivered an inspiring address, urging students to prioritize becoming good human beings alongside academic and career excellence.





The session concluded with the distribution of awards and certificates. The **Best Poster Presentation Award** was won by **HPU Research Scholar, Jyoti Prakash** (Shoolini University), while won the **Best Paper Presentation Award**.

The stage proceedings were expertly conducted by **Dr. Pooja Dulta** and **Dr. Shikha Chandel**. The conference ended on a high note with a vote of thanks by **CSCA president Ms Neha** and the **Coordinator of the DBT Star College Scheme**, followed by the **National Anthem**.



**Report Compiled and submitted by: Dr. Kirti Singha, Conference Coordinator  
Coordinator DBT Star College Scheme**

The poster features a light blue background with a yellow and blue diagonal stripe at the bottom. At the top center is the logo of the Centre of Excellence, Govt. College Sanjauli, Shimla-06, which includes a globe and the text 'Centre of Excellence'. Below the logo, the text reads: 'Centre of Excellence Govt. College Sanjauli, Shimla-06 (NAAC accredited with A+ grade institution)'. This is followed by 'Invites you to the' and 'INTERNATIONAL CONFERENCE' in large blue letters. The main title 'Recent Advances in Materials & Biological Sciences' and the dates 'NOVEMBER 19-20, 2024' are in bold black text. A vertical line separates the 'VENUE' section, which lists 'Centre of Excellence Govt College Sanjauli, Shimla - 06'. At the bottom, there is the logo of the Department of Biotechnology, Government of India, and the text 'Under DBT- Star College Scheme Ministry of Science and Technology Govt. of India'.

**Centre of Excellence Govt. College Sanjauli, Shimla-06**  
(NAAC accredited with A+ grade institution)

Invites you to the

**INTERNATIONAL CONFERENCE**

**Recent Advances in Materials & Biological Sciences**  
**NOVEMBER 19-20, 2024**

**VENUE**  
Centre of Excellence  
Govt College Sanjauli, Shimla - 06

**Under DBT- Star College Scheme**  
**Ministry of Science and Technology Govt. of India**



Centre of Excellence Govt. College Sanjauli, Shimla

## International Conference RECENT ADVANCES IN MATERIALS & BIOLOGICAL SCIENCES

November 19-20, 2024

Organized  
by

Department of Sciences  
Centre of Excellence Govt. College  
Sanjauli Shimla - 06

in  
Collaboration with DBT  
Ministry of Science and Technology  
Govt. of India



Under DBT-Star College Scheme



### ABOUT COLLEGE

Aaroh Tanso Jyoti—"May we rise from darkness to light," symbolizes the journey from ignorance to knowledge, which is the guiding principle of the Centre of Excellence at Government College, Sanjauli, Shimla-6. This motto invites reflection on the institution's commitment to value-based education. Established as Shimla's first Degree College on July 1, 1969, the institution holds a unique distinction. In 2006, it was honored with the status of "Centre of Excellence" by the Government of Himachal Pradesh. In 2023, the college achieved an 'A+' grade from NAAC, becoming the first government college to receive this prestigious accreditation. Moreover, in January 2023, the college secured funding under the esteemed DBT Star College Scheme by ministry of science & technology, Govt. of India. Located just 2 km from The Ridge, it is easily accessible from Sanjauli, Lakkar Bazaar, and Circular Road. Nestled in an urban forest surrounded by lush cedar and oak trees, the college offers an inspiring setting for both academic and creative pursuits.

### CONCEPT

The Centre of Excellence, Government College Sanjauli, Himachal Pradesh, is pleased to announce an International Conference to be held on November 19-20, 2024, under the auspices of the DBT Star College Scheme. This significant event aims to bring together scholars, researchers, practitioners, and industry leaders from around the globe to engage in a stimulating exchange of ideas, research findings, and innovative applications. Participants will also have the opportunity to build international collaborations and partnerships for future projects.

