

A Report on the
**Science Academies' Virtual
Lecture Workshop *on***

Green and Sustainable Chemistry

December 17-18, 2020



Organised by

Department of Chemistry

Rajiv Gandhi University
Arunachal Pradesh



Indian Academy of
Sciences, Bengaluru



Indian National Science
Academy, New Delhi



The National Academy of
Sciences India, Allahabad

In association with

**Joint Science Education Panel of Science
Academies'**

Bengaluru, INDIA

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Science Academies' Virtual Lecture Workshop on
GREEN AND SUSTAINABLE CHEMISTRY
December 17-18, 2020

Acknowledgements



Rajiv Gandhi University
Rono Hills Doimukh
Arunachal Pradesh



Indian Academy of
Sciences, Bengaluru



Indian National Science
Academy, New Delhi



The National Academy of
Sciences India, Allahabad

Joint Science Education Panel of Science Academies
Bengaluru

Organising Committee



Prof. Saket Kushwaha

Vice Chancellor
Rajiv Gandhi University

PATRONS



Prof. Amitava Mitra

Pro Vice Chancellor
Rajiv Gandhi University



Dr. Nabam T. Rikam

Registrar
Rajiv Gandhi University



Dr. Rajesh Chakrabarty

Head, Department of Chemistry
Rajiv Gandhi University

CONVENER



Prof. Brindaban C. Ranu, FNA, FASc

INSA Honorary Scientist
Indian Association for the Cultivation of Science, Kolkata

COORDINATOR



Dr. Md. Harunar Rashid

Department of Chemistry
Rajiv Gandhi University

MEMBERS



Dr. Lakhinath Saikia

Department of Chemistry
Rajiv Gandhi University



Dr. Dwipen Kakati

Department of Chemistry
Rajiv Gandhi University



Dr. Sourav Jyoti Bharali

Department of Chemistry
Rajiv Gandhi University

PART 1: PREFACE

1.1 Background

The concepts and practice of Green and Sustainable Chemistry have developed over nearly 20 years into a globe-spanning endeavor aimed at meeting the “triple bottom line”-sustainability in economic, social, and environmental performance. Green chemistry or sustainable chemistry is a phenomenon that applies to several areas of environmental and agricultural sciences, geological sciences, green engineering and technology. In this era, chemical-based industries and technologies used are in the emergence to become greenness. The need of chemical industries is to produce eco-friendly sustainable and non-toxic substances or materials. Source reduction and pollution prevention is the main concept of green chemistry. Green chemistry also contrives to explore methods and strategies in designing and manufacturing chemical products without the use of hazardous materials, preventing instead cleaning up the pollution, evolving sustainable ultimate level of synthesis and production.

This two days Lecture Workshop provides robust discussions on methods and strategies related to chemistry and materials science and new technology for sustainability as well as explore new ideas, views and concepts on a large scale. This Webinar surely provided better information and insight into the development of the new methodology to minimize waste, eliminating the toxicity of waste, minimize energy use and utilize green energy.

1.2 Objectives

The specific objectives of the workshop are to:

- introduce and encourage the students and young researchers from the North-East Region of India to the importance and prospects of green and sustainable chemistry
- understand how to conduct innovative and socially relevant research in the field of green and sustainable chemistry
- foster a dialogue between the researchers and experts with a view to establish a long term, sustainable goal for achieving quality and excellence in research and innovation in the field

1.3 Themes

This Lecture Workshop on Green and Sustainable Chemistry is being organized on the theme: "Sustainable technologies and modern approaches in Green Chemistry with base on environmental wellbeing and its key role in waste management and essential public service." It featured thematically arranged invited lectures in frontier areas of green and sustainable chemistry by eminent academicians/ scientists.

1.4 Resource Persons



Prof. Sambashivarao Kotha, FNASc, FASc, FRSC

Department of Chemistry
Indian Institute of Technology Bombay, Mumbai



Prof. Bhalchandra M. Bhanage, FRSC

Department of Chemistry
Institute of Chemical Technology, Mumbai



Prof. Rakesh K Sharma, FRSC

Coordinator, Green Chemistry Network Centre
University of Delhi, Delhi



Prof. Brindaban C. Ranu, FNA, FASc

INSA Honorary Scientist
Indian Association for the Cultivation of Science, Kolkata



Prof. Daya Shankar Pandey, FNASc

Department of Chemistry
Banaras Hindu University, Varanasi



Dr. B. L. V. Prasad, FASc, FRSC

Physical and Materials Chemistry Division
CSIR-National Chemical Laboratory, Pune



