



Koneru Lakshmaiah Education Foundation

(Deemed to be University estd. u/s. 3 of the UGC Act, 1956)

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KLEF

Department of PHYSICS

DATE: 19.10.2021

Report on International Webinar conducted by Dept. of Physics on 19.10.2021

1. Dear Sir/Madam/Research Scholars/UG and PG Students

Greetings to all,

The Department of Physics KLEF, Vijayawada is organizing in association with Materials Research Society of India, MRSI, a International level webinar on “**Engineered Nanomaterials: Preparation and their Environmental Applications**” Organised by Department of Physics, K.L.E.F., Guntur, Andhra Pradesh,

The details of the webinar are as follows

Title of the International Webinar	Engineered Nanomaterials: Preparation and their Environmental Applications
Resource person	Dr.Tanujjal Bora Director Center of Excellence in Nanotechnology Asian Institute of Technology Thailand
Date	19 th October 2021
Time	2.00 – 4.00 PM
Convener	Dr. Mahamuda Shaik, Associate Professor
Co-ordinators	Dr.K.Swapna, Associate Professor & Dr. M.Venkateswarlu, Assistant Professor
Chair	Dr.G.Sunita Sundari, Head of the Department
Webex Link	https://kluniversity.webex.com/kluniversity/j.php?MTID=mac42dc21cd31fff5b148b0f365aa5c31
Registrations Link	https://forms.gle/NLEUZ5VVzCM9ydPJ8

E-certificate will be issued to all the participants after submitting online feedback.

We appreciate your esteemed presence for the webinar. We expect your support in making a grand success. Please refer the webinar link for your friends.

A further announcement will be informed through the registered email id.



KL
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An International Webinar
On
Engineered Nanomaterials: Preparation and their Environmental Applications



Date & Time:
19th October 2021
IST: 2.00 – 4.00 PM

Registration Link
<https://forms.gle/NLEUZ5VVzCM9ydPJ8>

Join us @
<https://kluniversity.webex.com/kluniversity/j.php?MTID=mac42dc21cd31ff5b148b0f365aa5c31>



Resource Person
Dr. Tanujal Bora
Director, Center of Excellence in Nanotechnology
School of Engineering and Technology
Asian Institute of Technology
Thailand



Organized by
Department of Physics
(DST-FIST Sponsored)
In Association with
Materials Research Society of India

