

(ICMIAM-2020)

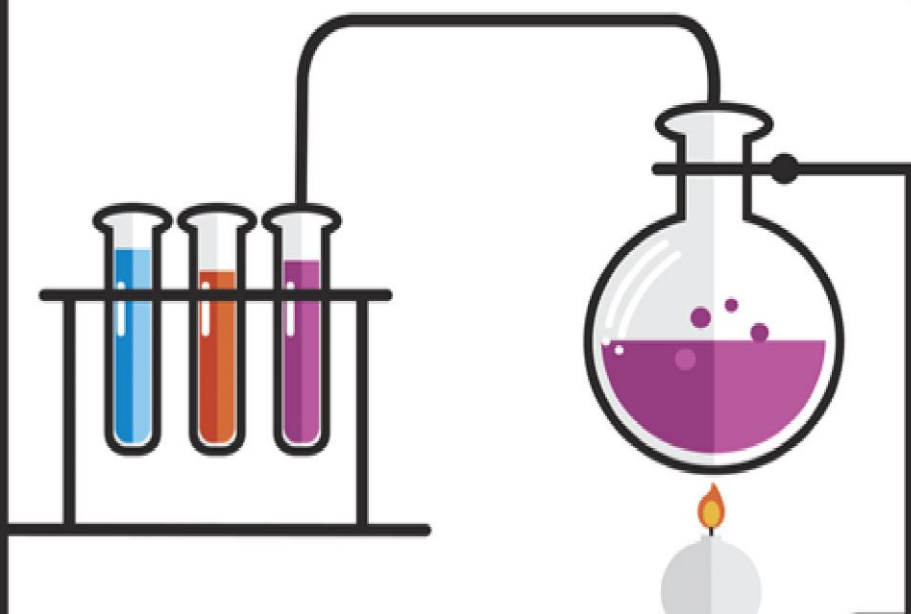
Report
On
One Day International
E-Conference

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

ORGANIZED BY

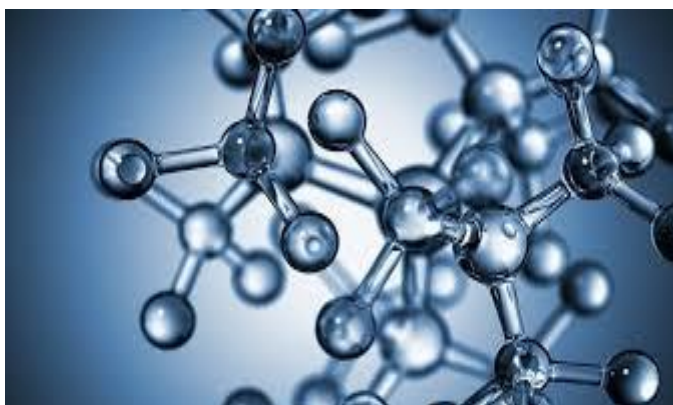
DEPARTMENT OF CHEMISTRY

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, 07th 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-heeled 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 online on

Zoom



You Tube



Organizing Committee

The organizing committee of the workshop was as follows:

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

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

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



Dr. PANKAJ KOINKAR
Associate Professor
Dept. of Optical Science
Tokushima University,
Japan



Dr. W. B. GURNULE
Associate Professor
Dept. of Chemistry
Kamla Nehru Mahavidyalaya
Nagpur, Maharashtra, India



Dr. D. O. OBADA
Dept. of Mechanical
Engineering
Ahmadu Bello University,
Zaria, Nigeria



Dr. B. P. KAFLE
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/QLF-jlWG0OimAhrXVFqDrA>

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, Armori

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.



Dr. L. H. Khalsa,
Principal,
Mahatma Gandhi Arts, Science
& late N. P. Commerce College, Armori.



Prof. S. M. Sontakke,
Convener,
International E-Conference on
Multifunctional Advanced Materials



Dr. Satish Kola,
Organizing Secretary



Dr. Naresh Bansod,
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 बदलाची 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 सेंसर, नॅनोफेरीटेन, नॅनोबायोसेंसर मधील नावीन्यपूर्ण संशोधन आणि त्याची उपयोगिता व विज्ञान क्षेत्रातील उपयोजन समजून घेण्याच्या हेतूने महात्मा गांधी कला, विज्ञान आणि स्व. न. पं. वाणिज्य महाविद्यालय आरमोरी येथील रसायनशास्त्र विभागाच्या वतीने महाविद्यालयाचे प्राचार्य डॉ. लालसिंग खालसा यांच्या मार्गदर्शनाखाली मल्टिफंक्शन एडव्हान्स मटेरियल या विषयावर आंतरराष्ट्रीय ई-परीषद आयोजन करण्यात आले होते. यावेळी परीषदेच्या प्रारंभी ते बोलत होते.

