

(ICMIAM-2020)

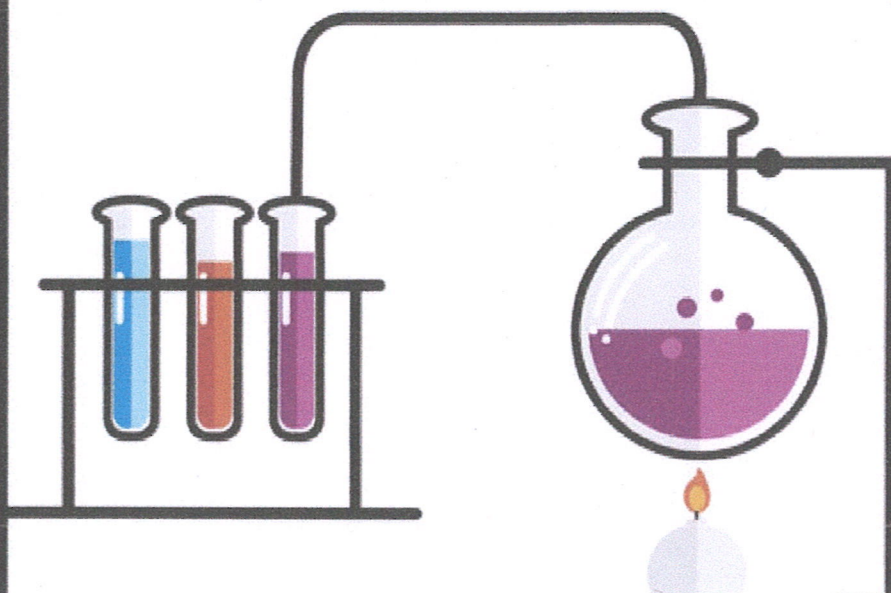
*Report*  
*On*  
*One Day International*  
*E-Conference*

**“MULTIFUNCTIONAL  
ADVANCED MATERIALS” Friday,  
07th August, 2020**

**ORGANIZED BY**

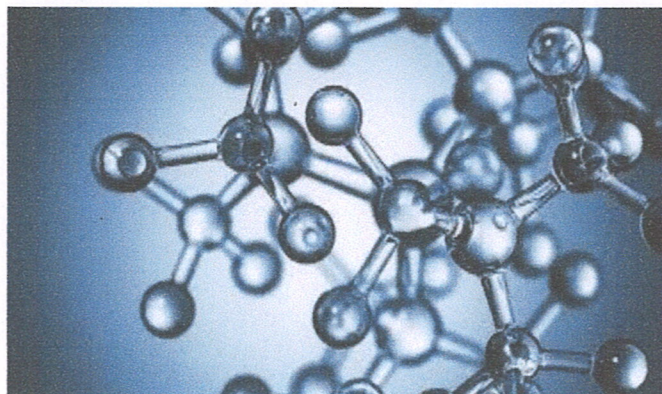
***DEPARTMENT OF CHEMISTRY***

**Mahatma Gandhi Arts, Science and Late N. P.  
Commerce College Armori.  
Dist. Gadchiroli (M.S.)**



**A Report**  
**on**  
**One Day International E-Conference**  
**On**  
**“MULTIFUNCTIONAL ADVANCED MATERIALS**  
**(ICMAM-2020)”**

**Friday, 07<sup>th</sup> August, 2020**



***ORGANIZED BY***

**DEPARTMENT OF CHEMISTRY**

**MAHATMA GANDHI ARTS, SCIENCE AND LATE N. P.**

**COMMERCE COLLEGE**

**ARMORI, DIST. GADCHIROLI (M.S.)**

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## **1. Background**

ICMAM-2020 International e- Conference is a medium to bring together researchers, scientists, and industry professionals to converse on innovative ideas and diverse topics on multifunctional advanced materials. In this conference participants joined from different countries like Japan, Korea, Thailand, Nepal, Nigeria etc. The conference was conducted on Zoom platform and the participants who were not able to join The Zoom meeting application were connected through YouTube platform. Thousands of attendees have been benefited in numerous ways from this conference. The organizers invited four International Keynote Speakers who addressed audience and shared knowledge and their well-heelled experience of application about different advance material in their respective companies and countries. The e-conference is one such educational intervention planned to provide opportunity to participants for understanding in recent advances in chemical science research.

