ASSOCIATION OF CHEMISTRY TEACHERS

NEWS LETTER

ISSUE : 31 JANUARY - APRIL 2025

Promoting Excellence in Chemistry Education

Association of Chemistry Teachers
News Letter, January - April 2025

Contents of the News Letter : Issue - 31

From Editorial Desk

Prof. Wasudeo Gurnule
Editor
Vice President, ACT West Zone
Formerly Kamla Nehru Mahavidyalaya,
Nagpur-440024, Maharashtra.

I warmly welcome issue 31 (January-April 2025) of the Newsletter and appreciate the dedicated efforts undertaken by the Editor and the Editorial Board Members in bringing out this edition. I also extend my heartfelt wishes for a happy, healthy, and prosperous New year 2025.

The Editorial Board has put in commendable efforts to make this issue both informative and visually engaging. We are pleased to inform you that the contribution of ACT continue to span a wide range of academic and scientific activities, including participation in International Olympiads, organization of National and International Conferences, demonstration of innovative experiments and oral and postal presentations by teacher participants.

In addition to several regional level conferences and seminar, ACT has also conducted workshop aimed at supporting PG and research students. This issue of the Newsletter features comprehensive reports on ACTs activities, recent trends in chemistry, and highlights from world of science.

We have made a conscious effort to draw the attention of our readers toward emerging global research trends, with the hope of inspiring them to take initiatives that align with the goals of sustainability.

Furthermore, this issue includes reports on notable National and International Chemistry events, including the Global Women Breakfast (GWB-2025) organized by various zones across the country.

I take this opportunity to say many, many thanks to all my Editorial Board Members for their whole hearted co-operation extended to me. We trust that readers will find this issue enriching and motivating.

Members of Editorial Board

Honorary Members of ACT

We have great pleasure in bringing the updated list of honorary members of Association of Chemistry Teachers, who are sources of inspiration, guidance and support in activities of ACT.

The editorial board of ACT News Letter is proud of the academic achievements of these legendary honorary members.

Bharat Ratna Prof. C.N.R. Rao, FRS
National Research Professor : Linus Pauling Research Professor,
Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur, Bengaluru - 560 064
E-mail : cnrrao@jncasr.ac.in

Padma Vibhushan Prof. M.M. Sharma, FRS
Former Director, Institute of Chemical Technology, Mumbai - 440 019.
2/3, Jaswant Baug, V.N. Purav Marg, Chembur, Mumbai - 400 071
E-mail : profmmsharma@gmail.com

Padma Vibhushan Dr. R.A. Mashelkar, FRS
CSIR Bhatnagar Fellow;i Former Director General, CSIR, New Delhi.
President, Global Research Alliance, National Chemical Laboratory, Pune - 411 008.

Dr. Nitya Anand
Former Director, CSIR-Central Drug Research Institute, Lucknow.
B-62, Nirala Nagar, Lucknow - 226 020
E-mail : nityaanand1925@gmail.com

Prof. R.S. Mali
Former Vice-Chancellor, North Maharashtra University, Jalgaon.
B-2, Surajbun Housing Society, Aundh Road, Pune - 411 007.
E-mail : rsmali@rediffmail.com

Prof. S. Jayarama Reddy
Former Vice-Chancellor, S.V. University, Tirupati; Chancellor, SCSSV Mahavidyalaya, Kanchi
201, Ameya Towers, Street No. 12, Tarnaka, Hyderabad - 500 017.
E-mail : profsir@gmail.com

Padma Shri Prof. Jai P. Mittal
Former Director, Chemistry - Isotope Group, BARC, Mumbai - 400 085.
Chairman, Academic Board, UM-DAE Centre for Excellence in Basic Sciences,
University of Mumbai, Kalina, Mumbai - 400 098
E-mail : mittaljp2003@yahoo.co.in

Prof. Mihir K. Chaudhuri
Former Vice-Chancellor, Tezpur University, Tezpur.
Advisor, Education Department of Government of Assam, Gawahati - 781 006
E-mail : chaudhurimihirk@gmail.com; mkc@tezu.ernet.in

Padma Shri Prof. Dr. G. D.Yadav,
National Science Chair, SERB,New Delhi
Emeritus Professor of Eminence, Institute of Technology, Mumbai
Former Vice Chancellor, Institute of Technology, Mumbai
Email : gdyadav@gmail.com

Prof. Dr. A. K. Bakhshi
Chairman, National Resource Centre for Chemistry, MoE, GOI
Chairman, Guru Angad Dev Teaching Learning Centre for e-Learning,
SGTB Khalsa College, University of Delhi, Delhi
Founder Vice Chancellor, PDM University, Bahadurgarh, Haryana
Email : akbakhshi@yahoo.com

Prof Dr John Warner
Father of Green Chemistry and Coauthor of 12 Principles of Green Chemistry with
Prof Paul Anastas President and Chief Technology Office, Warner-Babcock Institute for
Chief Chemistry President, Beyond Benign
Distinguished Professor of Green Chemistry,Monash University,USA
Email : john_warner@uml.edu

ASSOCIATION OF CHEMISTRY TEACHERS (ACT)
ACT EXECUTIVE COUNCIL 2025-2027 (3 Years)

President : Prof. D. V. Prabhu, Formerly Wilson College, Mumbai
General Secretary : Prof. Ramesh S. Yamgar, Patkar College, Mumbai
Treasurer : Prof. Harichandra A. Parbat, Wilson College, Mumbai

Zonal Vice-Presidents

North : Prof. Shraddha Sinha, Formerly B. B. Das National Institute of Technology and Management, Lucknow
East : Prof. Prem Mohan Mishra, Lalit Narain Mithila University, Darbhanga, Bihar
South : Prof. Helen Kavitha, SRM Institute of Science and Technology, Ramapuram, Chennai
Central: Prof. Raakhi Gupta, IIS University (Deemed University), Jaipur
West : Prof. Wasudeo Gurnule, Formerly Kamla Nehru Mahavidyalaya, Nagpur
North -East: Prof. Gitimoni Deka, Formerly Rangia College, Rangia, Assam

Zonal Secretaries

North : Principal Dr. Umesh Chandra Jain, Academic Heights Public School, Morena, Agra
East : Prof. Subhash Prasad Singh, A. N. College, Patna
South : Prof. Mannam Krishnamurthy, Varsity Education Management Ltd., Hyderabad
Central : Prof. Ram Babu Pareek, Regional Institute of Education, NCERT, Ajmer
West : Prof. Sudesh Ghoderao, RNC Arts, JDB Commerce and NSC Science College, Nashik Road, Nashik, Maharashtra
North-East : Prof. Purabi Sarmah, Nalbari College, Nalbari, Assam

Members (2 per zone)

North : 1) Prof. Vijay Pal Singh,Formerly NCERT, New Delhi
2) Principal Dr. Amar Srivastava,Hari Sahai PG College, Kanpur

East : 1) Prof. Nayan Kamal Bhattacharyya, Sikkim Manipal Institute of Technology(SMIT), Majitar, Rangpo, Sikkim
2) Prof. Amrit Krishna Mitra, Government General Degree College, Singur, Hoogly, West Bengal

South : 1) Prof. B. R. Venkatraman,Thantai Periyar Government Arts and Science College, Tiruchirappalli, Tamil Nadu
2) Prof. Subramania Angaiah, Pondicherry University, Puducherry