या आंतरराष्ट्रीय ई - परिषदेत टोक्योशिमा विद्यापीठ जपान येथील, ऑप्टिकल सायन्स विभागाने प्रा. पंकज कोइनकर, रा. तु. म. नागपूर विद्यापीठाचे डॉ. डब्ल्यू. वी. गुरनुले, अमादू बेलो विद्यापीठ जेरिया नायजेरिया येथील डॉ. डेव्हिड ओबाडा, नेपाल विद्यापीठाचे डॉ. भीम काफ्ले यांनी साधन व्यक्ती म्हणून सहभाग घेतला.

याप्रसंगी डॉ. पंकज कोइनकर यांनी पावरफुल रूट टू प्रोड्यूस नॅनो मटेरियल व्हाया लेझर अॅवॉलेशन टेक्निक इन लिक्विड अॅपड देअर अॅप्लिकेशन या विषयावर आपला शोधनिबंध सादर केला. त्यांनी एकविसाव्या शतकात नॅनो मटेरियल सायन्सचे असणारे महत्व आणि भौतिकीय 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. वी. गुरनुले यांनी नॅनो इलेक्ट्रॉनिक्स, नॅनो बायोसेंसर, तसेच नॅनोफेराइट यांचे महत्व विशद केले.

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

कार्यक्रमाच्या प्रास्ताविकालाून रसायनशास्त्र विभाग प्रमुख सतेंद्र सोनटक्के यांनी परिषदेची भूमिका विशद केली. संचालन रसायनशास्त्र विभागाचे प्रा. डॉ. सतीश कोला यांनी केले तर आमार प्रा. डॉ. नरेश बन्सोड यांनी मानले. तंत्रसहाय्य प्रा. सुनिल चुटे, धीरज निमगडे, लक्ष्मण निमजे यांनी केले. याशिवाय महाविद्यालयातील सर्व प्राध्यापक आणि शिक्षकेतर 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

NbSe₂

MoS₂

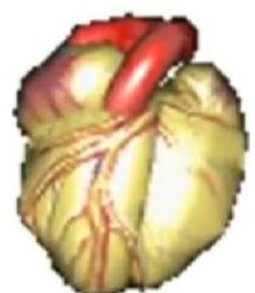

etc.

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.

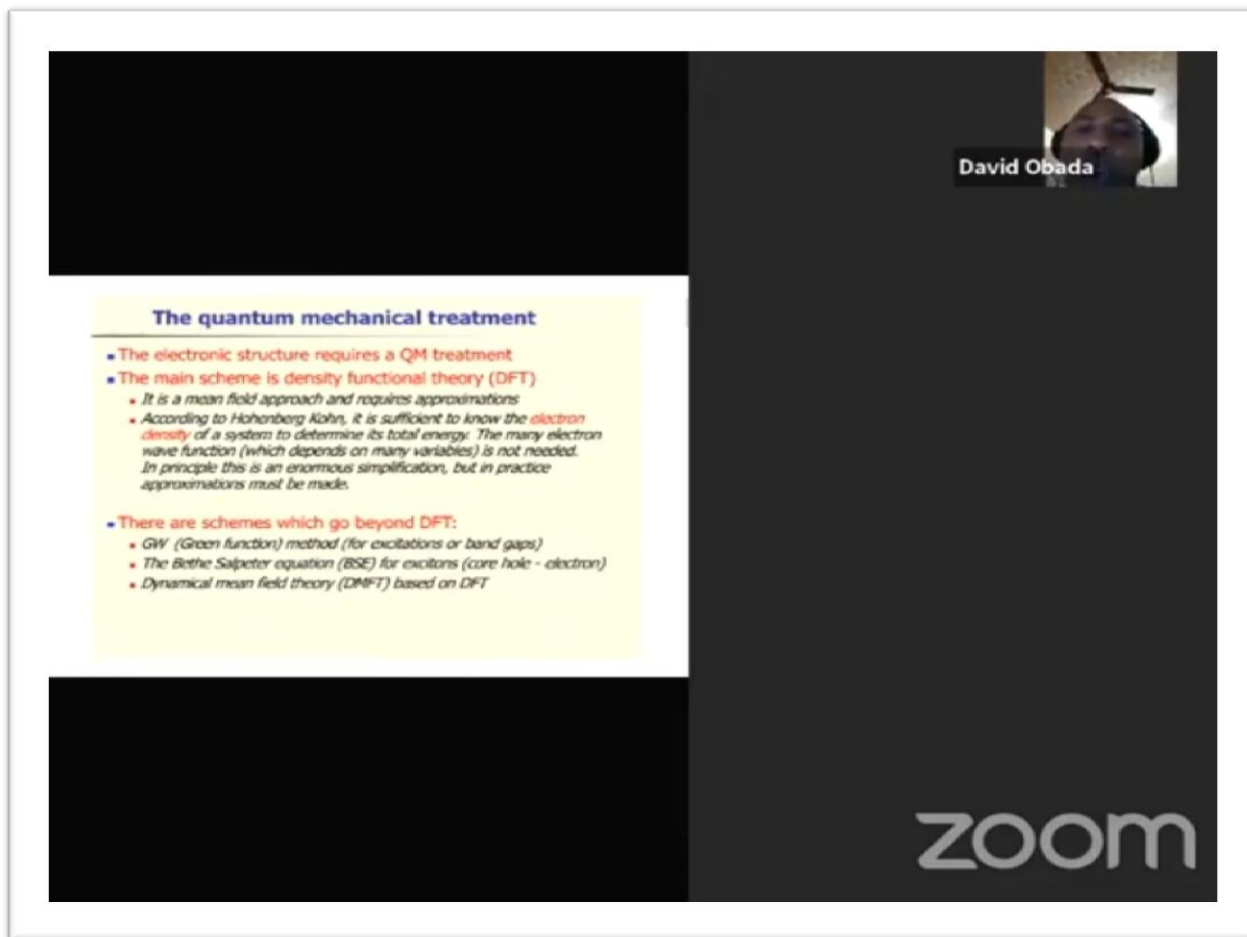
Life span: Initially 2 years,
Advanced : Upto 10 years