### PATRON

**Ms. Bharti Bhagra**  
Principal, COE, Govt. College Sanjauli

### CHAIRPERSON

**Ms. Bharti Sharma**  
Dean of Sciences, COE, Govt. College Sanjauli

### CO - CHAIRPERSON

**Dr. Meenakshi Sharma**  
Head, Dept. of Zoology, COE, GC Sanjauli

### CONFERENCE COORDINATOR

**Dr. Kirti Singha**  
Coordinator DBT-Star College Scheme  
Dept. of Physics, COE, Govt. College Sanjauli

### FACULTY CONVENERS

**Ms. Deepthi Gupta**  
**Mr. Anuj Sharma**  
**Dr. Girish Sharma**  
**Mr. Surender Chauhan**

### ORGANIZING SECRETARIES

**Ms. Shalu Dulta**  
**Dr. Shweta Sharma**  
**Mr. Yogesh Kumar**  
**Ms. Rita Chandel**  
**Dr. Sushil Sharma**

### JOINT- ORGANIZING SECRETARIES

**Mr. Shubham Chaudhary**  
**Mr. Lakhbeer Singh**  
**Dr. Shikha Chandel**  
**Ms. Sarla Thakur**

### ORGANIZING COMMITTEE

**DBT, Star College Scheme Committee**  
COE, Govt. College Sanjauli

### OBJECTIVES

- To provide a multidisciplinary platform for discussions on contemporary research and advancements across various scientific domains.
- To facilitate the sharing of innovative approaches and new research methodologies.
- To highlight practical applications of scientific advancements in different fields.
- To foster collaboration between academic institutions, research centers, and industries.

### THEMES OF THE CONFERENCE

Material Science      Biological Sciences  
Chemical Sciences    Environmental and Earth Sciences  
Physical Sciences    Computer science and Mathematical Sciences

### SUB THEMES OF THE CONFERENCE

- Nanomaterials and Nanotechnology
- Nuclear Astrophysics
- Recent trends and emerging technologies in plant sciences.
- Plant science in human and planetary health
- Chemistry in medicine and nanomaterials.
- Innovations and recent trends in Chemical sciences
- Unveiling the synergy between zoology and technology
- Pollinator decline and ecosystem health
- Artificial Intelligence and Machine Learning
- Cybersecurity and Data Privacy

### IMPORTANT DATES/DEADLINES

Last date for submission of abstracts **5 November, 2024**  
Acceptance of abstracts **7 November, 2024**  
Registration for accepted abstracts **8 November, 2024**  
Last date for online fee submission **10 November, 2024**

### Guidelines for submission:

- The abstract should not exceed 300 words, and the full length paper should not be less than 3000 words typed in Times New Roman font size 12 points with double spacing.
- The title of the paper should be in upper case centred and bold with font size 14 points.
- Author(s) name and affiliation(s), centred with font size 11 points. Author's address and email are mandatory.
- All submissions should be in MS word only.

**The abstract should be sent in the desired format through Google Form Link:**

<https://forms.gle/fL9E7Mu7a9o6rtWDA>

### REGISTRATION INFORMATION

**SUBMISSION OF REGISTRATION FEE**  
A/c No. 169801504635, ICICI Bank, Sanjauli Branch, Shimla, HP. IFSC code: ICIC0001698  
Mail the receipt to:  
dbtstarcollegeschemegcsanjauli@gmail.com

### ADVISORS

**Dr. Garima Gupta**, Scientist -'F',  
Programme Officer & Head, Star College Scheme,  
Ministry of Science & Technology,  
Government of India, New Delhi.  
**Prof. PK Ahluwalia**, HPU, Shimla India(Ad. Member DBT)  
**Prof. Mahavir Singh**, HPU, Shimla India  
**Dr. Khalid Mujasam Batoo**, King Abdullah Institute for  
Nanotechnology, King Saud University  
**Dr. Sobhan Sen**, Dean School of Physical Sciences, JNU, Delhi  
**Dr Pawan Kumar**, Scientist F, ICFRE -HFRI Shimla  
**Dr. C. B. Mehta**, Ret. Principal  
**Dr. Maneesha Kohli**, OSD, DHE, Shimla  
**Mr. Deepak Kaprate**, Vice Principal, GC Sanjauli  
**Dr. Sandeep Chauhan**, HPU, Shimla(Ad. Member DBT)  
**Dr. Suresh Kumar**, Department of Biosciences, HPU  
**Prof. B.S. Kaith**, NIT Jalandhar, India  
**Dr. Susheel Kalia**, Dept. of Chemistry, IMA, Dehradun, India.  
**Dr. Virender Pratap Singh**, Dept. of Physics, GC Hamirpur  
**Dr. Vikas Nathan**, Dept. of Chemistry, GC Theog  
**Dr. Rohit Jasrotia**, Shoolini University, Solan