## **2. Aims & Objectives**

This workshop would focus on

- To know recent advances in material science Research.,
- To interact researchers, industry practitioners, academicians, research scholars and students  
With strong research orientation.
- Encourage rural area scholars in the area of research.
- Provide forum for developing, discussing and presenting new ideas and the emerging  
Phenomena in digital transformation.

## **3. Scope of conference**

Materials are probably more deep-seated in our culture than most of us realize. Transportation, housing, clothing communication, reaction and food production and virtually every segment of our daily lives is influenced to one degree or another by materials. Materials have contributed to the advancement of a number of technologies, including medicine and health, information and communication, national security and space, transportation, structural materials, arts and literature, textiles, personal hygiene, agriculture and food science, and the environment. The excitement of Material Science and Engineering is amplified by its intimate connections with other disciplines and its impact on daily life. These inter-disciplinary interactions between the Material sciences and other



fields in the development of new materials and their applications also require close interaction and clear communication between scientists working in diverse areas.

As the contribution of materials science and engineering to other disciplines increases, it will become necessary for scientists of all backgrounds to better understand how to undertake collaborative activities with other disciplines. Although it is not feasible for scientists to master a vast body of scientific knowledge over many disciplines, scientists must gain the skills that will allow them to master specific topics. The presentations given by keynote speakers represent an attempt to present a relatively brief overview of Materials Science and Materials Engineering and their roles in the present day world. Thus, emphasis is placed on the relationship between structure and properties of materials, starting with the concept of structure 'at three levels – crystal structure, microstructure, and molecular structure. It will also be an attempt to examine the four components that make up the whole gamut of the discipline of materials science and engineering and their inter-relationship. Furthermore, the presentation will try to decipher the needs to study Materials Science and Engineering as well as take a look at classification of Engineering Materials and their importance in various live endeavours.

#### **4. ICMAM-2020 covered the following research and development areas/fields**

- Composite material, Nanomaterial, Nano-sensor.
- Concept of electronic band structure
- Calculation of electron and hole transport in solar cell
- Density and functional theory
- Nano-ferrites, semi-conductor materials
- Ferroelectric materials
- Nano biosensor, nano electronics

#### **5. Platform of Workshop**    The e- conference was held on online on

Zoom

You Tube



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ansel*

## **Organizing Committee**

The organizing committee of the workshop was as follows:

<b>Dr. L. H. Khalsa (Principal):</b>	Organizing institution
<b>Prof. S. M. Sontakke:</b>	Convener
<b>Dr. S. S. Kola:</b>	Organizing Secretary
<b>Dr. N. D. Bansod:</b>	Organizing Secretary

## **6. Inaugural Session and Expert Talks**

The first session of the conference started with welcoming and opening ceremony on zoom platform. The honorable principle of our college Dr. L. H. Khalsa welcomed the Keynote speakers and all the participants. Also, the convener Prof. S. M. Sontakke addressed the participants and gave a brief idea of the e-Conference and introduced 'Dr. Pankaj Koinkar'; the first keynote speaker.

### **Technical session**

The first invited speaker of the e-conference was **Dr. Pankaj Koinkar**, Associate Professor, the Department of Optical Science, and Tokushima University, Japan. He delivered talk on "A Powerful Route to Produce Nanomaterial's via Laser Ablation Technique in Liquid and their Applications."

After each technical session participants discuss their queries with resource persons.

Second invited Speaker **Dr. W. B. Gurnule** Associate Professor, the Department of Chemistry, Kamla Nehru Mahavidyalaya Nagpur, and Maharashtra, India noted on "Multifunctional material and its impact on society." Third invited speaker **Dr. D. O. Obada** Dept. of Mechanical Engineering, Ahmadu Bello University, Zaria, Nigeria expressed his views on "Density functional theory and the concepts of the electronics and band structure calculations of electron and hole transport layers in perovskite solar cells. Fourth invited speaker **Dr. B. P. Kafle**, Associate Professor Dept. of Chemical Science & Engineering Kathmandu University, Nepal expressed his views on generation photovoltaic cell.