Prof. Vivek Polsettiwar, FRSC

Department of Chemical Sciences
Tata Institute of Fundamental Research, Mumbai



Prof. Surinder K. Mehta, FRSC

Department of Chemistry
Panjab University, Chandigarh

1.5 About the Sponsoring Agency

Joint Science Education Panel of the three Science Academies' namely Indian Academy of Science (IASc) Bengaluru, Indian National Science Academy (INSA), New Delhi and The National Academy of Science India (NASI), Allahabad has sponsored the Lecture Workshop. Founded in the 1930s, the primary objective of the three Science Academies of India is promoting science and scientific research in India and harnessing scientific knowledge for the cause of humanity and national welfare. The Joint Science Education Panel of the three Science Academies sponsors Lecture Workshops of 2-3 days duration intended for the benefit of students and teachers at the undergraduate, graduate and research levels.

1.6 Budget

The total sanctioned budget of the two-day Virtual Lecture Workshop was ₹ 29,000.00. The Joint Science Education Panel of the three Science Academies' has supported the Lecture Workshop.

PART 2: SESSION WISE DETAILS

2.1 Inaugural Session

More than 125 delegates from various colleges, universities and institutes from across India took part in the event. This includes participants from

- (i) Rajiv Gandhi University, Arunachal Pradesh
- (ii) North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
- (iii) CSIR-North East Institute of Science and Technology, Branch Laboratory, Itanagar, Arunachal Pradesh
- (iv) CSIR-North East Institute of Science and Technology, Jorhat, Assam
- (v) Dibrugarh University, Dibrugarh, Assam
- (vi) Tezpur University, Tezpur, Assam
- (vii) North-Eastern Hill University, Shillong
- (viii) The Assam Royal Global University
- (ix) Aligarh Muslim University, Aligarh, Uttar Pradesh
- (x) Amity University, Noida, Uttar Pradesh
- (xi) BS Abdur Rahman Crescent Institute of Science and Technology, Chennai, Tamil Nadu
- (xii) CSIR-Indian Institute of Chemical Technology, Hyderabad, Telangana
- (xiii) Karnataka University, Dharwad. Karnataka

In the inaugural session of the event, Dr. Rajesh Chakrabarty, Head, Department of Chemistry welcomed the participants from different institutes. INSA honorary scientist from Indian Association for Cultivation of Science (IACS), Kolkata, also workshop convener Prof. Brindaban C. Ranu spoke about Science Academies and their programmes to promote science. Prof. Ranu, one of the pioneers of green and sustainable chemistry research in India, deliberated on the various aspects of green and sustainable chemistry that aims to reduce or eliminate the environmental impact of the chemical industry by developing sustainable technologies to make the world a greener place.

Pro-VC Prof. Amitava Mitra, in his address, discussed about relevance of sustainable development vis-à-vis UN sustainable development goals (SDGs) for 2030. Prof. Saket Kushwaha, Vice-Chancellor of the university, in his inaugural address, encouraged the participants to take up challenge to develop sustainable alternative to conventional processes and to conduct innovative and socially relevant research in green and sustainable chemistry. He also urged them to work with a view to set up a long term, sustainable goal for achieving quality and excellence in research and innovation in India. This was followed by a vote of thanks proposed by Dr. Md. Harunar Rashid, the Coordinator of the program.

2.2 Technical Sessions

Prof. Vivek Polshettiwar delivered the first lecture of the workshop on the topic, “*Nanocatalysis for Green and Sustainable Chemistry*”. In his lecture, Prof. Vivek shared his research experience on the synthesis of a new class of dendritic fibrous nano-silica (DFNS) which was used for various applications such as catalysis, solar-energy harvesting, energy storage, self-cleaning antireflective coatings, surface plasmon resonance-based ultrasensitive sensors, CO₂ capture, and biomedical applications. He also discussed how nanocatalysis can combat climate change and protect the environment. The second lecture was delivered by Prof. Brindaban C Ranu on, “*Green Tools for Chemical Reaction*.” He basically focused on the concept of ‘Green’ tools which aims at using minimum energy for a reaction. He further emphasized that ‘Ball milling’ (mechanical grinding) has emerged as a powerful tool in effecting various chemical reactions in a relatively green way by reducing the amount of solvent and operating at close to ambient temperature by application of mechanical energy. In the post lunch session of the day, there were two lectures. The first one was delivered by Prof. Rakesh K Sharma on the topic, “*Green Chemistry in Education, Industry & Research in India*.” He talked about new developments that have taken place to inculcate the significance of Green Chemistry. The presentation also demonstrated some green chemistry experiments

taken from a monograph published by him along with a real-world case of Indian Pharmaceutical Industry. While the second lecture was delivered by Prof. Daya S Pandey on “*Newer Synthetic Strategies for Metallo-Gelators.*” In his talk, Prof. Pandey highlighted the various aspects of saponification triggered gelation.