Central : 1) Prof. Vijendra Singh, ISR, IPS Academy, Indore, MP
2) Prof. Pradhyuman Singh Ranawat, Mohanlal Sukhadia University, Udaipur, Rajasthan

West : 1) Prof. Hemant Pande, Formerly Hislop College, Nagpur
2) Prof. Keshav Lalit Ameta, Central University of Gujarat, Gandhinagar, Gujarat

North-East : 1) Prof. Daniel Kibami, Kohima Science College, Jotsoma, Nagaland
2) Prof. Diganta Bhuyan, Barnagar College, Sorbhog, Assam

Coopted Members

East Zone : Prof. Upakarasamy Lourderaj, NISER, Bhubaneswar

South Zone : Prof. M. Swaminathan, Kalasalingam Academy of Research and Education, Krishnankoil, Tamil Nadu

Central Zone : Prof. Arpan Bhardwaj, Vice Chancellor, Vikram University, Ujjain, MP

West Zone : Dr. Narottam Sahoo, Advisor, Gujarat Science City, Government of Gujarat, Ahmedabad

North East Zone : Prof. N. Mohondas Singh, Head, University of Mizoram, Aizawl, Mizoram State

HBCSE(TIFR) : Dr. Ankush Gupta, Chemistry Cell, HBCSE(TIFR), Mumbai

Past Presidents

Prof. N. Sathyamurthy, IISER-Mohali and Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru

Prof. S. R. Gadre, University of Pune, Pune

Prof. P. K. Sai Prakash, Formerly Osmania University, Hyderabad

Prof. Sudha Jain, Formerly University of Lucknow, Lucknow

Prof. S. D. Samant, Formerly ICT, Mumbai and Centre for Basic Sciences (CBS), University of Mumbai, Mumbai

Prof. D. C. Deka, University of Mizoram, Aizawl, Mizoram

Prof. Brijesh Pare, Madhav Science Government PG College, Ujjain, MP

Reports of Activities of ACT

Training Program held at FFDC Kannauj

A training program on **"Fragrance and Flavor Creation and its application"** was held from 17- 21 March 2025 at FFDC Kannauj with the collaboration of Association of chemistry teachers. Twenty six participants of different level were participated in this training program.

Dr. Shakti Vinay Shukla Principal Director of FFDC, Mr. Shailendra Jain life member of ACT and Prof. Shradha Sinha, Vice President of North Zone were present in validatory session.

Dr. Shakti Vinay Shukla Principal Director of FFDC addressing the gathering

Participants with Prof. Shradha Sinha

Report on ChemQuest-2025

P.B. Siddartha College of Arts and Science, Vijayawada.

A talent search programme, **'ChemQuest**-2025' was organized at **Parvathaneni Brahmayya Siddartha College of Arts and Science, Vijayawada** on **February 5, 2025**, in collaboration with Association of Chemistry Teachers (**ACT**, Mumbai). ***Dr. Mannam Krishna Murthy,*** Secretary, South zone coordinated the event on behalf of ACT.

The inaugural session was conducted at the auditorium of the college, which was chaired by ***Dr. Meka Ramesh,*** Principal of the college. ***Dr. Rajesh C. Jampala,*** Dean, Siddartha Academy, Vijayawada delivered welcome address. ***Dr. M. Manoranjani,*** Life member of ACT and head of the chemistry department delivered a motivational talk on the importance of Chemistry in everyday life. ***Dr. P.T.S.R.K. Prasad Rao,*** Life member of ACT and event convener explained the aims and procedures of the four proposed categories of the event.

Dr. Mannam Krishna Murthy, Chief Executive Dean, Varsity Education Management Ltd., Hyderabad was the guest of honour, who addressed the participants on the importance of Conceptual chemistry in the development of technology and healthcare. He also briefed on the ACT activities in general and popularization of chemistry education in particular.

Prof. Anuradha Vegendla, Principal, Vignan Degree & P.G. College, Guntur was the chief guest, who addressed the participants on the understanding of recent developments in material science and energy resources. The event was declared opened with the lightening of the illuminating lamp.

There were **328 student participants from 20 Colleges**, spread over 4 districts of Andhra Pradesh state. Total number of participations in all four categories were 407.

Quiz Competition : A dynamic contest where thought provoking chemistry related questions on recent applications and advances of Chemistry were answered.

PPT Presentation : Competitors showcased their research and understanding of various chemistry topics through well structured presentations.

Poster presentation : Participants designed visually appealing and informative posters on Chemistry themes.

Elocution : Speech competition where participants eloquently presented their views on the significance and role of chemistry in society and industry.

The student participants gathered back in the auditorium, after the completion of the competitions and academically interacted with the chemistry faculty, ***Dr. P.T.S.R.K. Prasad Rao, Dr. M. Manoranjani, Dr. A. Ramarao, Dr. D. Srilakshmi*** and ***Mr. E. N. Babu.***

The valediction ceremony marked the successful conclusion of competitions. Certificates were distributed to all participants and 20 prizes/medals were awarded to merit performances, separately for UG and PG participants, on behalf of ACT.

Administrators and resource persons of ChemQuest-2025

Student participants at PBS College auditorium

Illumination of lamp and declaration of event opening

Secretary ACT South zone addressing participants and media

Distribution of certificates and prizes

National Science Day Programme

Report on National Science Day – 2025
Celebrations at VPS Public School, Vijayawada

National Science day was celebrated at **Veeramachaneni Paddayya Siddartha Public School, Vijayawada, AP State** on **25th and 28th February 2025.** These celebrations were sponsored by Siddartha Academy of General and Technical Education and were organized jointly by Association Chemistry Teachers (ACT) and Indian Association of Physics Teachers (IAPT). ***Dr. Mannam Krishna Murthy,*** Secretary South zone will coordinated the academics on behalf of ACT.

Inaugural session of the celebrations was conducted on 25th February 2025 between 9 and 10 AM. **Mr. K. Sitaramaiah,** Principal, VPSPS chaired the session and highlighted the importance of the National Science Day.

Dr. Sureddy Ramani, Director, Metro Super Speciality Hospitals, Vijayawada was the chief guest. She gave motivational address, with an emphasis on understanding science principles. **Mr. K. Ravindra Kumar,** SKCM Education trust was guest of honor. He gave a brief presentation on the importance of conceptual learning in science.

Chemistry session was conducted between 10 and 11 AM. **Dr. Mannam Krishna Murthy,** Chief Executive Dean, Varsity Education Management Limited, Hyderabad delivered a presentation of the Role of chemistry in everyday life.

Physics session was conducted between 9 to 10 AM on 28th February 2025. **Mr. U. Lakshmana Suri,** Lecturer, Sri Chaitanya College, Vijayawada presented a demo experimentation on pressure, laws of motion, light and magnetism.

The celebrations were concluded, in the session between 10 to 11 AM. About 200 students of class VIII to X and 10 science teachers participated in these celebrations. Student participants interacted with guests, mentors and teachers.

Two guest speakers of NSD celebrations

Science Teachers with Guests and Mentors

Dr Mannam's Presentation

Report on National Science Day – 2025
Celebrations at Vidyardhi, Patamata, NTR Dist.