## **7. Participants of the Program**

In this e-Conference there was 2346 participants have done Registration and give feedback for program which includes, faculties, research scholars and post graduate students and industrialist from all over world. More than 5000 People have taken advantage on you tube platform though some of them not done registration due to limited seats. Overall, the program was Excellent and huge response from all over the world all the dignitaries and concern person attended the program and made it a very successful.


  
N. D. Bansod


## 8. Acknowledgements & Closing Ceremony

Dr. Naresh D. Bansod expressed deep gratitude to the keynote speakers, participants, and aiding hands for making the e-conference successful; on behalf of organizing committee. Dr. Satish Kola anchored the e-conference.

### Annexure I: Program Schedule

PROGRAM SCHEDULE	
<b>Inaugural Program:</b>	10:00 a.m. -10.30a.m.
<b>Chairperson:</b>	Honorable <b>Dr. Lalsingh Khalsa</b> Principal M. G. Arts, Science and Late N. P. Commerce College, Armori.
<b>Technical Session :-I</b>	10:30 a.m. - 11:15 a.m.
<b>Invited speaker :-</b>	<b>Dr. Pankaj Koinkar</b>
<b>Topic :-</b>	A Powerful Route to Produce Nanomaterial's via Laser Ablation Technique
<b>Technical Session :-II</b>	11:15 a.m. -12:00 p.m.
<b>Invited speaker :-</b>	<b>Dr. W. B. Gurnule</b>
<b>Topic :-</b>	"Multifunctional material and its impact on society."
<b>Technical Session :-III</b>	12:00 a.m. - 12:45 p.m.
<b>Invited speaker :-</b>	<b>Dr. D. O. Obada</b>
<b>Topic :-</b>	Density functional theory.
<b>Technical Session :-IV</b>	12:45 a.m. – 01:30 p.m.
<b>Invited speaker :-</b>	<b>Dr. B. P. Kafle</b>
<b>Topic :-</b>	Generation photovoltaic cell.
<b>Online feedback from participants</b>	01:30 p.m. - 01:45 p.m.
<b>Closing Ceremony</b>	01:45 p.m. - 02:00 p.m.

  
(Dr. N. D. Bansod)

  
(S. M. Sontakke)

  
Dr. S. S. Kola

  
PRINCIPAL  
M. G. Arts, Science &  
Late N. P. Commerce College  
ARMORI Dist. Gadchiroli

Annexure: II Brochure & Certificate

## International e-Conference ON MULTIFUNCTIONAL ADVANCED MATERIALS (ICMAM-2020)

FRIDAY, 07 AUGUST, 2020

ORGANIZED BY  
DEPARTMENT OF CHEMISTRY

MANOHARBHAI SHIKSHAN PRASARAK MANDAI, ARMORI'S  
MAHATMA GANDHI ARTS, SCIENCE and LATE N.P.  
COMMERCE COLLEGE ARMORI, DIST- GADCHIROLI  
MAHARSHTRA, INDIA -441208.



Reaccredited by NAAC with 'A' Grade (2017)  
Established 1981, Affiliated to Gondwana University,  
Gadchiroli, Maharashtra, India.

### INVITED SPEAKERS

 <b>Dr. PANKAJ KOINKAR</b> Associate Professor Dept. of Optical Science Tokushima University, Japan	 <b>Dr. W. B. GURNULE</b> Associate Professor Dept. of Chemistry Kamla Nehru Mahavidyalaya Nagpur, Maharashtra, India
 <b>Dr. D. O. OBADA</b> Dept. of Mechanical Engineering Ahmadu Bello University, Zaria, Nigeria	 <b>Dr. B. P. KAFLE</b> Associate Professor Dept. of Chemical Science & Engineering Kathmandu University,

**Conference Sub Theme:**

- Composite material, Nanomaterial, Nano-sensor.
- Concept of electronic band structure
- Calculation of electron and hole transport in solar cell
- Density and functional theory
- Nano-ferrites, semi-conductor materials
- Ferroelectric materials
- Nano biosensor, nano electronics

**Free Registration**  
Link of Online Registration..... <https://forms.gle/gUkJJ4qELq293ureA>  
Link to join Telegram Group..... <https://t.me/joinchat/QLI-jWG00imAhrXVFqDrA>