In the second day of the workshop, Prof. B. M. Bhanage delivered the first lecture on the topic, “*Development of novel catalysts for the conversion Biomass derived platform molecules to various value-added products.*” He highlighted the role of mono/bimetallic heterogeneous catalysts played in the conversion of platform molecules from biomass to various value-added products. He also discussed how the the development of bimetallic catalysts is important as they offer the potential of increased activity and selectivity combined with enhanced stability as compared to their monometallic counterparts. Prof. S. Kotha is his lecture on the topic, “*Rongalite: A Useful Green Reagent in Organic Synthesis*” described their research work on the use of rongalite as green reagent for the synthesis of benzosultine derivatives, which are the latent precursors to *o*-xylylene intermediates. In the post lunch session, Prof. S. K Mehta delivered a lecture on, “*Novel Molybdenum Oxide - Starbon Catalyst for Water Remediation.*” He discussed about the synthesis of Starbons which are carbonaceous mesoporous materials derived from starch and their metal oxides composites and their use in the environmental remediation. The last lecture of the workshop was delivered by Dr. B L V Prasad on the topic, “*Nanoparticles with different “attires”: Surface modification strategies to prepare functional nanoparticles.*” In his lecture, he gave a brief introduction to the synthetic aspects of nanomaterials and their surface functionalization with appropriate molecules to improve their stability in diverse solvent media for different applications. In the presentation, he also briefly reviewed the role of molecules/ligands as tools for controlling nanoparticle size, morphology and dispersion stability in different media.

2.3 Valedictory Sessions

The two-day virtual lecture workshop concluded with a valedictory program chaired by Prof. P. K. Kalita, Dean, Faculty of Basic Sciences, Rajiv Gandhi University. The participants thanked Rajiv Gandhi University for organising such a fruitful workshop here in Arunachal Pradesh.

On behalf of Department of Chemistry, Rajiv Gandhi University, Dr. Md. Harunar Rashid, workshop coordinator thanked the Joint Science Education Panel of the Science Academies’ for sponsoring the workshop, Prof. B. C. Ranu for convene the workshop, resource persons for delivering their lectures and participants for their overwhelming response and participation.

PART 3: OUTCOME OF THE PROGRAMME

3.1 Immediate Implications in the Context of Knowledge

It is our belief that a memorable experience that acquired during the workshop has the potential to positively impact the future research planning of the young researchers who participated in this program. Green chemistry aims at promoting environmentally benign patterns, a change that is essential for development to be sustainable.

3.2 Policy Implications

Although there is no such policy implication per se, it is our belief that the virtual lecture workshop has made us look into the research and innovation being carried out in the field of green and sustainable chemistry in different institutes which will help us in pushing to take initiatives to enhance the research and innovation output of the University.

3.3 Other Implications (if any)

NA

PART 4: ANNEXURES

Annexure I: Programme Schedule

17 DECEMBER 2020

INAUGURAL SESSION

10:00 am – 10:05 am	<i>Welcome Address & Introduction to the Workshop</i> Dr. Rajesh Chakrabarty Head, Department of Chemistry, Rajiv Gandhi University
10:05 am – 10:10 am	<i>Address by</i> Prof. Brindaban C Ranu Workshop Convener
10.10 am -10.20 am	<i>Remarks by</i> Dr. Nabam T Rikam Registrar, Rajiv Gandhi University
10:20 am – 10:30 am	<i>Remarks by</i> Prof. Pradip Kumar Kalita Dean, Faculty of Basic Sciences, Rajiv Gandhi University
10:30 am – 10:40 am	<i>Remarks by</i> Prof. Amitava Mitra Pro Vice Chancellor, Rajiv Gandhi University
10:40 am – 10:55 am	<i>Address by the Chair</i> Prof. Saket Kushwaha Vice Chancellor, Rajiv Gandhi University
10:55 am – 11:00 am	<i>Vote of Thanks</i> Dr. Md. Harunar Rashid Coordinator