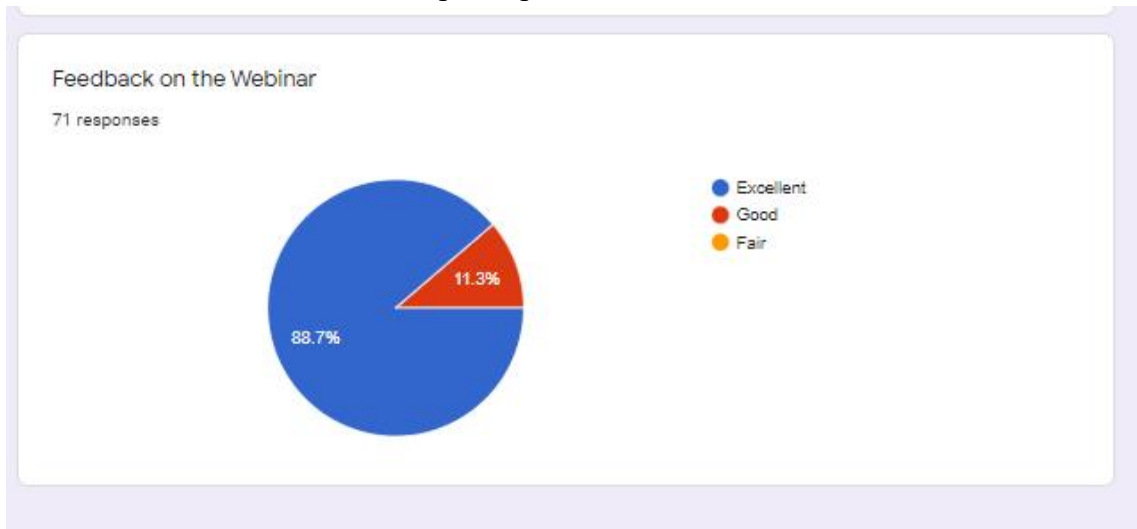
Convener
Dr. Mahamuda Shaik

Co-ordinators
Dr. K. Swapna,
Dr. M. Venkateswarlu

Chair
Dr. G. Sunita Sundari, HOD

Registration is Free & E-Certificate will be provided

2. The webinar was recorded in webex.
3. Feed back was collected from the participants.



4. E-Certificates were issued to participants who registered through the above link and attended the webinar. A Sample certificate is attached here.



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This Certificate of Participation

Is conferred on

<<Full Name>>

<<Affiliation>>, <<City>>

For active participation in an International Webinar (Online)
Engineered Nanomaterials: Preparation and their Environmental Applications

19th October, 2021 between 14:00 and 17:00 hours IST

Organised by the Department of Physics, K.L.E.F., Vijayawada - Andhra Pradesh, India.



Dr. Mahamuda Shaik
Convener, Dept. of Physics



Dr. G. Sunita Sundari
HOD, Dept. of Physics





Prof. V. Krishna Reddy
Coordinator, FED



Prof. A. Jagadeesh
Director, FED

5. Snapshots taken during the webinar are attached below.

The Webinar was conducted successfully and completed.

This screenshot shows a Cisco Webex Meeting interface. The main content is a presentation slide with the following text:

Engineered Nanomaterials: Preparation & their Environmental Applications

Dr. Tanujjal Bora
Director
Center of Excellence in Nanotechnology
Assistant Professor
Bio-Nano Material Science & Engineering
School of Engineering & Technology
Asian Institute of Technology, Thailand
Email: tbora@ait.ac.th
www.ait.ac.th

The slide footer includes logos for CoEN (Center of Excellence in Nanotechnology), AIT (Asian Institute of Technology), and BNMSE (Bio-Nano Material Science & Engineering), along with the text "Engineered Nanomaterials, 19 Oct 2021".

The meeting interface shows a top bar with "Cisco Webex Meetings", "Meeting Info", and "Hide Menu Bar". Below the title bar are icons for "File", "Edit", "Share", "View", "Audio & Video", "Participant", "Meeting", "Breakout Sessions", and "Help". A video gallery at the top shows several participants, with "Tanujjal Bora" highlighted. A "Participants (47)" list is visible on the right side of the screen.

This screenshot shows a Cisco Webex Meeting interface. The main content is a presentation slide with the following text:

Center of Excellence in nanotechnology (CoEN)

- CoEN is an interdisciplinary research center at Asian Institute of Technology, Thailand supporting innovative research, education and training to increase public and industrial awareness of nanotechnology in the region.
- The unifying concept in the center's research activities is to make use of inexpensive techniques to synthesize nanomaterials and innovate technologies and futuristic device components

The slide features a map of Thailand and Southeast Asia, highlighting the location of CoEN in Bangkok, Thailand. A photograph of a modern building is also shown. The slide footer includes logos for CoEN, AIT, and BNMSE, along with the text "Engineered Nanomaterials, 19 Oct 2021".

The meeting interface shows a top bar with "Cisco Webex Meetings", "Meeting Info", and "Hide Menu Bar". Below the title bar are icons for "File", "Edit", "Share", "View", "Audio & Video", "Participant", "Meeting", "Breakout Sessions", and "Help". A video gallery at the top shows several participants, with "Tanujjal Bora" highlighted. A "Participants (50)" list is visible on the right side of the screen.

Cisco Webex Meetings Meeting Info Hide Menu Bar

File Edit Share View Audio & Video Participant Meeting Breakout Sessions Help

Participants (50)

3990 Dr Shaik ... Host, me

Tanujjal Bora

1919 Dr. K.Swapna

1968 Dr. M Venkatesw...

2M 2000031436_ASVSNM Manjusha

25 20015400003 S. Asha

2A 20015400003 S. Asha

2 2001540002-Prakash

2 2655-Gnanakiran

3435 Dr.A.Venkatesw...

OneDrive

Screenshot saved
The screenshot was added to your OneDrive.