**Important Dates**  
Date of Conference - 7th August, 2020  
Time - 10.00 am (IST)  
Last Date of Registration - 6th August, 2020

**CONFERENCE PLATFORM**  


**PATRON**  
Hon'ble Mr. Muralidharrao W. Wanmali  
President,  
M.S.P. Mandal, Armorei

**CONVENER**  
Prof. S. M. SONTAKKE  
Head of  
Dept. of Chemistry  
(+918698856936)

**ORGANIZER**  
Dr. L. H. KHALSA  
PRINCIPAL  
Organizing Institution

**ORGANIZING SECRETARY**  
Dr. S. S. KOLA, Dr. N. D. BANSOD  
Assistant Professor  
Dept. of Chemistry  
(+919595982057 +918080216064)

e- Conference Brochure

## MAHATMA GANDHI ARTS, SCIENCE & LATE N. P. COMMERCE COLLEGE ARMORI, DIST- GADCHIROLI, MAHARASHTRA, INDIA- 441208.

Reaccredited by NAAC with 'A' Grade  
(Affiliated to Gondwana University, Gadchiroli, Maharashtra)



This certifies that

of

has successfully participated in

### International E-Conference on Multifunctional Advanced Materials (ICMAM-2020)

Friday 07 August, 2020.

 <b>Dr. L. H. Khaisa,</b> Principal, Mahatma Gandhi Arts, Science & late N. P. Commerce College, Armorei.	 <b>Prof. S. M. Sontakke,</b> Convener, International E-Conference on Multifunctional Advanced Materials
 <b>Dr. Satish Kola,</b> Organizing Secretary	 <b>Dr. Naresh Bansod,</b> Organizing Secretary

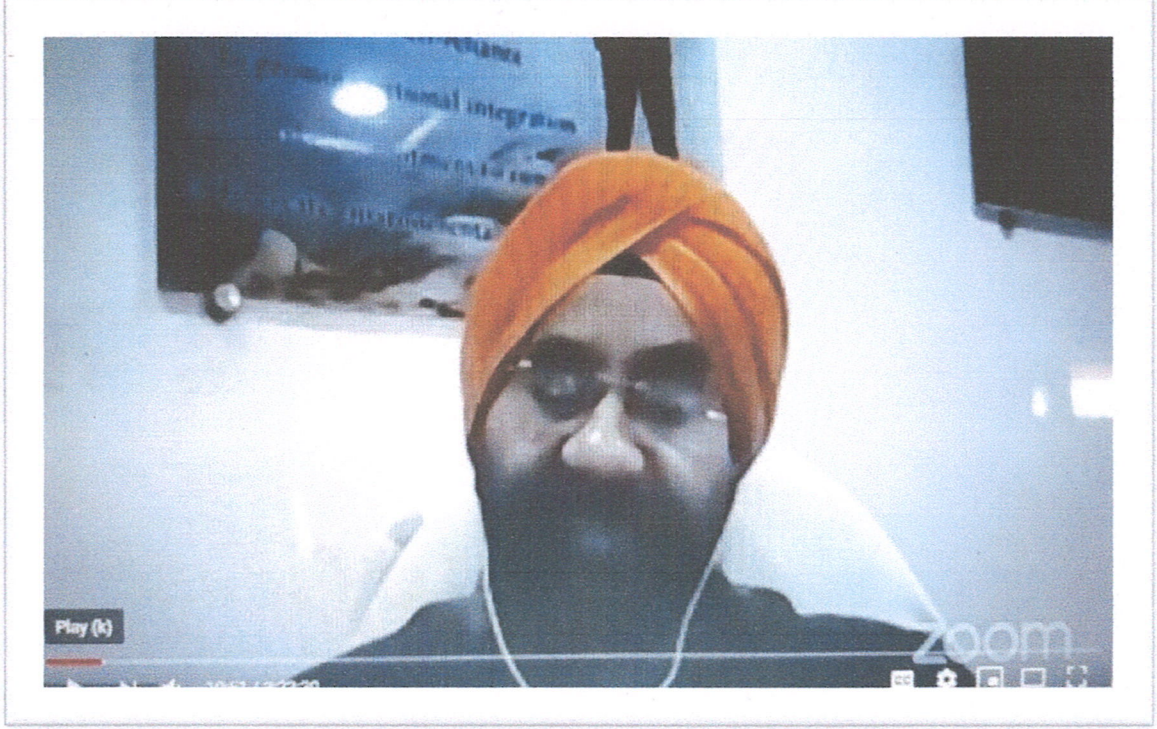


e- Conference Certificate





## Annexure III: Glimpse of Events & Press Coverage



Principal Dr. L. H. Khalsa delivering Chairperson's address in inauguration.