TECHNICAL SESSION 1

11:00 am – 12:15 pm	Prof. Vivek Polsettiwar, FRSC Tata Institute of Fundamental Research, Mumbai
12:15 pm – 01:30 pm	Prof. Brindaban C Ranu, FNA, FASc Indian Association for the Cultivation of Science, Kolkata
01:30 pm – 02:00 pm	LUNCH BREAK

TECHNICAL SESSION 2

02:00 pm – 03:15 pm	Prof. Rakesh K Sharma, FRSC University of Delhi, Delhi
03:15 pm – 04:30 pm	Prof. Daya Shankar Pandey, FNASc Banaras Hindu University, Varanasi

18 DECEMBER 2020

TECHNICAL SESSION 3

10:00 am – 11:15 am

Prof. Bhalchandra M Bhanage, FRSC
Institute of Chemical Technology, Mumbai

11:15 am – 12:30 pm

Prof. Sambashivarao Kotha, FNASc, FASc, FRSC
Indian Institute of Technology Bombay, Mumbai

12:30 pm – 01:30 pm

LUNCH BREAK

TECHNICAL SESSION 4

01:30 pm – 02:45 pm

Prof. Surinder K. Mehta, FRSC
Panjab University, Chandigarh

02:45 pm – 04:00 pm

Dr. B. L. V Prasad, FASc, FRSC
CSIR-National Chemical Laboratory, Pune

VALEDICTORY SESSION

04:00 pm – 04:05 pm

Address by

Dr. Rajesh Chakrabarty

Head, Department of Chemistry, Rajiv Gandhi University

04:05 pm – 04:15 pm

A few words from the participants of the workshop

04:15 pm – 04:25 pm

Address by the Convener

Prof. Brindaban C Ranu

INSA Honorary Scientist

Indian Association for the Cultivation of Science, Kolkata

04:25 pm – 04:35 pm

Remarks from the Chair

Prof. Pradip Kumar Kalita

Dean, Faculty of Basic Sciences

Rajiv Gandhi University

04:35 pm – 04:40 pm

Vote of Thanks by Coordinator

Dr. Md. Harunar Rashid

Coordinator

Annexure II: List of Participants

Sr. No.	Name	Designation	Affiliation
1.	Aadil Shafi Bhat	Student	Aligarh Muslim University, Uttar Pradesh
2.	Abdul Rouf Lone	Student	Aligarh Muslim University, Uttar Pradesh
3.	Afreen Ahtesham	Student	Aligarh Muslim University, Uttar Pradesh
4.	Akhil Khedulkar	Research Scholar	CSIR-National Environmental Engineering Research Institute, Maharashtra
5.	Amar Jyoti Bhuyan	Research Scholar	Rajiv Gandhi University, Arunachal Pradesh
6.	Aminul Hassan Laskar	Student	Aligarh Muslim University, Uttar Pradesh
7.	Anindita Hazarika	Research Scholar	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
8.	Ankita Khimhun	Student	Rajiv Gandhi University, Arunachal Pradesh
9.	Ann Mary K Martin	Student	Amity University, Uttar Pradesh
10.	Anurag Sharma	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
11.	Apeksha Jain	Student	Amity University, Uttar Pradesh
12.	Arup Borgohain	Research Scholar	Dibrugarh University, Assam
13.	Azaz Ahmed	Student	Aligarh Muslim University, Uttar Pradesh
14.	Babul Kalita	Student	Rajiv Gandhi University, Arunachal Pradesh
15.	Bedanta Upadhyay	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
16.	Bharati Deka	Faculty	Nalbari Polytechnic, Assam
17.	Bhargob Pratim Borah	Student	Rajiv Gandhi University, Arunachal Pradesh
18.	Bhaskarjyoti Borah	Student	Rajiv Gandhi University, Arunachal Pradesh
19.	Bibekananda Gogoi	Research Scholar	Dibrugarh University, Assam
20.	Bidyutjyoti Dutta	Research Scholar	Dibrugarh University, Assam
21.	Bijoy Biswas	Research Scholar	CSIR-Indian Institute of Petroleum, Uttarakhand
22.	Bomnya Tao	Student	Rajiv Gandhi University, Arunachal Pradesh
23.	Bornana Saikia	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
24.	Charu Arora	Student	Amity University, Uttar Pradesh
25.	Chinmoy Protim Bora	Other	Rajiv Gandhi University, Arunachal Pradesh
26.	Dr. Abad Ali	Faculty	Aligarh Muslim University, Uttar Pradesh
27.	Dr. Abhijit Samanta	Faculty	The Neotia University, West Bengal
28.	Dr. B Sathyaseelan	Faculty	University College of Engineering Arni-Anna University, Tamil Nadu
29.	Dr. Chandan Tamuly	Faculty	CSIR-North East Institute of Science and Technology Branch Laboratory, Itanagar, Arunachal Pradesh
30.	Dr. Dillip Kumar Mishra	Faculty	Ratanpur Science Higher Secondary School, Odisha