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



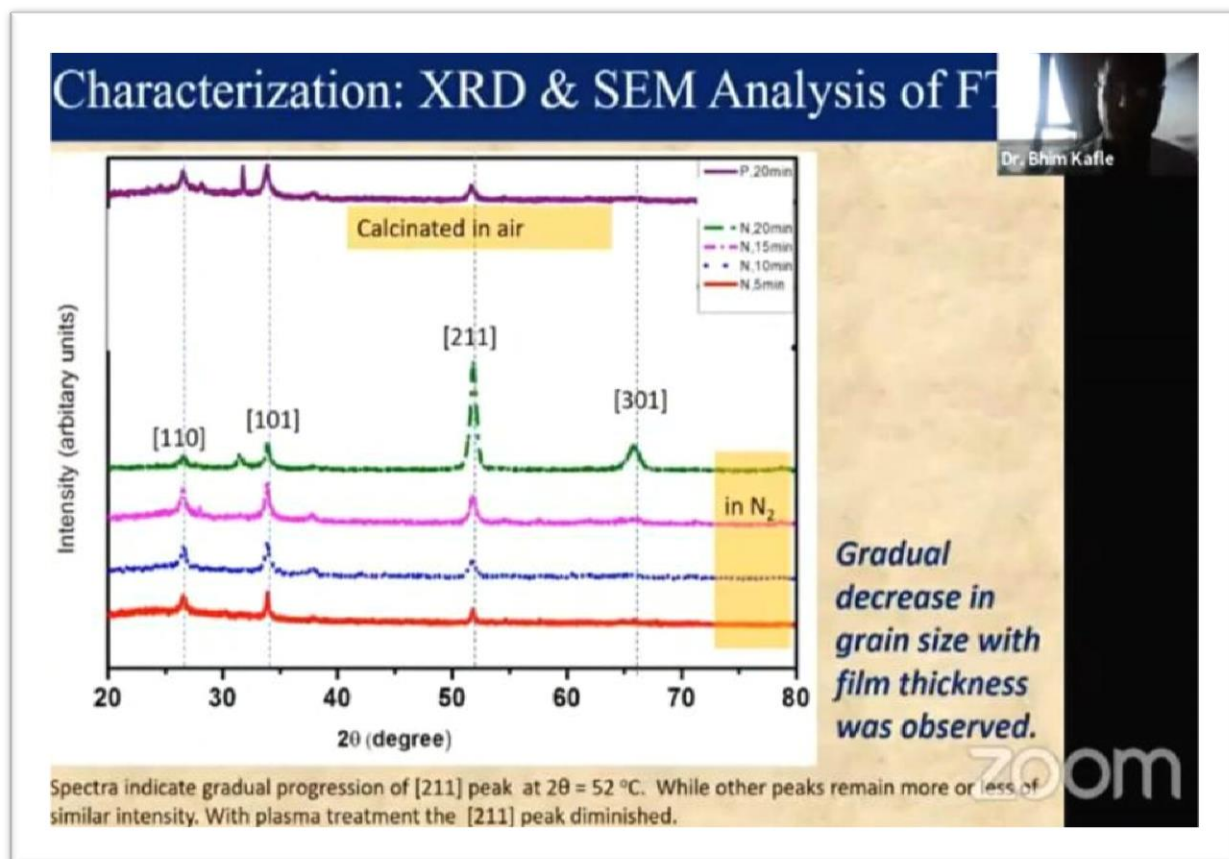
David Obada

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

zoom

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