# विज्ञान व तंत्रज्ञानातील संशोधनाची माहिती असणे गरजेचे

■ प्राचार्य डॉ. लालसिंग खालसा यांचे प्रतिपादन

■ महाविद्यालयाच्यावतीने आंतरराष्ट्रीय ई-परीषद

आरमोरी तालुका प्रतिनिधी

दिवसेंदिवस विज्ञान व तंत्रज्ञानाच्या क्षेत्रात गतीने बदल होत आहे. या होणाऱ्या बदलांची अद्यावत माहिती असणे आजची अपरिहार्य गरज झाली आहे असे प्रतिपादन महात्मा गांधी महाविद्यालयाचे प्राचार्य डॉ. लालसिंग खालसा यांनी केले.

भौतिकीय व रासायनिक क्षेत्रात नॅनो तंत्रज्ञान, नॅनो मटेरियल, नॅनो सेसर, नॅनोफेरीटोन, नॅनोबायोसेसर मधील नावीन्यपूर्ण संशोधन आणि त्याची उपयोगिता व विज्ञान क्षेत्रातील उपयोजन समजून घेण्याच्या हेतूने महात्मा गांधी कला, विज्ञान आणि स्व. न. प. वाणिक्य महाविद्यालय आरमोरी येथील रसायनशास्त्र विभागाच्या वतीने महाविद्यालयाचे प्राचार्य डॉ. लालसिंग खालसा यांच्या मार्गदर्शनाखाली मल्टिफंक्शन एडव्हान्स् मटेरियल या



विषयावर आंतरराष्ट्रीय ई-परीषद आयोजन करण्यात आले होते यावेळी परीषदेच्या प्रारंभी ते बोलत होते.

या आंतरराष्ट्रीय ई-परीषदेत टोक्योशिमा विद्यापीठ जपान येथील, ऑप्टिकल सायन्स विभागाने प्रा. पंकज कोडनकर, रा. तु. म. नागपूर विद्यापीठाचे डॉ. डब्ल्यू. व्ही. गुरनूले, अमादू बेलो विद्यापीठ जेरिया नायजेरिया येथील डॉ. डेव्हिड ओबाडा, नेपाल विद्यापीठाचे

डॉ. भीम कफले यांनी साधन व्यक्ती म्हणून सहभाग घेतला.

याप्रसंगी डॉ. पंकज कोडनकर यांनी पावरफुल स्टूट प्रोड्यूस नॅनो मटेरियल व्हाया लेझर अॅबालेशन टेक्निक इन लिक्विड ऑफ देअर जपानकेशन या विषयावर आपला शोधनिबंध सादर केला. त्यांनी एकविसाव्या शतकात नॅनो मटेरियल सायन्सचे असणारे महत्त्व आणि भौतिकी व रासायनिक क्षेत्रात नॅनो

टेक्नॉलॉजीची उपयोगिता यावर अभ्यासपूर्ण मार्गदर्शन केले.

यावेळी दुसरे साधन व्यक्ती राष्ट्रसंत तुकडोजी महाराज नागपूर विद्यापीठातील कमला नेहरू महाविद्यालय नागपूरचे प्रा. डॉ. डब्ल्यू. व्ही. गुरनूले यांनी नॅनो इलेक्ट्रॉनिक्स, नॅनो बायोसेसर, तसेच नॅनोफेराइट यांचे महत्त्व विशद केले.

या परिषदेत देशविदेशातील २५६० प्राध्यापक व संशोधक यांनी नोंदणी केली होती. झूम ऑपवर १०० व्यक्ती जुळले होते, तर युट्युब लाईव्हर ई-परीषदेचे लाईव्ह प्रसारण करण्यात आले. त्यात ३७०० सदस्य जुळले होते.