31.	Dr. Dipa Dey	Faculty	Kokrajhar Govt. College, Assam
32.	Dr. Kshirod Kumar Dash	Faculty	Ghani Khan Choudhury Institute of Engineering & Technology, West Bengal
33.	Dr. Premada Kalita	Faculty	Lokanayak Omeo Kumar Das College, Assam
34.	Dr. Rama Kanwar Khangarot	Faculty	Mohanlal Sukhadia University, Udaipur, Rajasthan
35.	Dr. S.S.Sreegiri	Faculty	Karnatak Arts College Dharwad, Karnataka
36.	Dr. Saitanya Kumar Bharadwaj	Faculty	Pragjyotish College, Assam
37.	Dr. Sumpam Tangjang	Faculty	Rajiv Gandhi University, Arunachal Pradesh
38.	Dr. Veena H. F. Ammanna	Faculty	Karnataka State Akkamahadevi Women's University, Karnataka
39.	Eksha Guliani	Student	Amity University, Uttar Pradesh
40.	Farhin Akhtar	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
41.	Farwa Arshad	Research Scholar	Aligarh Muslim University, Uttar Pradesh
42.	Gangotry Konwar	Student	Rajiv Gandhi University, Arunachal Pradesh
43.	Gutti.Pavan	Research Scholar	Vellore Institute of Technology Vellore, Telangana
44.	Hage Tatung Sonya	Student	Rajiv Gandhi University, Arunachal Pradesh
45.	Harishchand Nishad	Research Scholar	University of Mumbai, Maharashtra
46.	Hirak Jyoti Bhuyan	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
47.	Hiya Talukdar	Research Scholar	Tezpur University, Assam
48.	Itrat Khursheed	Student	Aligarh Muslim University, Uttar Pradesh
49.	Itum Ruti	Research Scholar	Rajiv Gandhi University, Arunachal Pradesh
50.	Jahnabi Das	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
51.	Jayanta Sarmah Boruah	Research Scholar	Institute of Advanced Study in Science and Technology, Assam
52.	Jinku Borah	Research Scholar	Rajiv Gandhi University, Arunachal Pradesh
53.	Kaberijyoti Konwar	Research Scholar	Dibrugarh University, Assam
54.	Karishma Devi Borah	Research Scholar	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
55.	Kime Pinku	Student	Rajiv Gandhi University, Arunachal Pradesh
56.	Koushiki Chatterjee	Student	Amity University, Uttar Pradesh
57.	Krisangi Bordoloi	Research Scholar	Dibrugarh University, Assam
58.	Lubina Fatma	Student	Aligarh Muslim University, Uttar Pradesh
59.	Mahantesh Dodamani	Other	Karnatak University Dharwad, Karnataka
60.	Manab Jyoti Goswami	Research Scholar	Rajiv Gandhi University, Arunachal Pradesh
61.	Manash Pratim Boruah	Other	Numaligarh Refinery Limited, Assam
62.	Mandita Devi	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
63.	Masheer UI Haq	Student	Aligarh muslim university, Uttar Pradesh
64.	Md. Ifzal Azhar	Student	Aligarh Muslim University, Uttar Pradesh
65.	Md. Serajul Haque Faizi	Faculty	Langat Singh College, Bihar
66.	Modak Kadu	Student	Rajiv Gandhi University, Arunachal Pradesh
67.	Mohammad Saud Athar	Research Scholar	Aligarh Muslim University, Uttar Pradesh