National Science day was celebrated at **Vidyardhi, Ambedkar Nagar, Patamata, NTR District of AP State** on **27th and 28th February 2025.** These celebrations were academically supported by Association Chemistry Teachers (ACT) and Indian Association of Physics Teachers (IAPT). ***Dr. Mannam Krishna Murthy,*** Secretary South zone will coordinate on behalf of ACT.

Mr. M. Surendra Nath, Managing Director of Minerva Group of Hotels came forward to adopt 36 orphan students of Andhra Pradesh Government Parishad High School, Patamata, NTR District. The celebrations were confined only to these student participants. In view of Graduate MLC election code, active till 6 PM of 27th February 2025, the event was started at 7 PM.

Dr. Mannam Krishna Murthy, Chief Executive Dean, Varsity Education Management Limited, Hyderabad motivated student participants with an interactive session of concepts of science in general and chemistry in particular, with a special focus on periodicity of elements.

Dr. Bhagavatula L.V. Prasad, Director, Centre for Nano and soft matter sciences, Bangalore was the chief guest. He has emphasized on the importance of scientific research and development. He gave a live demo on the improvement of conductivity of glass and optimum conditions for the transformation of transparent to opaqueness of glass and vice-versa.

Mr. U. L. Suri, Executive Committee Member of RC-11, IAPT conducted a hundred min workshop at 7 AM on 28th February 2025, with the utility of optical instruments like mirrors, lenses, prisms etc. Student participants enjoyed with the demo experimentation and were happy in understanding the concepts.

Organizers and guests of NSD celebrations

Address by mentors and guests

Student and teacher participants

Report on National Science Day - 2025 Celebrations at Vignan Degree & PG College, Guntur.

National Science Day-2025 was celebrated on **February 28, 2025,** at **Vignan Degree & PG College, Pedapalakaluru Road, Guntur.** The celebrations were organized by Chemistry Department of the College in collaboration with Association Chemistry Teachers (ACT, Mumbai). ***Dr. Mannam Krishna Murthy,*** Secretary South zone coordinated the event on behalf of ACT.

In the forenoon session, talent search was conducted. The three events of the competitions were :

1. Poster Presentation on 'Smart City and Urban Development'.
2. Paper Presentation on 'Green Technology for Better Future'.
3. Drawing Competition on 'Role of Science in Sustainable Development'.

In the afternoon session there were two guest presentations. **Dr. Mannam Krishna Murthy,** Chief Executive Dean, Varsity Education Management Limited, Hyderabad delivered a talk on the importance of chemistry in the development of substitutes to fiber, glass, metals, meat and synthesis of materials for health care. **Prof. R.V.S.S.N. Ravi Kumar,** Dean, Faculty of Sciences, Acharya Nagarjuna University, Guntur delivered a talk on the importance of semi conductors and doping substances in chip designing, artificial intelegency, machine learning and newer technological invensions.

The celebrations were concluded with valedictory session, organised in open air under green trees, which was chaired by **Dr. V. Anuradha,** Principal, Vignan Degree & PG College. Both the guest speakers and six faculty members of the chemistry department interacted with about 160 UG and PG students. Certificates of merit and medals were presented to best performers of talent search competitions.

Observing Poster presentations

Chairperson and two guests of the event

Assembly of participants under green trees

Prize winners, along with guests of the event

A Two-day National Conference on "Role of Biological, Chemical, and Pharmaceutical Sciences in Integrative Medicine and Holistic Health-2025 (RBCPS-IMHH-2025)"

Date: 21st & 22nd February, 2025
Venue: School of Pharmaceutical Sciences-Tezpur, Girijananda Chowdhury University, Tezpur Campus

The conference venue was really well organized for national level conference. A two-day national conference on **"Role of Biological, Chemical, and Pharmaceutical Sciences in Integrative Medicine and Holistic Health - 2025 (RBCPS-IMHH-2025)**" was organized by School of Pharmaceutical Sciences (GIPS-T), GCU, Tezpur Campus in collaboration with Associations of Chemistry Teachers (ACT), Mumbai and Rangapara College, Rangapara during 21st and 22nd February 2025. The conference was sponsored by the Associations of Chemistry Teachers (ACT), Mumba, Rangapara College, Rangapara and Lab and Tech solution and Guwahati, Assam and Northeast Chemical Corporation (NECC) Guwahati, Assam.

Eminent Scientists, researchers, Ph.D. scholar and students (UG & PG) were participated during this prestigious conference. I am happy to announce that 150 delegates from various universities, research laboratories, institutes were present and 17 abstracts for oral presentation and 64 abstracts for posters had been submitted by participant at Two Day National Level conference and oral as well as poster presentation competition fraternity.

This National Level Conference witnessed an amalgamation of peerless speakers who enlightened the crowd with their knowledge and confabulated on various new-fangled topics related to the field of Pharmaceutical Sciences, Chemical Sciences and Biological sciences. In these conference three sessions were planed like inaugural session, scientific session and cultural session. The scientific sessions were made three technical sessions like technical session-1, Technical session-2, Technical session-3, Technical session-4 and technical session-5 taken by eminent keynote speakers.

The inaugural session commenced with spot registration followed by a warm welcome addressed by Shri Jasoda Ranjan Das, President of Srimanta Shankar Academy, Guwahati. The inaugural session featured a thought-provoking speech by Prof. (Dr.) Professor (Dr.) Abdul Baquee Ahmed, Principal of School of Pharmaceutical Sciences at GCU, Tezpur campus, Prof. Jayanta Das, Chancellor, GCU, Guwahati, Assam, Honourable Chief Guest Prof. Biren Das, former registrar and present controller of examination, Tezpur University and Guest, Dr. Rama Dubey, Scientist-F, DRL, Tezpur. The inauguration of the conference abstract book was carried out by the esteemed Chief Guest, Prof. Biren Das,

former Registrar and current Controller of Examinations at Tezpur University and the vote of thanks was delivered by Dr. Asish Bhaumik, Organizing Secretary of RBCPS-IMHH-2025.

The scientific session commenced with notable features leading to technical sessions and delivered an enlightening speech by the following speakers:

Technical session-1: Dr. Pronobesh Chattopadhyay, Scientist F, DRL, Tezpur, Assam delivered his talk with a topic **"The Transition from Ancient to Modern Science: A Notable Evolution and Prospective Developments".**

Technical session-2: Dr. Utpal Bora, Professor, Department of Chemical Sciences, Tezpur University, delivered his talk with a topic **"Synthesis of Functionalized Bioactive Heterocyclic Molecules".**

Technical session-3: Dr. Ganesh Pawar, Principal, NL Dalmia College, Mira Road, Mumbai, Maharashtra, delivered his talk with a topic **"Advances in Green Chemistry".**

Technical session-4: Dr. Subham Banerjee, Associate Professor, NIPER, Guwahati, Assam, delivered his talk with a topic **"Next Generation 3D Printed Personalized & Customized Medicines".**

Technical session-5: Dr. Damiki Laloo, Professor, School of Pharmaceutical Sciences (SOPS), Girijananda Chowdhury University, Guwahati, Assam, delivered his talk with a topic **"Navigating Ethical Challenges in Upholding Research Quality and Scientific Standards".**

I would like to express my special thanks of gratitude to Dr. D. V. Prabhu, President, Association of Chemistry Teachers, Homi Bhabha Centre for Science Education (TIFR), V N Purav Marg, Mankhurd,Mumbai, Chief Guest , Prof. Biren Das, Former registrar & present controller of examination, Tezpur University, Prof. Jayanta Das, Hon'ble Chancellor, GCU. I would like to express my sincere thanks to our President Shri Jasoda Ranjan Das of Srimanta Shankar Academy, Guwahati, Prof. (Dr.) Dipankar Saha, Registrar, Girijananda Chowdhury University (GCU), Prof. (Dr.) Abdul Baquee Ahmed, Principal of School of Pharmaceutical Sciences at GCU, Tezpur Campus for providing encouragement to make this event a grand success.