कार्यक्रमाच्या प्रास्ताविकानून रसायनशास्त्र विभाग प्रमुख सतेंद्र सोनटकरे यांनी परिषदेची भूमिका विशद केली. संचालन रसायनशास्त्र विभागाचे प्रा. डॉ. सतीश कोला यांनी केले तर आचार्य प्रा. डॉ. नरेश बन्सोड यांनी मानले. तंत्रसहाय्य प्रा. सुनिल बुटे, धीरज निमगडे, लक्ष्मण निमजे यांनी केले. याशिवाय महाविद्यालयातील सर्व प्राध्यापक आणि शिक्षकत्वर कर्मचारी यांनी ऑनलाईन सहभाग दर्शवून परिषद यशस्वी केली.

# The 2D family

The family of 2D materials has been extended by hexagonal boron nitride, transition metal dichalcogenides, silicone.

2D

Graphene

Graphane

h-BN

NbSe<sub>2</sub>

MoS<sub>2</sub>

etc.

Zoom

Dr. Pankaj Koinkar, From Tokushima University, Japan. Delivering Expert talk on “A Powerful Route to Produce Nanomaterial’s.

It is critical in man's attempt to.....  
*tap new sources of energy*

Lithium powered Heart: Miracle of Science " Cardiac Pacemaker " operates on battery.

Life span: Initially 2 years,  
Advanced : Upto 10 years


Developed by professor of chemistry Robert West powers this tiny microstimulator, a device that effectively jump-starts broken nerve connections in conditions like Parkinson's, epilepsy and incontinence.

Dr. Wasudeo ...

Zoom

Dr. W. B. Gurnule, From Nagpur Maharashtra delivering expert talk on Nanomaterial's


NS  
ans up




David Obada

### The quantum mechanical treatment

- The electronic structure requires a QM treatment
- The main scheme is density functional theory (DFT)
  - It is a mean field approach and requires approximations
  - According to Hohenberg-Kohn, it is sufficient to know the electron density of a system to determine its total energy. The many electron wave function (which depends on many variables) is not needed. In principle this is an enormous simplification, but in practice approximations must be made.
- There are schemes which go beyond DFT:
  - GW (Green function) method (for excitations or band gaps)
  - The Bethe-Salpeter equation (BSE) for excitons (core-hole - electron)
  - Dynamical mean field theory (DMFT) based on DFT

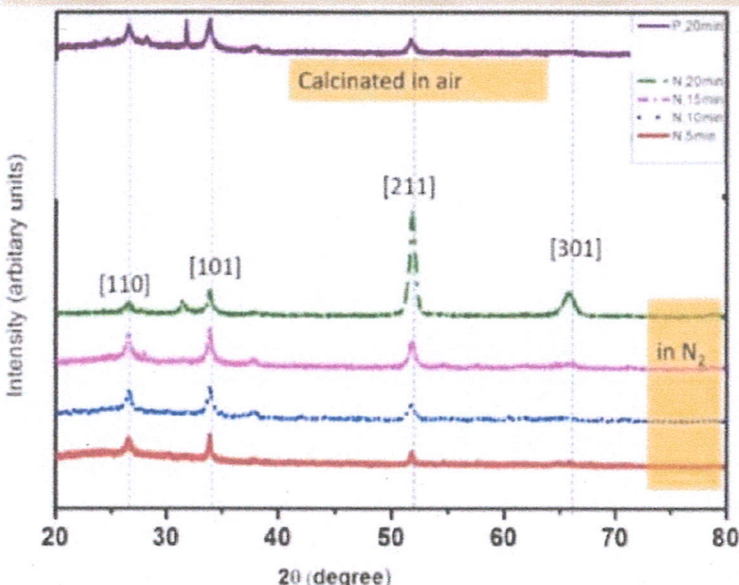


Dr. D. O. Obada From Ahmadu Bello University, Zaria, Nigeria delivering expert talk Density functional theory.