Center of Excellence in Nanotechnology (CoEN)

Viewing Tanujjal Bora's appl...

- CoEN is an interdisciplinary research center at Asian Institute of Technology, Thailand supporting innovative research, education and training to increase public and industrial awareness of nanotechnology in the region.
- The unifying concept in the center's research activities is to make use of inexpensive techniques to synthesize nanomaterials and innovate technologies and futuristic device components

CoEN
Center of Excellence in Nanotechnology

AIT
Asian Institute of Technology

BNMSE
Bio-Nano Material Science & Engineering

Engineered Nanomaterials, 19 Oct 2021 2

Unmute Stop video Share Record

27°C 2:11 PM 10/19/2021

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Participants (52)

3990 Dr Shaik ... Host, me

Tanujjal Bora

1919 Dr. K.Swapna

1968 Dr. M Venkatesw...

2M 2000031436_ASVSNM Manjusha

25 2000031625 Bhavya sri

2A 20015400003 S. Asha

2 2001540002-Prakash

2 2655-Gnanakiran

3435 Dr.A.Venkatesw...

5321 Dr.K.Deepti

Mute all Unmute all

Research at CoEN

Viewing Tanujjal Bora's appl...

- Environment:** Photo-catalysis, Anti-biofouling, Antimicrobial materials, Filters for oil/water separation
- Energy:** Solar cells & Energy storage, Optical coatings, Material Simulation
- Sensing & Others:** Chemical sensor design, Membrane & Template Design, Smart construction materials, Nanocoatings & Thin films

CoEN
Center of Excellence in Nanotechnology

AIT
Asian Institute of Technology

BNMSE
Bio-Nano Material Science & Engineering

Engineered Nanomaterials, 19 Oct 2021 3

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Participants Chat

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68464

Participants (54)

3990 Dr Shaik ... Host, me

Tanujjal Bora

1919 Dr. K.Swapna

1968 Dr. M Venkatesw...

2M 2000031436_ASVSNM Manjusha

25 2000031625 Bhavya sri

2A 20015400003 S. Asha

2 2001540002-Prakash

2 2655-Gnanakiran

3435 Dr.A.Venkatesw...

5321 Dr.K.Deepthi

Mute all Unmute all

CoEN Family

Viewing Tanujjal Bora's appl...

Faculty Members

PhD Students

Dr. Tanujjal Bora

Dr. Raffaele Ricco

Saima Anshalee Adelle Kunal Apichaya Anan Khajohapat

Santi Napatsakorn Sirada Peeravich Wisanu Sazal

Master Students

Manish Sakaerwan Paris Kariyum Anthony Shubham Rahul

CoEN Asian Institute of Technology BNMSE

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Participants Chat

2:17 PM 10/19/2021

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Participants (56)

3990 Dr Shaik ... Host, me

Tanujjal Bora

1919 Dr. K.Swapna

1968 Dr. M Venkatesw...

2M 2000031436_ASVSNM Manjusha

25 2000031625 Bhavya sri

2A 20015400003 S. Asha

2 2001540002-Prakash

2 2655-Gnanakiran

3435 Dr.A.Venkatesw...

5321 Dr.K.Deepthi

Mute all Unmute all

Engineered Nanomaterials and their Environmental Applications

Viewing Tanujjal Bora's appl...

Outline

- Brief introduction to nanomaterials & nanotechnology
- Engineered nanomaterials
- Synthesis of nanomaterials
- Environmental applications of engineered nanomaterials
- Conclusions

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Engineered Nanomaterials, 19 Oct 2021

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Participants Chat

2:18 PM 10/19/2021

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File Edit Share View Audio & Video Participant Meeting Breakout Sessions Help

Participants (59)

3990 Dr Shaik ... Host, me

Tanujjal Bora

1919 Dr. K.Swapna

1968 Dr. M Venkatesw...

2000031436_ASVSNM Ma...