Inaugural Session

Dr. Ganesh Pawar as a Invited Speaker

Report of GWB-2025

IUPAC "Global Women Breakfast"

"Global Women Breakfast" (GWB) is a Global and Prestigious event which is announced by "IUPAC" in association with prestigious sponsoring chemical societies and institutions (Royal Society of Chemistry, American Chemical Society, DE GRUYTER, BAYER and Royal Australian Chemical Institute (RACI)) every year to celebrate the accomplishments of women and girls in Science.

We, the Association of Chemistry Teachers (Mailing Address: Homi Bhabha Centre for Science Education (TIFR) Mumbai) feel immense pleasure to promote the program since 2021, in INDIA.

This year 81 institutions, colleges and universities from different states of INDIA have registered to the event and organized several activities like e-Symposia, National and International Seminars, Workshops, Conferences and awareness programs at national and international levels to celebrate #GWB 2025, on 11 Feb. 2025 with the theme "Accelerating Equity in Science" announced by IUPAC for 2025. This year we gave maximum registrations from India and secured top position in the world.

Dr. Vijendra Singh, Assistant Professor, Department of Chemistry, Institute of Science and Research (ISR) IPS Academy, Indore was nominated as National Coordinator of #GWB-2025 for India by Dr. D V Prabhu Sir, President ACT and Past President Dr. Brijesh Pare Sir.

The event was promoted by President, Past President, and all the Vice presidents, executive members and life members of ACT from different zones of INDIA.

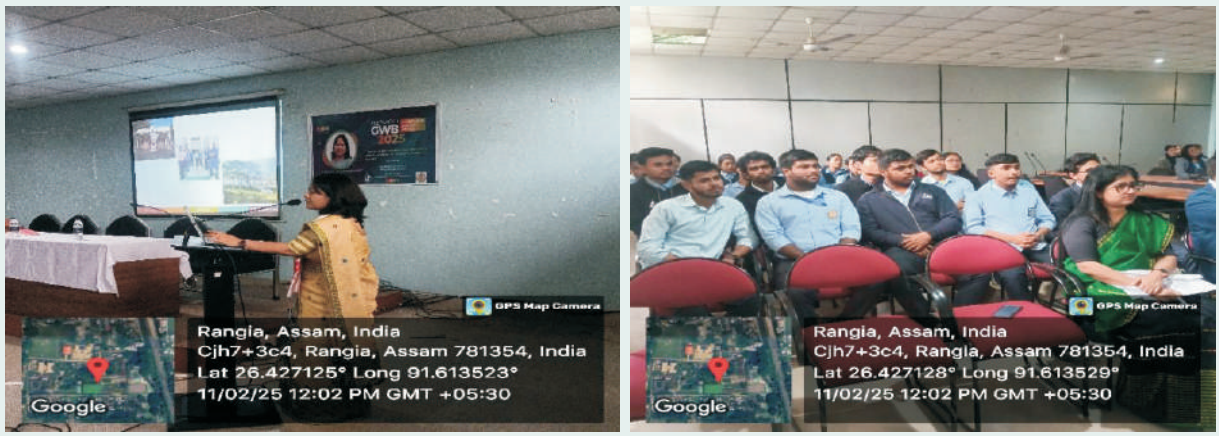
Glimpses of #GWB-2025

Department of Chemistry, ISR, IPS Academy, Indore

Department of Chemistry, Navyug Kanya Mahavidyalaya, Lucknow

Department of Chemistry, Govt. Madhav Science College, Ujjain, MP

Department of Chemistry, Govt. PG College, Dhar, MP



Department of Chemistry, Rangia College, Assam.

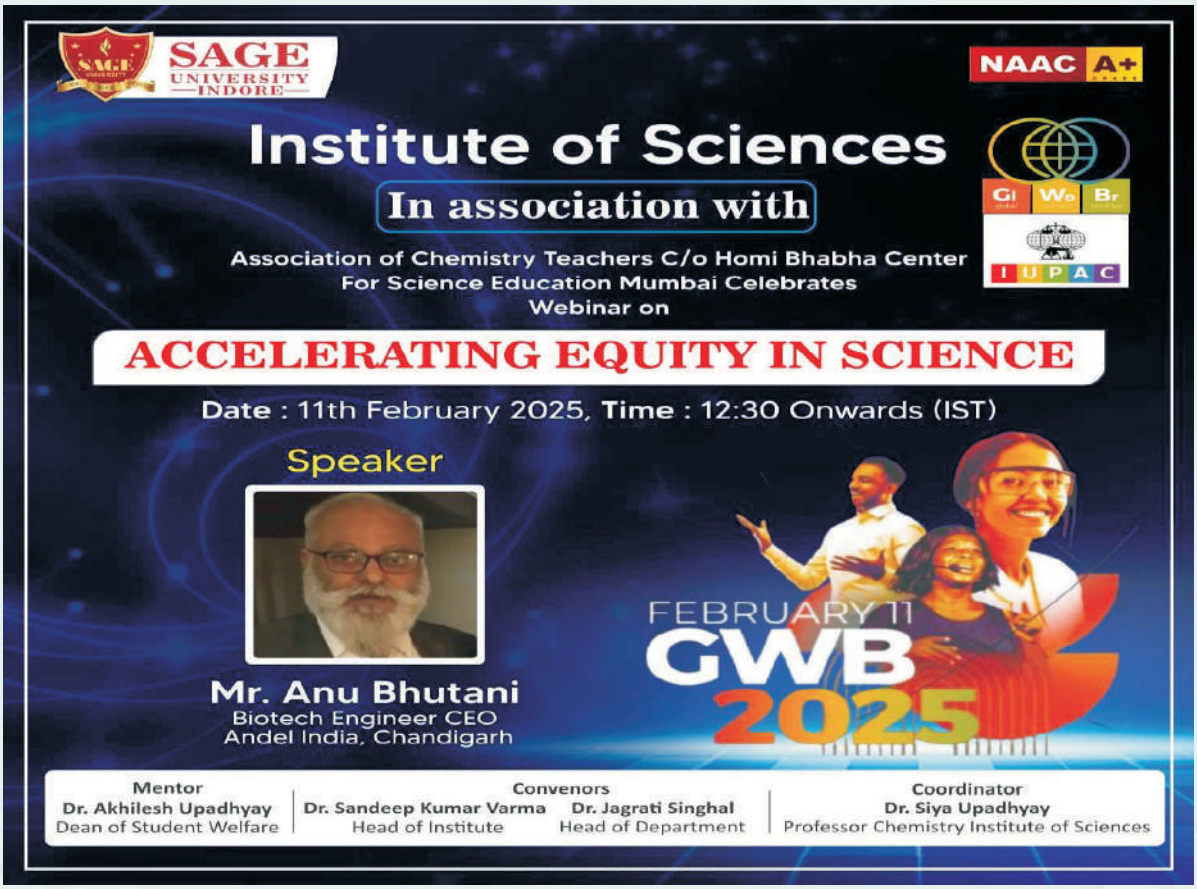
Department of Chemistry, PMCOE, Ujjain, MP.