Dr. B. P. Kafle


### Characterization: XRD & SEM Analysis of FT



Calcinated in air

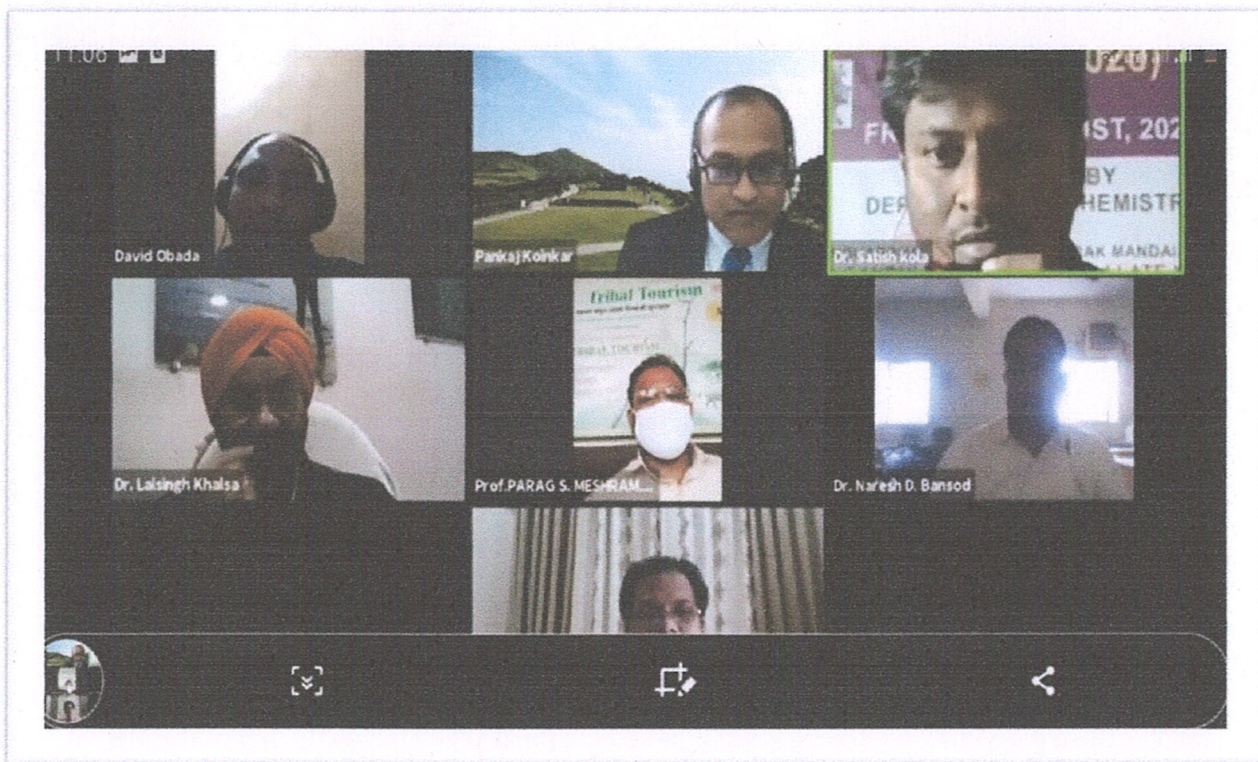
in N<sub>2</sub>

Spectra indicate gradual progression of [211] peak at  $2\theta = 52^\circ$ . While other peaks remain more or less of similar intensity. With plasma treatment the [211] peak diminished.



Dr. B. P. Kafle, From Kathmandu University, Nepal expressing his views on generation photovoltaic cell.

