

Department of Chemistry, ICFAI University, Tripura, conducted a webinar on 13th April, 2023

The screenshot shows a Zoom meeting window. At the top, there are tabs for participants: Dr. Ganesh Cha..., swarnali, subhadip, and Anup Debnath. Below the tabs is a video feed of a man with glasses and a patterned shirt. To the right is a 'Participants (13)' list with a search bar and icons for each participant. At the bottom, there is a Windows taskbar with various application icons and a system tray showing the time as 11:26 AM on 4/13/2023.

Participant Name	Role	Audio	Video
DG Dr. Ganesh Chand...	(Co-host, me)	On	On
DA Dr. Amitava Sharma	(Host)	On	On
S subhadip	(Co-host)	On	On
RB Rahul Banerjee		Off	Off
S swarnali		On	On
J JD		On	On
AD Anup Debnath		On	On
AJ Athira J Ajith		On	On
DS Dr. soumendra Nath Bandyopad...		On	On
M Manisha Prakashni		On	On
RP Ranjan Patra		On	On
Subhra Datta		On	On
Rajendar		On	On

This screenshot shows a Zoom meeting window with a video feed of a man wearing a headset and glasses. The top of the window shows tabs for participants: Dr. Ganesh Cha..., swarnali, JD, satyakt, Nikita Chakrab..., and Rahul Banerjee. The system tray at the bottom shows the time as 11:26 AM on 4/13/2023.

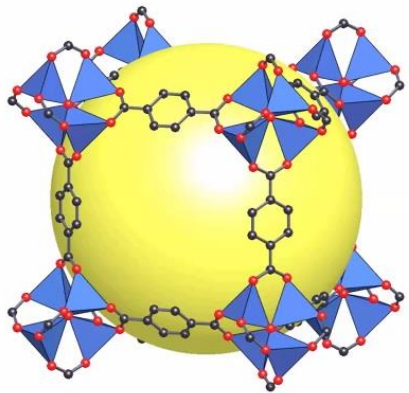
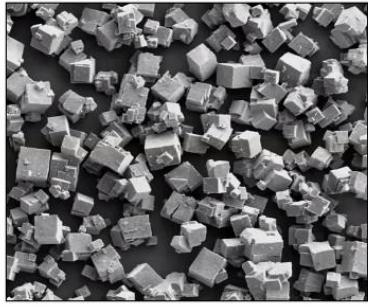
This screenshot shows a Zoom meeting window with a video feed of a man wearing a headset and a plaid shirt. The top of the window shows tabs for participants: Dr. Ganesh Cha..., FARVATHY MU, Mousumi Atter, swarnali, and TAGESH WADIA. The system tray at the bottom shows the time as 11:26 AM on 4/13/2023.

The screenshot shows a Zoom meeting window displaying a slide titled "Porous Framework Materials". The slide contains four images: a porous material with a honeycomb-like structure, a loaf of bread, a slice of cake, and a honeycomb. The system tray at the bottom shows the time as 11:45 AM on 4/13/2023.

The screenshot shows a Zoom meeting window displaying a slide titled "Basic Zinc Acetate". The slide features a ball-and-stick model of the molecule and a red polyhedral structure. Below the models, the text reads "red, O; blue, Zn; black, C". The system tray at the bottom shows the time as 11:48 AM on 4/13/2023.

Zoom Meeting

Recording...

$$\text{H}_2\text{BDC} + \text{Zn}(\text{NO}_3)_2 \cdot 4\text{H}_2\text{O} \xrightarrow{\text{DEF (12mL)}} \text{Zn}_4\text{O}(\text{BDC})_3 \cdot (\text{DEF})_7$$



$\text{Zn}_4\text{O}(\text{O}_2\text{C}-\text{C}_6\text{H}_4-\text{CO}_2)_3 \cdot \text{MOF-5}$

H. Li, M. Eddaoudi, M. O'Keeffe, O. M. Yaghi. *Nature* (1999) 402, 276-279

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Rahul Banerjee

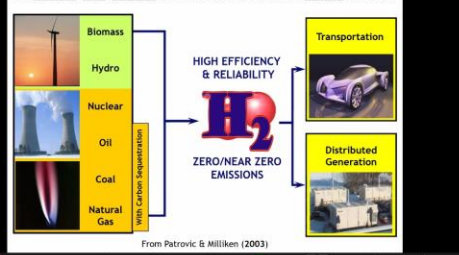
Windows taskbar: 11:49 AM 4/13/2023

Zoom Meeting

Recording...

Why Hydrogen?

It's abundant, clean, efficient, and can be derived from diverse domestic resources.



From Patrovic & Milliken (2003)

Rahul Banerjee


Windows taskbar: 11:50 AM 4/13/2023

Zoom Meeting

Recording...

Materials for Hydrogen Storage

3 kg (H₂) / 300 km



Activated Charcoal

Metal Hydrides

Methane Clathrate

Microporous Polymers

Synthetic Zeolites

MOFs

MgNH_4 , H_2 (liquid), $4\text{H}_2 + 1.36\text{H}_2\text{O}$, $\text{H}_2 @ 200\text{bar}$

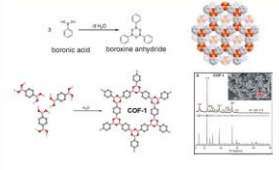
Rahul Banerjee

Windows taskbar: 11:50 AM 4/13/2023

Zoom Meeting

Recording...

Covalent Organic Frameworks



boronic acid + boronate anhydride → COF

SCIENCE VOL 310 18 NOVEMBER 2005

Participants (208)

- Dr. Ganesh...
- Dr. Anshu Sharma (Co-host)
- Rahul Banerjee (Co-host)
- Jyotsna (Co-host)
- Swarnali (Co-host)
- Aditi Choudhary
- Aditya Datta
- Aditya Bhattacharya
- Ambika Saha
- Anon
- Animesh Barman
- Anup Debnath
- Anesha Saha
- Arjit Chatterjee

Rahul Banerjee

Windows taskbar: 12:08 PM 4/13/2023

Zoom Meeting

Recording...

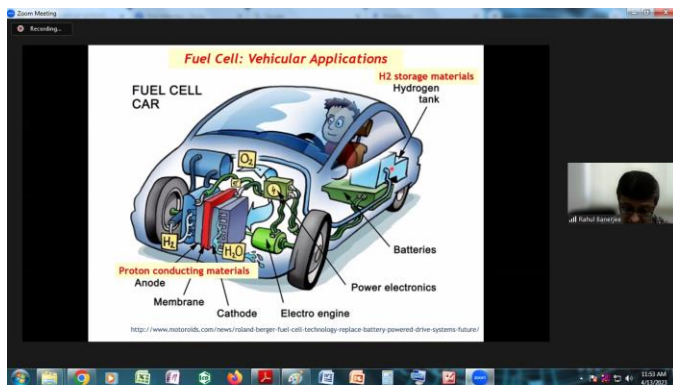
Metal Organic Materials : What are they Good for?

- H₂ Storage
- CO₂ Capture
- CH₄ Storage
- Sensor
- Sequestration
- Catalysis
- Magnetism
- Drug Delivery
- MRI Contrast Agent



Rahul Banerjee

Windows taskbar: 12:08 PM 4/13/2023



“Department of Chemistry, ICFAI University, Tripura conducted a webinar on 13th April, 2023. The Title of the topic was, "Porous Framework Materials: What are they good for?" The resource speaker was Prof. Dr. Rahul Banerjee, Department of Chemical Sciences, Indian Institute of Science Education and Research (IISER), Kolkata".