Department of Chemistry, Govt. Holkar Science College, Indore, MP.

Department of Chemistry, SVVV, Indore, MP.

Department of Chemistry, Jatashankar Trivedi Govt. PG College, Balaghat, MP.

SIDVI Foundation, Andhra Pradesh



Department of Chemistry, SAGE University, Indore, MP.

School of Studies in Chemistry & Biochemistry

Vikram University, Ujjain (M. P.) INDIA

organizing

One-day International Conference

to Celebrate

2025 IUPAC

GLOBAL WOMEN'S BREAKFAST

"Accelerating Equity in Science"

Online Event

11 February 2025

1 pm IST

REGISTER NOW

https://forms.gle/FbyjQ54RxBZ8wLLd9

TO JOIN

https://meet.google.com/twj-rejo-ntm

EMINENT WOMEN'S SCIENTIST

"Catalysis and Synchrotron Techniques"

Dr. Rosalie Hocking

Associate Investigator

Swinburne University of Technology

Australia

"Geopolymers: Wonder Material for the 21st Century"

Dr. Deepti Mishra

Chief Scientist

CSIR-AMPRI, Bhopal

ORGANIZERS

Patron

Prof. Arpan Bhardwaj

Vice Chancellor, Vikram University

Co-Patron

Dr. Anil Kumar Sharma

Registrar, Vikram University

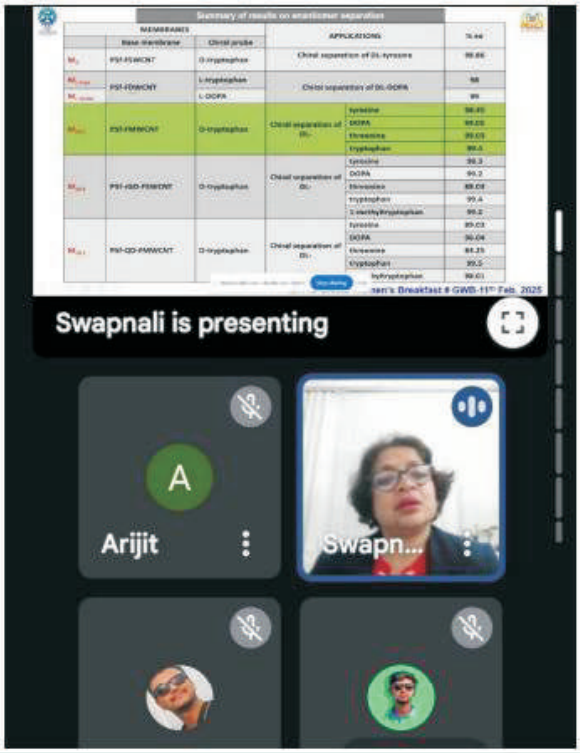
Convener

Dr. Uma Sharma

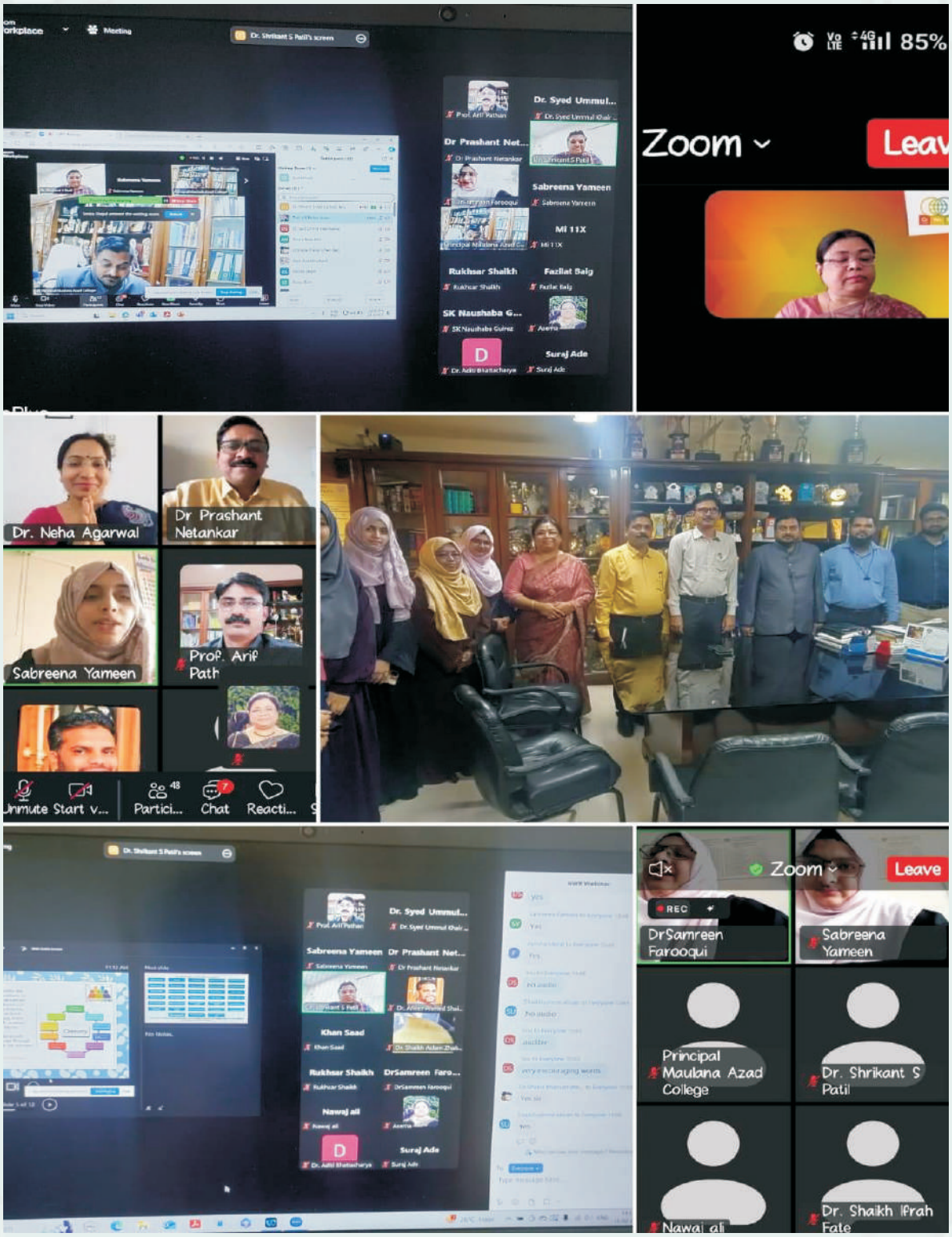
Prof. & Head

School of Studies in Chemistry & Biochemistry, Vikram University, Ujjain, MP.