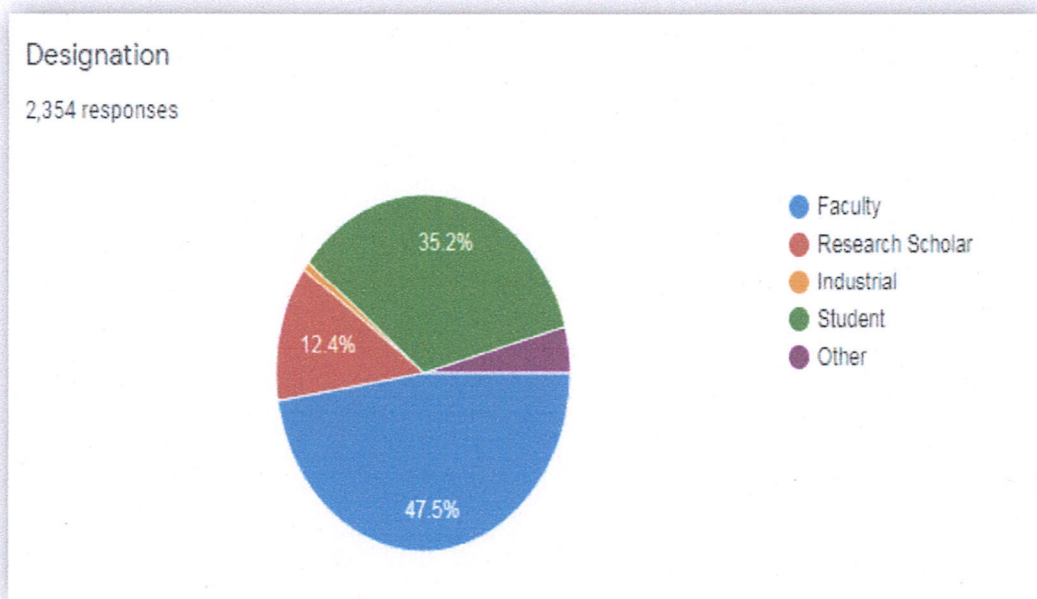




All invited speaker and organizing committee

Annexure IV:

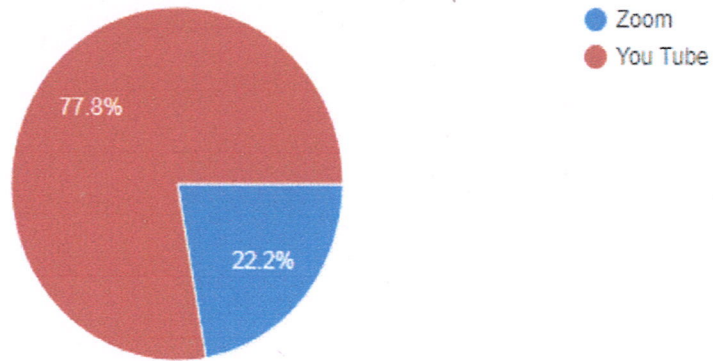
Feedback Response



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*gose*

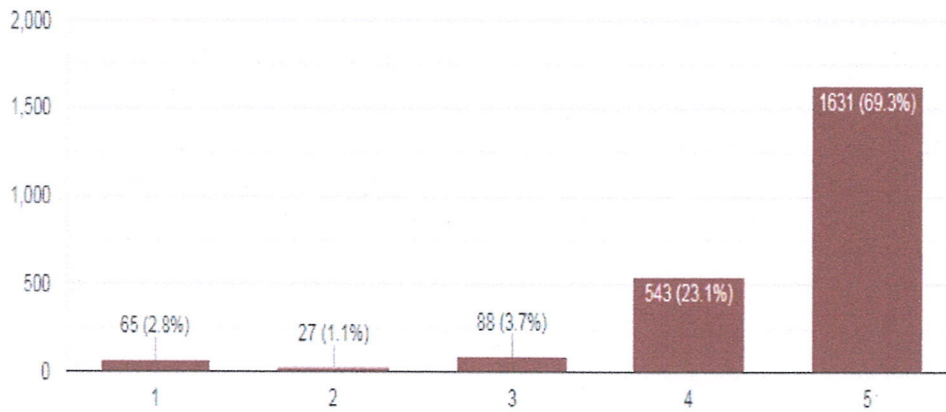
On which platform you have attend E-Conference

2,354 responses



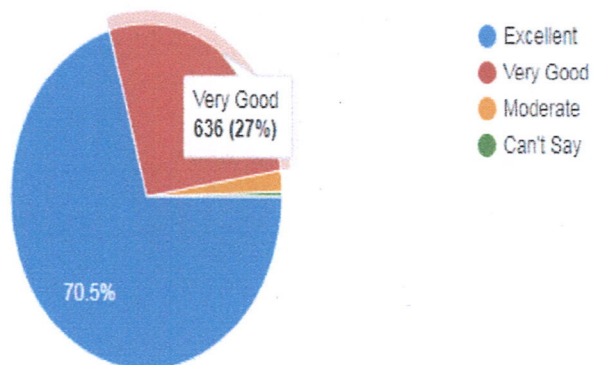
Please give overall rating of this Conference

2,354 responses



How do you Rate the overall Impact of this E- Conference

2,354 responses



NS  
Sami