2000031625 Bhavya sri

20015400003 S. Asha

2001540002-Prakash

2655-Gnanakiran

3435 Dr.AVenkates...

5321 Dr.K.Deepthi

Mute all Unmute all

Enabling Technologies

Viewing Tanujjal Bora's appl...

REVOLUTIONARY FORCES

Basic advancements in science and technology come about twice a century and lead to massive wealth creation.

1800 1853 1913 1969 2025 2081

1771 1825 1886 1939 1997

Industrial Revolution Information Revolution

1853 Introduction of telegraph

1825 Railroad

1886 Automobile

1939 Computer

1997 Nanotech

2025 Introduction of technology

2081 Widespread adoption

End of rapid growth phase

SOURCE: Norman Poire, Merrill Lynch Red Herring, May 2002

Commonality: Railroad, auto, computer, nanotech all are enabling technologies

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Participants Chat

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Participants (60)

KM Kartika Maheshwari

KG Kiran Kumar G

K kollibalakrishna

M M.CHANDRIKA

MK Malladi Pavan Kumar

MT Meevolü Thisa

MA Mohandass Gandhi A

M MU

MV MURALI KRISHNA VENNETI

NK Naga korrapolu

PK P Kamakshi

Mute all Unmute all

So, What is Nanotechnology?

Viewing Tanujjal Bora's appl...

- Nanotechnology is the design and construction of useful technological devices whose size is a few billionths of a meter
- Nanoscale devices will be built of small assemblies of atoms linked together by bonds to form macromolecules and nanostructures
- Nanotechnology will require:
 - manufacturing new materials at the nanoscale
 - fabricating nanoscale devices from these materials
 - functionally linking devices together into useful system architectures that communicate with the human-scale world

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Participants Chat

2:25 PM 10/19/2021

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Layout

So, What is Nanotechnology?

Viewing Tanujjal Bora's appl...

- **Nanotechnology is the design and construction** of useful technological devices whose size is a few billionths of a meter
- **Nanoscale devices** will be built of small assemblies of atoms linked together by bonds to form macromolecules and nanostructures
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 - functionally linking devices together into useful system architectures that communicate with the human-scale world



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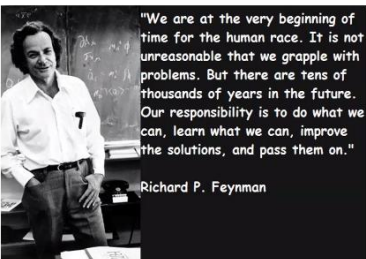
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Layout

Feynman's prediction...

Viewing Tanujjal Bora's appl...

"There's Plenty of Room at the Bottom."



Richard P. Feynman

Prof. Richard Feynman (1918 – 1988)
A visionary and a Nobel Laureate in Physics, 1965

"There's Plenty of Room at the Bottom: An invitation to enter a new field of physics" - first presented at the American Physical Society at California Institute of Technology on December 29, 1959. Subsequently published in 'Engineering and Science', Caltech, February 1960.

"We are at the very beginning of time for the human race. It is not unreasonable that we grapple with problems. But there are tens of thousands of years in the future. Our responsibility is to do what we can, learn what we can, improve the solutions, and pass them on."

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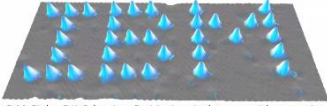
Cisco Webex Meetings Meeting Info Hide Menu Bar

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Feynman's prediction becomes true!!!

"But I am not afraid to consider the final question as to whether, ultimately – in the great future – we can arrange the atoms the way we want; the very atoms, all the way down!" – Feynman, 1959



D.M. Eigler, E.K. Schweizer. Positioning single atoms with a scanning tunneling microscope. *Nature* 344, 524-526 (1990).

Manipulation of single atoms using Scanning Tunneling Microscope (1990) – the birth of Modern Nanotechnology...