### INVITED SPEAKERS



**Dr. Bhuvanesh Gupta**  
Professor  
Department of Textile  
Technology, IIT Delhi



**Dr. Khalid Batoo**  
Professor  
King Saud University



**Dr. Dinesh Pathak**  
Head, Dept. of Physics,  
University of West Indies,  
St Augustine Campus, Trinidad



**Dr. Ravi Kumar**  
Professor, Dept. of Material  
Science and Engineering,  
NIT, Hamirpur



**Dr. B.S. Malik**  
SRF, Dept. of Agriculture, Entomology  
& Pest control, Northwest Agriculture  
and forestry university, Xian, China



**Dr. Himanshu Ojha**  
Scientist F, Institute of Nuclear  
Medicine and Allied Sciences,  
DRDO, New Delhi



**Dr. Sanjeev K. Thakur**  
Professor  
Department of Botany  
Central University, Panjab

### REGISTRATION FEE

Participants	Indian delegates (INR)	Foreign delegates(USD)
Academician	₹1000	\$100
Research Scholars	₹800	\$50
Industry personals	₹2000	\$200
On spot Registration	₹1500	\$300

The conference proceedings are proposed to be published with an ISBN/ISSN

### AWARDS

- Best Paper Presentation
- Best Poster Presentation

### SCIENCE PROJECT DISPLAY

On the second day of the conference, a project display will be held. Interested students from District Shimla are invited to showcase their working science projects between 9:00 AM and 12:00 PM on November 20, 2024. An Innovation Award 2024 will be presented for the best working science project.

### The eligibility criteria are as follows:

- Students from Classes 10, 11, and 12
- Students must present school-issued ID cards or participation letters duly signed by the school principal
- Projects should be innovative and functional
- Projects must be related to the field of science

### Awards and Certificates:

- Innovation Award 2024 with a cash prize of ₹3000**
- First Runner-Up: ₹2000**
- Second Runner-Up: ₹1000**

All participants will receive a certificate of participation.

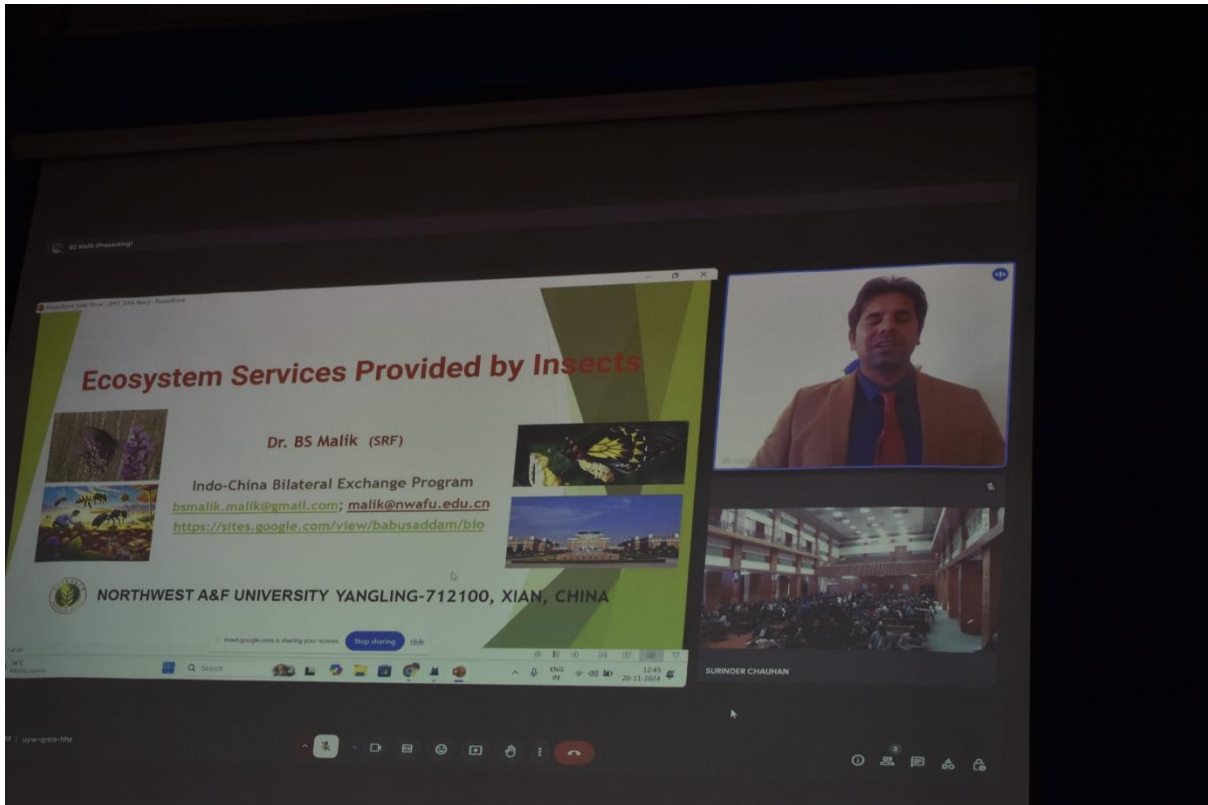
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9893128635: Accommodation and Other  
Inquiries  
dbtstarcollegeschemegcsanjauli@gmail.com  
COE, Govt. College Sanjauli, Shimla-6