68.	Mohammad Shoeb	Student	Aligarh Muslim University, Uttar Pradesh
69.	Mohd .Irshad	Student	Aligarh Muslim University, Uttar Pradesh
70.	Mohd .Mohsin	Student	Aligarh Muslim University, Uttar Pradesh
71.	Mohd. Arham Khan	Student	Aligarh Muslim University, Uttar Pradesh
72.	Mohd. Asim Ansari	Student	Aligarh Muslim University, Uttar Pradesh
73.	Mohd. Hamza	Student	Aligarh Muslim University, Uttar Pradesh
74.	Mohd. Mustaqeem	Student	Aligarh Muslim University, Uttar Pradesh
75.	Mohd. Usman	Student	Aligarh Muslim university, Uttar Pradesh
76.	Mohd. Uvesh	Student	Aligarh Muslim University, Uttar Pradesh
77.	Mrinmoy Gogoi	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
78.	Nabam Tayum	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
79.	Nabin Sharma	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
80.	Naveenkumar N	Other	Food Safety and Standards Authority of India, Karnataka
81.	Neha P Shukla	Research Scholar	C.G.Bhakta Institute Of Biotechnology, Gujarat
82.	Nilamoni Challeng	Research Scholar	CSIR-North East Institute of Science and Technology Branch Laboratory, Itanagar, Arunachal Pradesh
83.	Nilufa Khatun	Faculty	Harimohan Ghose College, West Bengal
84.	Nirangkush Borah	Research Scholar	CSIR-North East Institute of Science and Technology Branch Laboratory, Itanagar, Arunachal Pradesh
85.	Nupur Borah	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
86.	Pallavi Bolakatti	Faculty	MASC College Haunsbhavi, Karnatakata
87.	Pankaj Jyoti Boruah	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
88.	Papari Konwar	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
89.	Phanidhar Acharya	Student	Rajiv Gandhi University, Arunachal Pradesh
90.	Pinku Saikia	Research Scholar	Tezpur University, Assam
91.	Prafulla Kaman	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
92.	Prakash Bhuyan	Student	Rajiv Gandhi University, Arunachal Pradesh
93.	Pranjit Saikia	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
94.	Priyesh Shukla	Student	Amity University, Uttar Pradesh
95.	Pubanita Bhuyan	Research Scholar	Rajiv Gandhi University, Arunachal Pradesh
96.	Raghav Poudel	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
97.	Rahul Handi	Research Scholar	Karnatak University Dharwad, Karnataka
98.	Rajjyoti Gogoi	Research Scholar	Dibrugarh University, Assam
99.	Rakesh Chowdhury	Research Scholar	Rajiv Gandhi University, Arunachal Pradesh
100.	Rashmi Chetry	Research Scholar	Tezpur University, Assam
101.	Rashmi Gupta	Student	Amity University, Uttar Pradesh
102.	Reena Paes	Faculty	Karnatak College Dharwad, Karnataka

103.	Rekhajyoti Phukan	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
104.	Ruhullah Kamal	Student	Aligarh Muslim University, Uttar Pradesh
105.	Saddam Iraqui	Research Scholar	Rajiv Gandhi University, Arunachal Pradesh
106.	Sagarika Rajkhowa	Student	Rajiv Gandhi University, Arunachal Pradesh
107.	Sahid Sk	Research Scholar	Indian Institute of Technology Kanpur, Uttar Pradesh
108.	Samiya Maqsood	Student	Aligarh Muslim University, Uttar Pradesh
109.	Sasanka Bhuyan	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
110.	Sayantana Majumder	Student	Aligarh Muslim University, Uttar Pradesh
111.	Shaharukh	Student	University of Pecs, Hungary
112.	Shahid Khan Alvi	Student	Aligarh Muslim University, Uttar Pradesh
113.	Shekhar Borah	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
114.	Shilpa Saikia	Research Scholar	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
115.	Shipra Mudgal	Student	Amity University, Uttar Pradesh
116.	Shruti	Student	Amity University, Uttar Pradesh
117.	Siddhartha Shankar Kashyap	Student	CSIR-Indian Institute of Chemical Technology, Telangana
118.	Sidhartha Das	Research Scholar	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
119.	Sk Abdul Wahed	Student	Aligarh Muslim University, Uttar Pradesh
120.	Srinivas B Neglur	Research Scholar	Karnatak Science College Dharwad, Karnataka
121.	Sudarshana Gogoi	Student	North Eastern Regional Institute of Science and Technology, Arunachal Pradesh
122.	Suhail Majeed Ganaie	Student	Aligarh Muslim university, Uttar Pradesh
123.	Sunil Kumar	Other	Indian Institute of Technology Delhi, New Delhi
124.	Tabu Nilling Lingking	Student	Rajiv Gandhi University, Arunachal Pradesh
125.	Tahira Akther	Research Scholar	BS Abdur Rahman Crescent Institute of Science and Technology, Tamil Nadu
126.	Tanjila Begum	Research Scholar	CSIR-North East Institute of Science and Technology Branch Laboratory, Itanagar, Arunachal Pradesh
127.	Techi Boni	Student	Rajiv Gandhi University, Arunachal Pradesh
128.	Tikendrajit Chetia	Research Scholar	Dibrugarh University, Assam
129.	Utpal Dutta	Research Scholar	Rajiv Gandhi University, Arunachal Pradesh
130.	Utpal Koch	Research Scholar	North-Eastern Hill University, Meghalaya
131.	Uttam Thapa	Faculty	The Assam Royal Global University, Assam
132.	Xavy Borgohain	Research Scholar	Rajiv Gandhi University, Arunachal Pradesh
133.	Zulfkar Hussain Wani	Student	Aligarh Muslim University, Uttar Pradesh