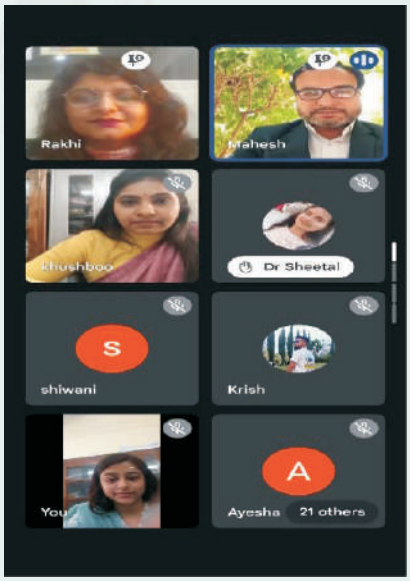
Department of Chemistry, Banasthali Vidyapith, Jaipur, Rajasthan



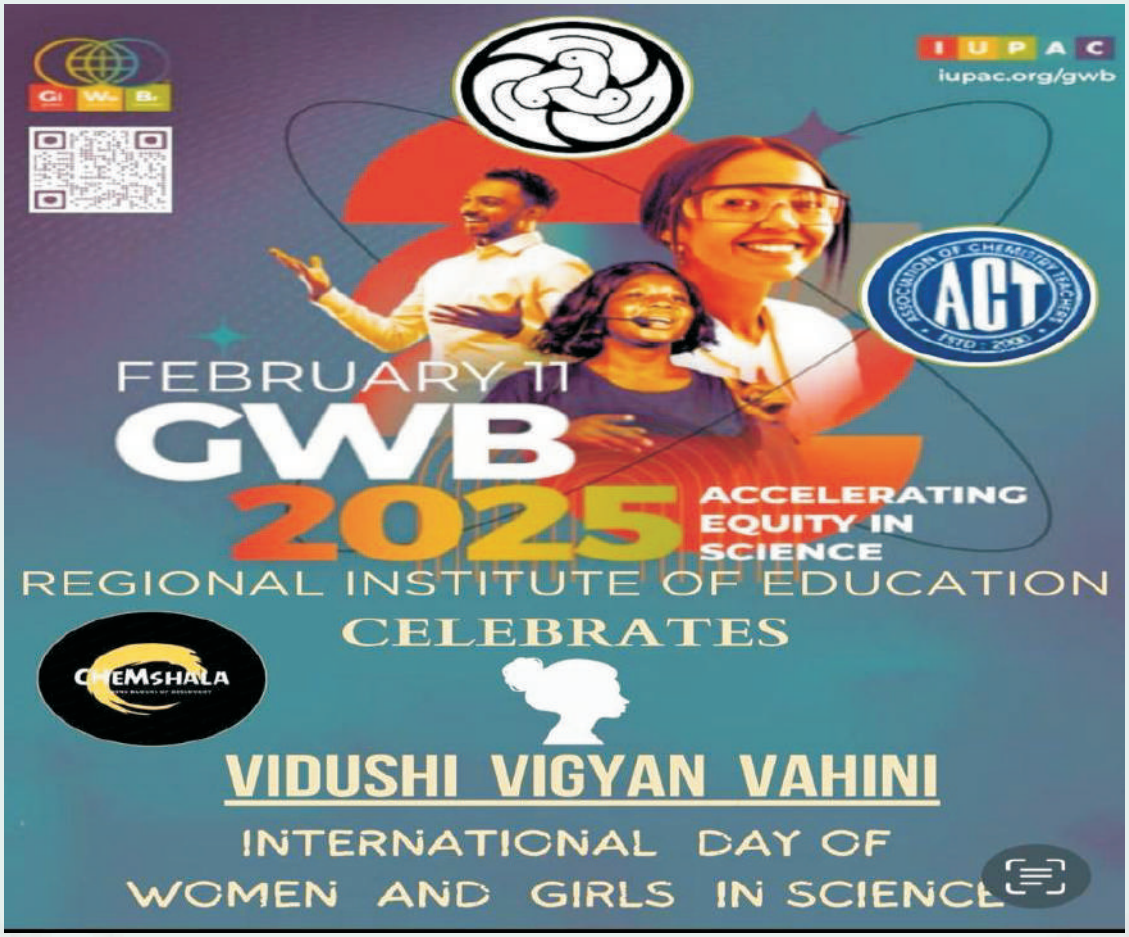
Department of Chemistry, Dibrugarh University, Assam



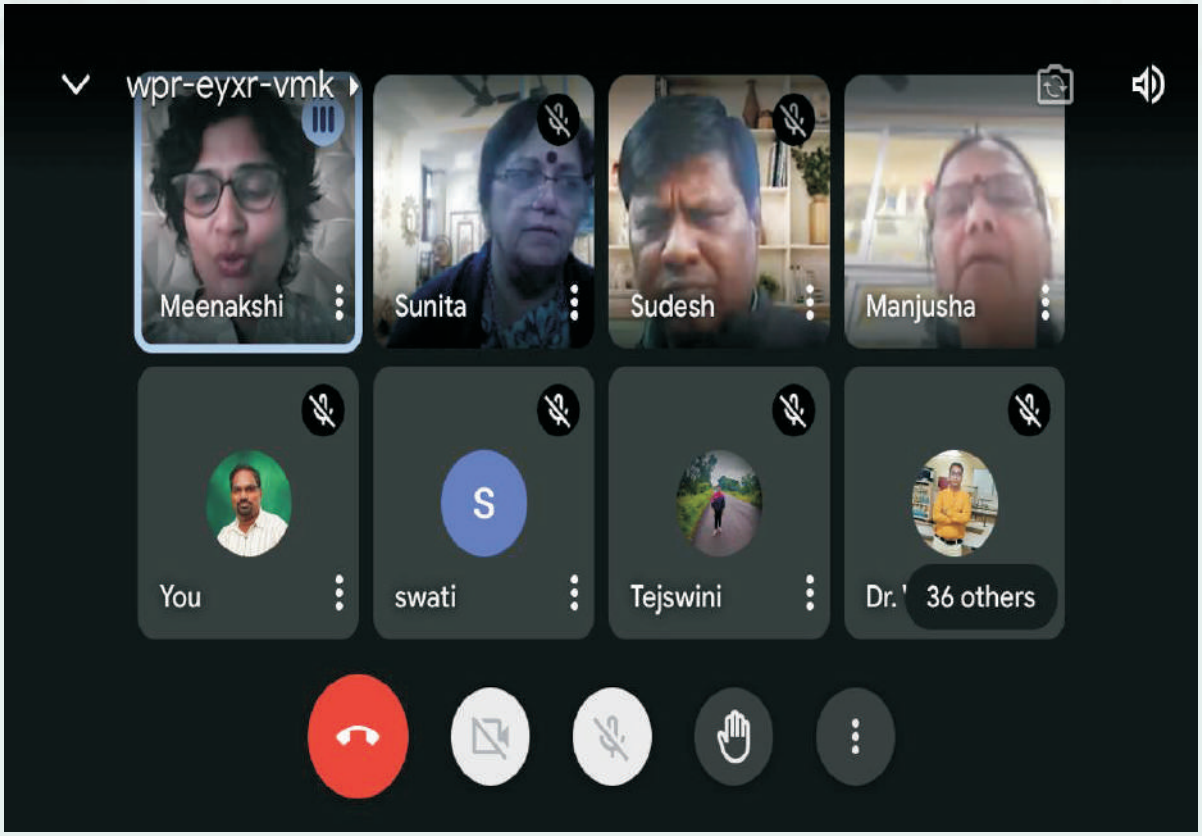
Department of Chemistry, Maulana Azad College of Science and Commerce, Aurangabad, Maharashtra.