Characterization: XRD & SEM Analysis of FT

Dr. Bhim Kafle

Intensity (arbitrary units)

2θ (degree)

Calculated in air

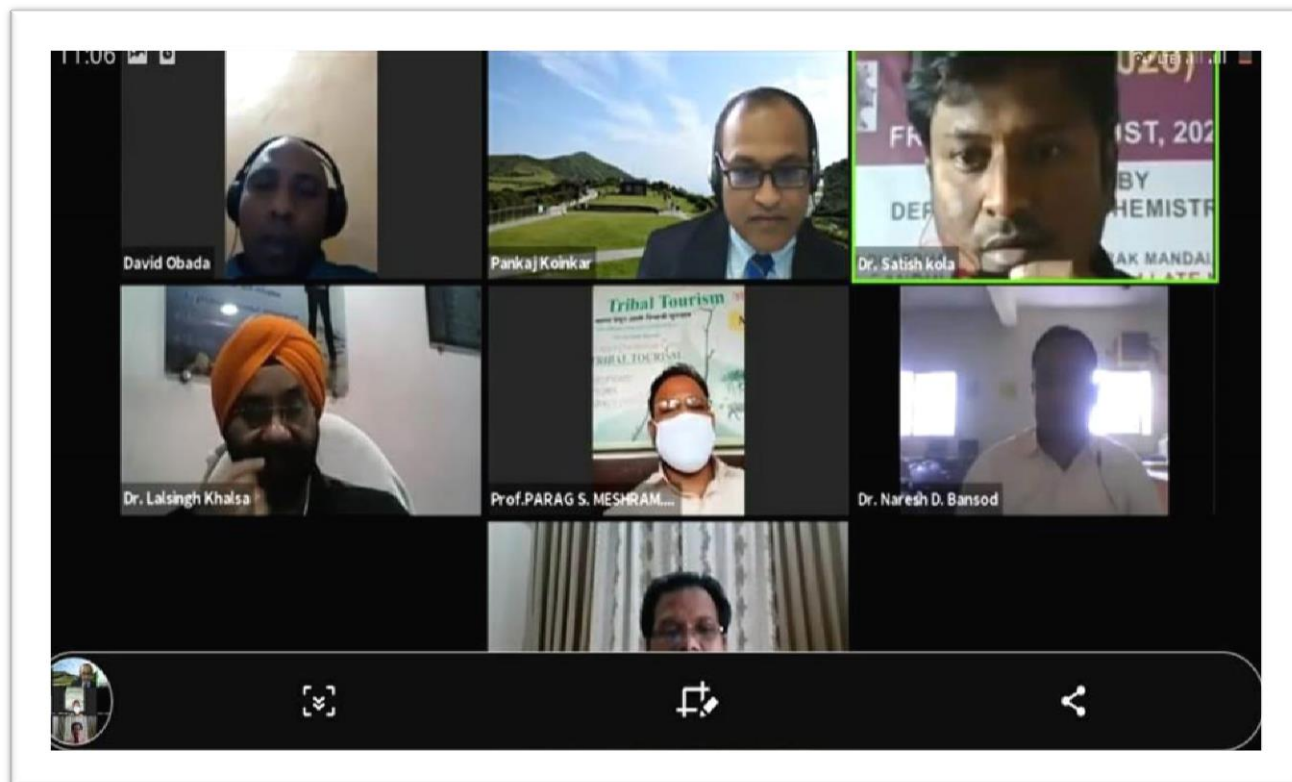
in N₂

Gradual decrease in grain size with film thickness was observed.