Annexure III: Photographs



A Glimpse of the Inaugural Session. 1st Row (L-R): Prof. Amitava Mitra (Pro-Vice Chancellor, RGU); Prof. Saket Kuswaha (Vice Chancellor, RGU); Dr. Rajesh Chakrabarty (HoD, Department of Chemistry, RGU).

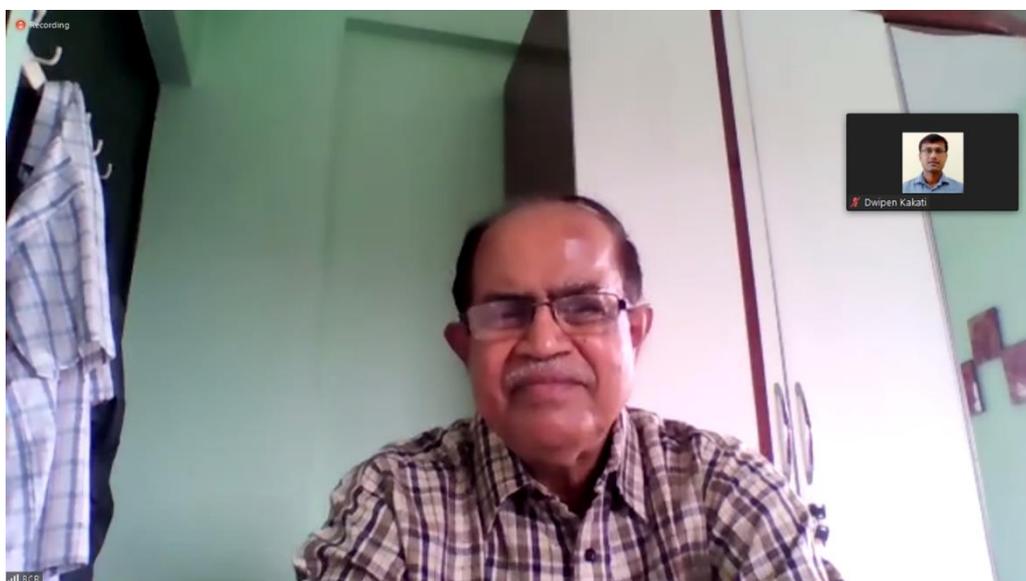
2nd Row (L-R): Prof. B. C. Ranu (INSA Honorary Scientist & Convener); Dr. Md. Harunar Rashid (Coordinator); Dr. Dwipen Kakati; Mr Utpal Dutta; Mr. Manab Jyoti Goswami & Dr. Sourav Jyoti Bharali.



Prof. Saket Kuswaha, Vice Chancellor of Rajiv Gandhi University addressing the gathering during the Inaugural Session.



Prof. Vivek Polshettiwar, TIFR Mumbai delivering his lecture on *“Nanocatalysis for Green and Sustainable Chemistry”* in the workshop.



Prof. Brindaban C. Ranu, INSA Honorary Scientist and Convener of the Workshop delivering his lecture on *“Green Tools for Chemical Reaction”*

Annexure IV: Media Coverages

The Arunachal Times

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Macro Focus

RGU holds workshop on green and sustainable chemistry

December 19, 2020

RONO HILLS, 18 Dec: The chemistry department of Rajiv Gandhi University (RGU) here held a two-day 'science academies virtual lecture workshop' on 'Green and sustainable chemistry' from 17-18 December.

A joint science education panel of three science academies – the Indian Academy of Science, Bengaluru, the Indian National Science Academy, New Delhi, and the National Academy of Science India, Allahabad – sponsored the workshop.