Department of Chemistry, Govt. PMCOE, Rajiv Gandhi Govt. College, Mandsaur, MP.



Department of Chemistry, Regional Institute of Education, Mysuru



Department of Chemistry, RNC, Arts, JDB Commerce and NSL Science College, Nashik, MH

Department of Biosciences AIMSR, Acropolis College, Indore, MP.

SHRI VAISHNAV VIDYAPEETH VISHWAVIDYALAYA
Shri Vaishnav Institute of Science
Department of Chemistry & Association of Chemistry Teachers
GWB 2025 Theme: *"Accelerating Equity in Science"*

Report

On 11th February 2021, Department of Chemistry, SVIS, SVVV organized an activity with IUPAC (International Union of Pure and Applied Science, USA) under Global Women's Breakfast Event in collaboration with Association of Chemistry Teachers (ACT, Mumbai) through the online platform. The theme of *GWB 2025* is *"Accelerating Equity in Science*".

For this event 85 participants registered themselves via Google form, from different parts of India and joined the event online through Zoom.

The event began with the welcome address given by the convener of GWB 2025- Professor Dr. Kavita Sharma. Director Sri Vaishnav Institute of science, Dr. K.N. Guruprasad address the gathering and said that its common interpretation that more women are to come to academic areas that means a great potential for scientific research, and it need to be propagated further. Director further pointed out some major contribution of women in the field of science.

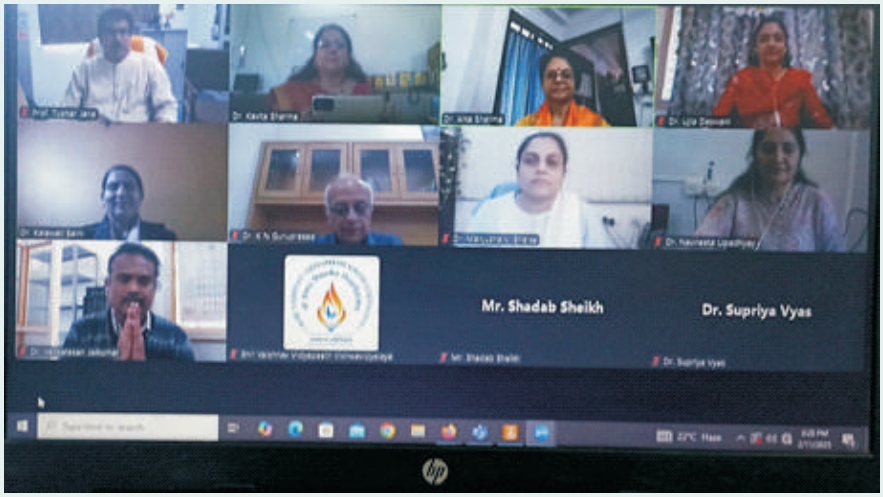
Dr. D.V. Prabhu, President of Association of Chemistry Teachers (ACT), Mumbai gave a brief introduction about the ACT and its various activities, past year achievements further highlights about the IUPAC Global Women Breakfast.

The event was graced by the presence of Dr. Thushar Jana, Professor, University of Hyderabad as Chairperson for the panel discussion and Dr. Alka Sharma, Professor, University of Rajasthan, Dr. Kalawati Saini, Professor, Miranda House, University of Delhi, Senior Scientist Dr. Manjusha V. Shelke, NCL, Pune as resource persons who discussed the various aspects of women in field of science, technology, and engineering.

All the resource persons shared their views and mentioned the contribution of famous Indian women scientist like Dr. Asima Chatterjee, Dr. Darshan Ranganathan, Missile woman of India Dr. Tessy Thomas of their challenges and achievements.

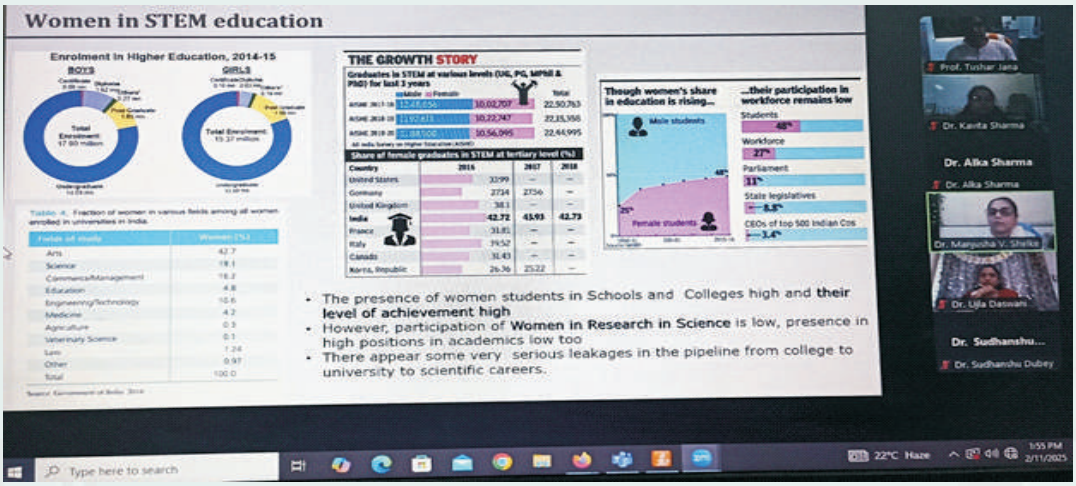
Professor Thushar Jana, University of Hyderabad concluded the session with the words that many factors yet to be rectified in equity of gender diversity in innovation and scientific discovery. Professor Jana pointed that we have an inverted pyramid structure of women working in scientific field and concluded the session with his words and focused about the safety of women and gender equality.

The event was hosted by Dr. Ujala Daswani, Master of Ceremony GWB2025, Shri Vaishnav Vidyapeeth Vishwavidyalaya. At the end Dr. S. Venkatesan Jayakumar, Coordinator of GWB 2025, Department of Chemistry, SVIS, presented a word of gratitude and the GWB 2025 program was concluded with the National Anthem.



Director Sri Vaishnav Institute of science, Dr. K.N. Guruprasad address the gathering

Prof. Dr. Kavita Sharma delivering convener speech



Solar Powered Fuels: A New Frontier in Sustainable Energy

Dr. Rashmi . R. Dubey
Department of Chemistry,
Kamla Nehru Mahavidyalaya,
Nagpur (MS) India- 440024.