## Highlights of the International Conference: A Showcase of Plenary Sessions, Technical Discussions, and Innovative Model Displays





























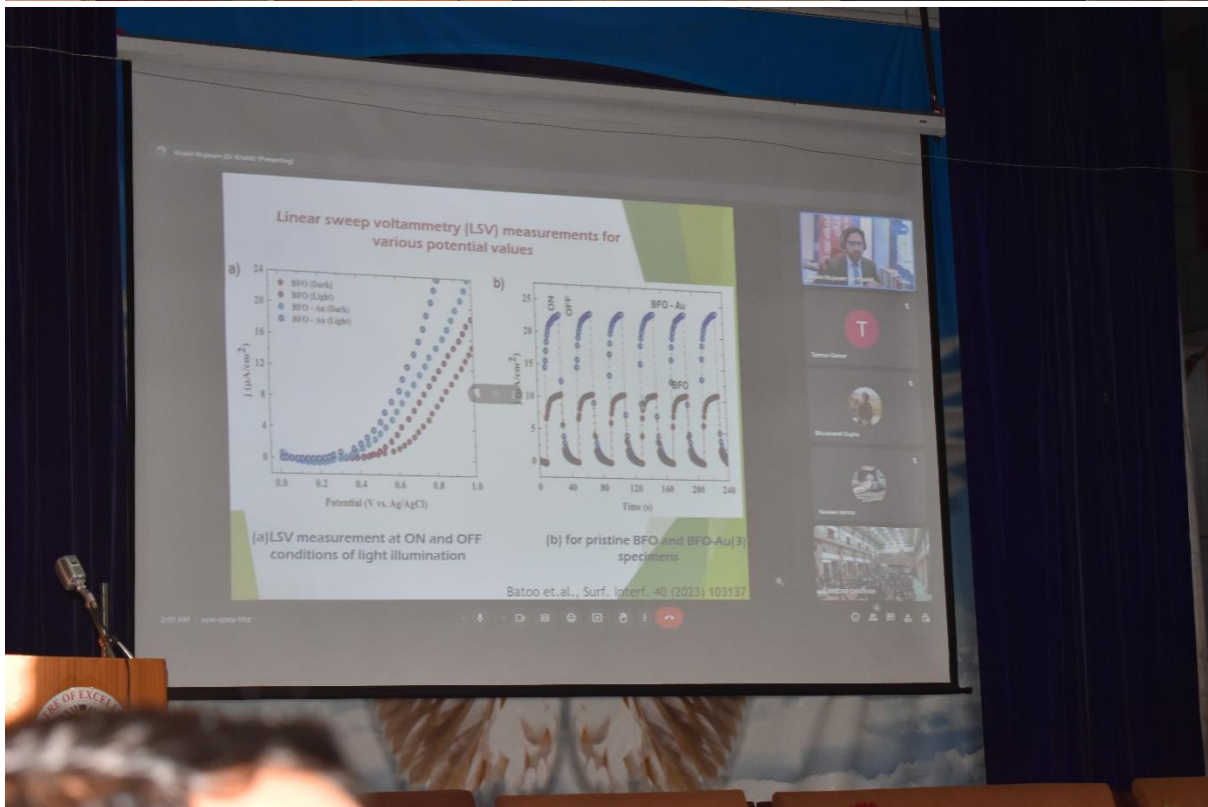




