More than 125 delegates from various colleges, universities and institutes from all over India participated in the event.

CALL THE FOLLOWING NUMBERS WITH ALL QUERIES RELATED TO COVID-19:

- 24x7 state control room: 10410360-2292777/1874
- State task force control room at DHS: 0380-2350407
- MoHFW, GoI 24x7 control room: +91-11-23978046

Citizens willing to contribute to the Chief Minister's Relief Fund may donate to the following Account Number: A/c No - 10940061389, State Bank of India, Secretariat Branch, Itanagar.

Poll

Would the money being collected for Ram temple in Ayodhya be better used for the development of Arunachal?

The Arunachal Times: <https://arunachaltimes.in/index.php/2020/12/19/rgu-holds-workshop-on-green-and-sustainable-chemistry/>

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RGU hosts virtual lecture workshop of Science Academies

December 19, 2020

RONO HILLS, Dec 18: A two-day Science Academies' virtual lecture workshop on 'Green and Sustainable Chemistry' by chemistry department of Rajiv Gandhi University concluded here on Friday.

More than 125 delegates from various colleges, universities and institutes from across India took part in the event. Joint science education panel of three Science Academies' – Indian Academy of Science (IAS) Bengaluru, Indian National Science Academy (INSA), New Delhi and The National Academy of Science India (NASI), Allahabad has sponsored the Lecture Workshop.

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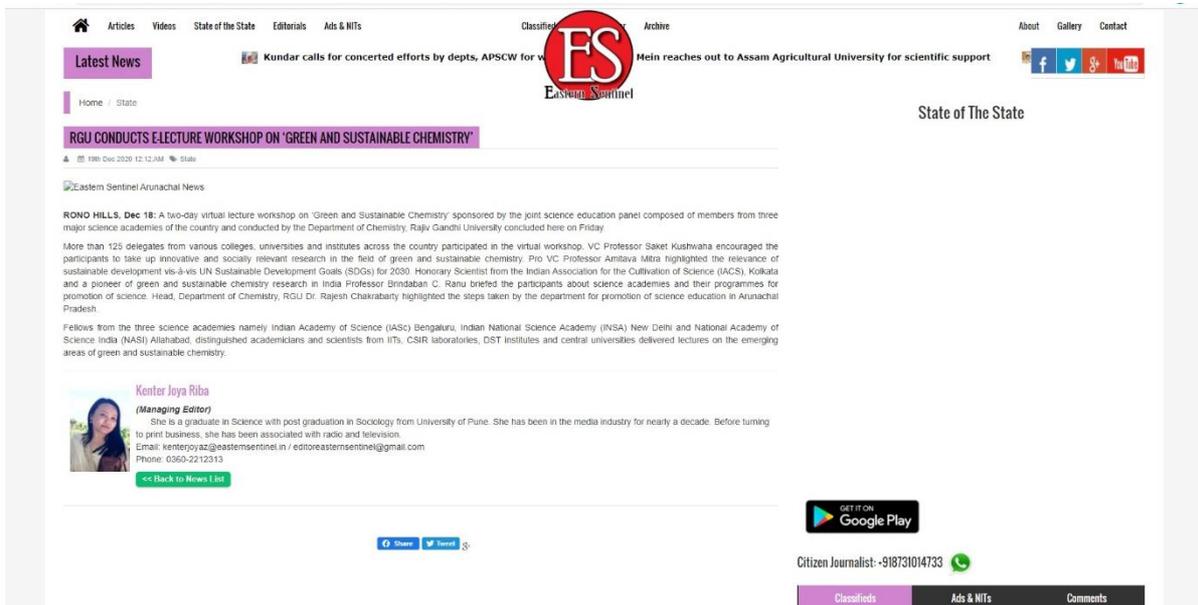
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Arunachal Observer: <https://arunachalobserver.org/2020/12/19/rgu-hosts-virtual-lecture-workshop-of-science-academies/>



The Dawnlit Post: <https://thedawnlitpost.com/2020/12/workshop-on-green-sustainable-chemistry-concludes/>



Eastern Sentinel: <http://www.easternsentinel.in/news/state/rgu-conducts-e-lecture-workshop-on-green-and-sustainable-chemistry.html>



Eco of Arunachal: http://www.echoofarunachal.in/news_details.php?nid=10053



Arunachal24: <https://arunachal24.in/itanagar-workshop-on-green-and-sustainable-chemistry-held-at-rgu/>