Spectra indicate gradual progression of [211] peak at 2θ = 52 °C. While other peaks remain more or less of similar intensity. With plasma treatment the [211] peak diminished.

zoom

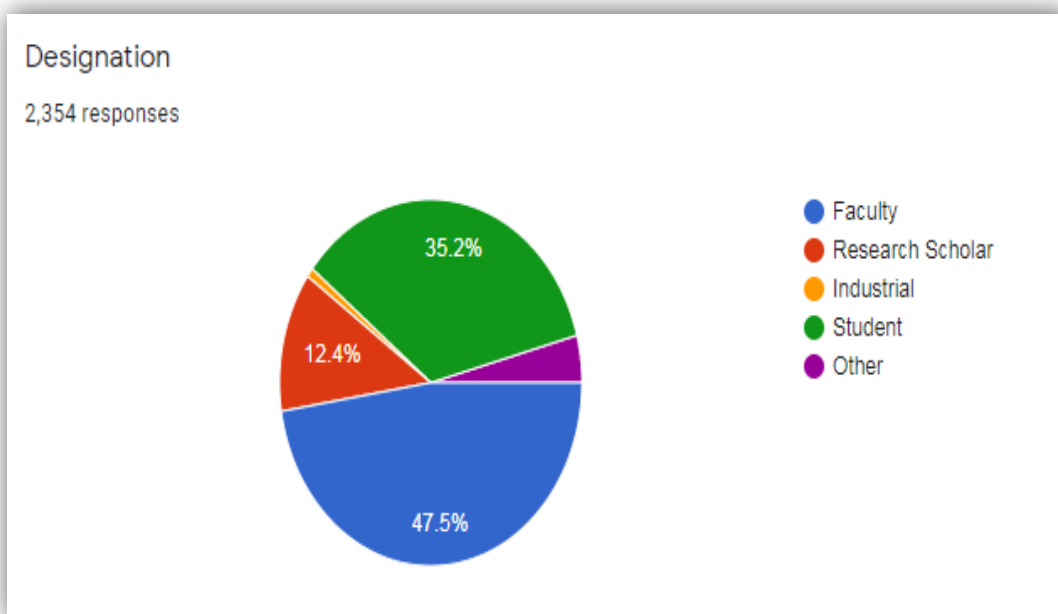
Dr. B. P. Kafle, From Kathmandu University, Nepal expressing his views on generation photovoltaic cell.



All invited speaker and organizing committee

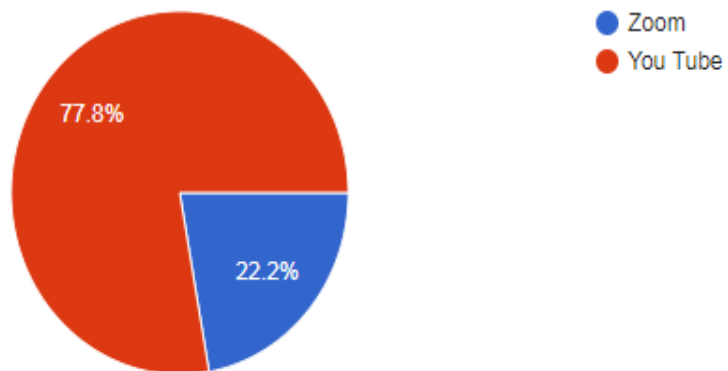
Annexure IV:

Feedback Response



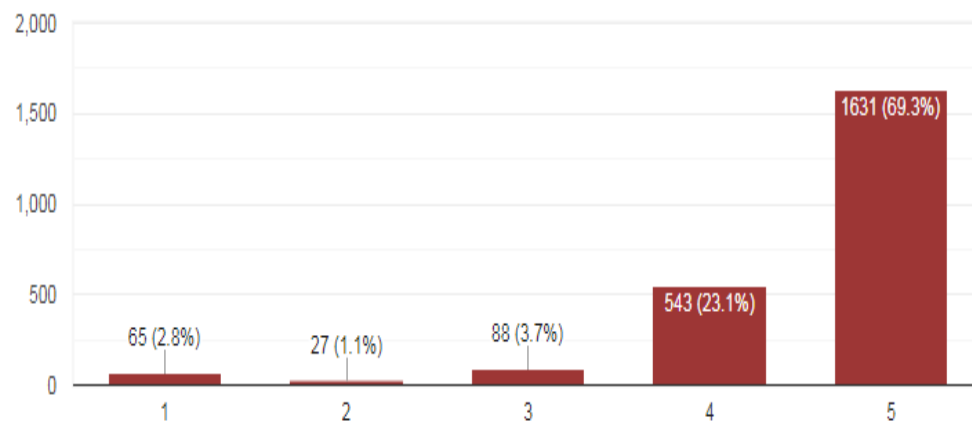
On which platform you have attend E-Conference

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