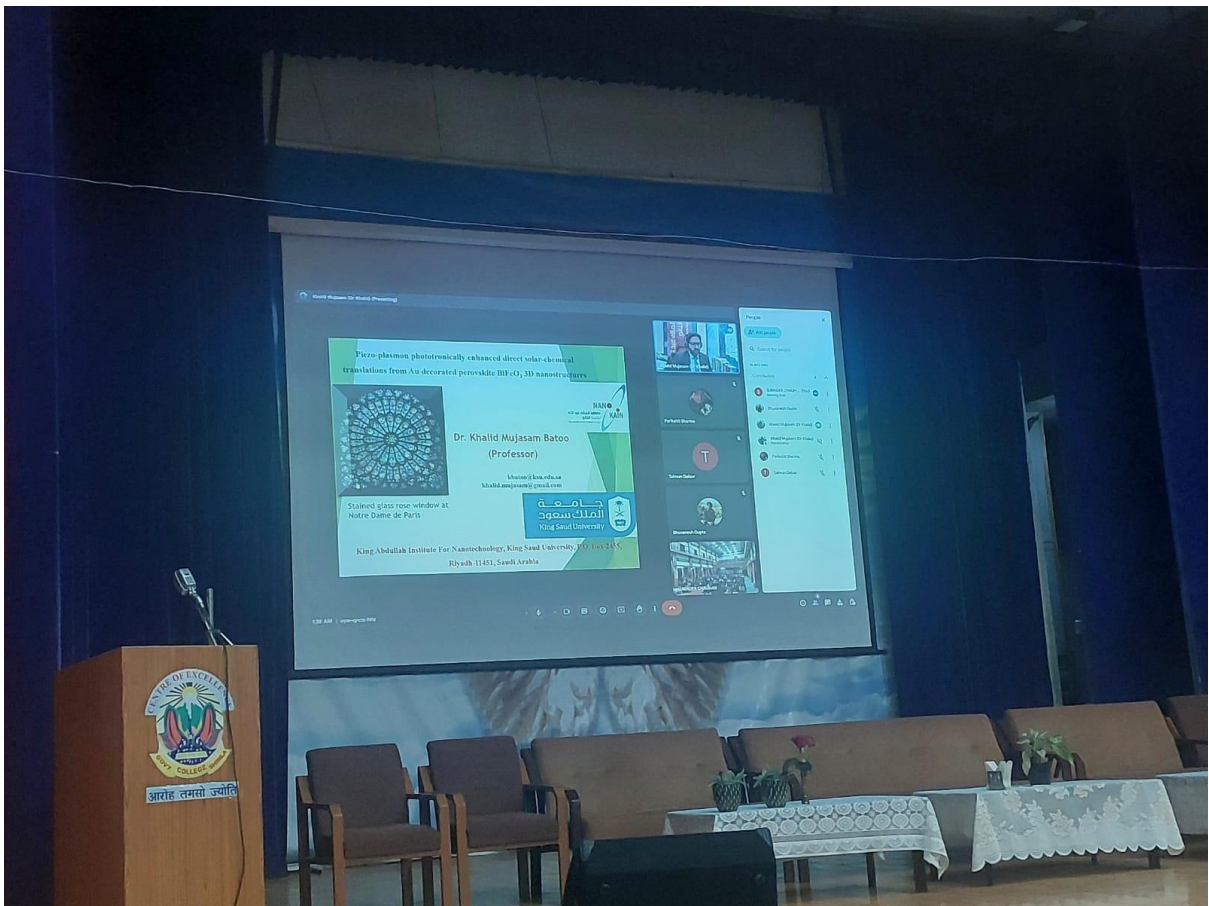


















**Shimla, Himachal Pradesh, India**

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GPS Map Camera