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Unmute Start video Share Record

Participants Chat

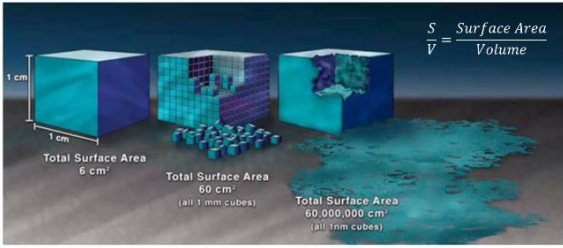
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Viewing Tanujal Bora's appl...

Higher Surface-to-volume ratio



$$\frac{S}{V} = \frac{\text{Surface Area}}{\text{Volume}}$$

Total Surface Area 6 cm²

Total Surface Area 60 cm²
(all 1 mm cubes)

Total Surface Area 60,000,000 cm²
(all 1mm cubes)

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Participants Chat

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Tanujjal Bora

Viewing Tanujjal Bora's appl...

Nanotechnology in nature

Self-cleaning lotus leaf

Coconut Tree: A Natural Desalination Unit

How can a Gecko walk up a wall or walk on a ceiling?

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Participants Chat

Participants (62)

3990 Dr Shaik ... Host, me

Tanujjal Bora

1919 Dr. K.Swapna

1968 Dr. M Venkatesw...

2000031380GANESH NAGA SAI ...

2000031436_ASVSNM Manjusha

2000031625 Bhavya sri

20015400003 S. Asha

2001540002-Prakash

3172 Dr.G.Sunitha Su...

3435 Dr.A.Venkatesw...

Mute all Unmute all

2:42 PM 10/19/2021

Cisco Webex Meetings | Meeting Info | Hide Menu Bar

File Edit Share View Audio & Video Participant Meeting Breakout Sessions Help

3172 Dr.G.Sunitha Sundari

DrP.Suneeta

Paladugu Gattaiah

Viewing Tanujjal Bora's appl...

Thank You

For more details and collaboration, please contact

Center of Excellence in Nanotechnology
Asian Institute of Technology
PO Box 4, Klong Luang
Pathumthani – 12120, Thailand
Tel: (+66)-994189989 (mobile)
Email: tbora@ait.ac.th

COEN Center of Excellence in Nanotechnology

AIT Asian Institute of Technology

BNMSE Bio-Nano Material Science & Engineering

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Unmute Stop video Share Record

Participants Chat

Participants (63)

3990 Dr Shaik ... Host, me

Tanujjal Bora

1919 Dr. K.Swapna

2000031436_ASVSNM Manjusha

2000031625 Bhavya sri

20015400003 S. Asha

2001540002-Prakash

2655-Gnanakiran

3172 Dr.G.Sunitha Su...

3172 Dr.G.Sunitha Su...

3435 Dr.A.Venkatesw...

Mute all Unmute all

3:23 PM 10/19/2021

from kollibalakrishna to everyone: 3:22 PM

Thank you sir for your nice presentation

from RAFEEK AHMED to everyone: 3:23 PM

Thank you so much... nice presentation

from Dr.A.NAGARJUNA to everyone: 3:24 PM

thank you

from Amit Gadre to everyone: 3:25 PM

Nice webinar

from 1919 Dr. K.Swapna to everyone: 3:27 PM

Thank you sir

from arathi to everyone: 3:27 PM

Thankyou sir. nice presentation

from Amit Gadre to everyone: 3:27 PM

Thank you

from K Lakshmanagupta to everyone: 3:28 PM

Thank you

from 3990 Dr Shaik Mahamuda to everyone: 3:28 PM

<https://forms.gle/EEtWnxdiSAPFQRer9>

from padmavathi adimulam to everyone: 3:28 PM

thank u sir

from V.Lakshmi savithri to everyone: 3:29 PM

Thank you very much sir. A wonderful pesentation sir

from B.S.Seshagiri Rao to everyone: 3:30 PM

Thank you very much for this type of valuable webinar.

from K Lakshmanagupta to everyone: 3:31 PM

Thank you very much for organizing this webinar, which benefitted me in clarifying doubts.

K Lakshmana Gupta

Associate Professor in Physics

Government College for Men

Kurnool