The global energy demand is continuously rising, leading to increased reliance on fossil fuels, which contribute significantly to environmental degradation and climate change. Solar fuels have emerged as a promising solution to this crisis, offering a renewable, sustainable, and environmentally friendly alternative. Solar fuels are chemical energy carriers produced using solar energy to drive chemical reactions that convert water, carbon dioxide, and other basic feedstocks into energy-dense compounds such as hydrogen, methane, methanol, and other hydrocarbons. These fuels can be stored, transported, and utilized in a manner similar to conventional fossil fuels, making them highly versatile.This abstract explores the various technologies employed in the production of solar fuels, including artificial photosynthesis, which mimics natural photosynthesis by using light-absorbing materials and catalysts to generate fuel from sunlight. Photocatalysis involves using semiconductor materials that directly convert solar energy into chemical energy, while photo electrochemical (PEC) cells combine light-absorbing electrodes with an electrolyte solution to facilitate fuel production. Solar thermochemical processes, on the other hand, use concentrated solar energy to drive high-temperature reactions that produce fuels.

The successful integration of solar fuels into existing energy infrastructure is critical for their widespread adoption. However, this transition faces challenges, including high production costs, efficiency limitations, the need for stable and durable materials, and the complexity of scaling up production. Research is actively addressing these issues, with recent advancements focusing on the development of more efficient catalysts, improved light-harvesting materials, innovative reactor designs, and hybrid systems that combine multiple production methods for enhanced performance.

INTRODUCTION

The growing global demand for energy, coupled with the negative environmental impacts of fossil fuel consumption, has intensified the search for sustainable and renewable energy sources [1,2] Among the various renewable energy technologies, solar energy stands out due to its abundance and potential to meet global energy needs[3, 4] However, the intermittent nature of solar energy, limited to daylight hours and weather conditions, presents a significant challenge to its widespread adoption. Solar fuels offer a promising solution to this

challenge by providing a means to store solar energy in chemical form, enabling its use at any time, regardless of sunlight availability.

Despite their potential, solar fuels face significant challenges, including high production costs, efficiency limitations, material stability, and the complexity of scaling up production. Overcoming these challenges requires ongoing research in catalyst design, light-absorbing materials, reactor engineering, and system integration. Collaborative efforts between academia, industry, and governments are essential to advance solar fuel technologies and bring them to commercial scale. Solar fuels are energy-dense compounds produced by harnessing solar energy to drive chemical reactions, typically involving water and carbon dioxide as feedstocks. These fuels, including hydrogen, methane, methanol, and other hydrocarbons, can be directly used in transportation, power generation, and industrial processes. Unlike conventional fossil fuels, which release large amounts of carbon dioxide when burned, solar fuels can be designed to achieve carbon-neutral or even carbon-negative outcomes, making them an environmentally friendly alternative.[12]

The concept of solar fuels is rooted in the natural process of photosynthesis, where plants convert sunlight, water, and carbon dioxide into chemical energy stored in organic matter. Inspired by this process, scientists have developed various technologies for solar fuel production, including artificial photosynthesis, photocatalysis, photoelectrochemical cells, and solar thermochemical processes. Each of these technologies leverages different principles to capture and convert solar energy, and they continue to be the subject of extensive research and development.

SOLAR TECHNOLOGIES

The growing global demand for energy, coupled with the negative environmental impacts of fossil fuel consumption, has intensified the search for sustainable and renewable energy sources. Among the various renewable energy technologies, solar energy stands out due to its abundance and potential to meet global energy needs. However, the intermittent nature of solar energy, limited to daylight hours and weather conditions, presents a significant challenge to its widespread adoption. Solar fuels offer a promising solution to this challenge by providing a means to store solar energy in chemical form, enabling its use at any time, regardless of sunlight availability.

Solar fuels are energy-dense compounds produced by harnessing solar energy to drive chemical reactions, typically involving water and carbon dioxide as feedstocks. These fuels, including hydrogen, methane, methanol, and other hydrocarbons, can be directly used in transportation, power generation, and industrial processes. Unlike conventional fossil fuels, which release large amounts of carbon dioxide when burned, solar fuels can be designed to achieve carbon-neutral or even carbon-negative outcomes, making them environmentally friendly alternative.[13]

TYPES OF SOLAR TECHNOLOGIE

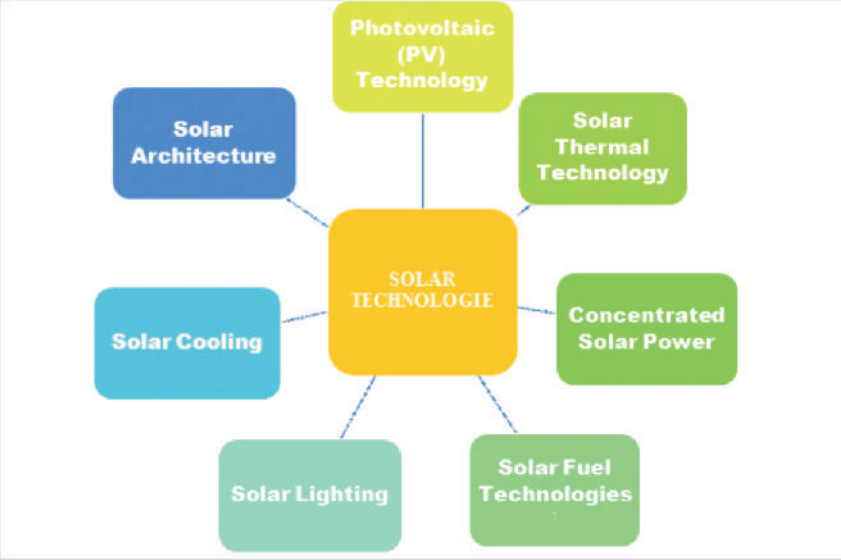


Fig: 1 Types of Solar Technologies

Chemical Properties of Solar Technologies

Solar technologies rely on various chemical materials and reactions to capture, convert, and store solar energy. The chemical properties of these materials play a crucial role in their efficiency, durability, and performance. Here is a detailed explanation of the chemical properties of different solar technologies:

Semiconductor Materials:

- **Silicon (Si):** The most common material used in solar cells.
  - Exists in three forms: Monocrystalline, Polycrystalline, and Amorphous Silicon.
  - Chemical Property: Pure silicon is a semiconductor that can conduct electricity under sunlight due to the photoelectric effect.
- **Cadmium Telluride (CdTe):** Used in thin-film solar cells.
  - Chemical Property: A compound semiconductor with a direct bandgap, making it highly efficient in light absorption.
  - Toxicity: Cadmium is a toxic heavy metal, which requires careful disposal.
- **Copper Indium Gallium Selenide (CIGS):**
  - Chemical Property: A direct bandgap semiconductor with tunable bandgap depending on the ratio of elements (Cu, In, Ga, Se).
  - Highly efficient in absorbing sunlight.

- **Perovskite Materials (Lead Halide Perovskites):**
    - Chemical Property: Exhibits high light absorption, low exciton binding energy, and high charge carrier mobility.

Stability Issue: Prone to degradation when exposed to moisture or UV light

Conclusion

Solar fuels are emerging as a sustainable solution to meet the global energy demand while reducing environmental impact. These fuels are produced by converting solar energy into chemical energy, typically in the form of hydrogen or hydrocarbon fuels such as methane or methanol, through technologies like photocatalysis, photoelectrochemical (PEC) cells, solar thermal catalysis, and artificial photosynthesis. Among these, photocatalytic systems are widely studied in India due to their simplicity and cost-effectiveness, where semiconductor materials like TiO_2 , ZnO, and g-C_3 N_4 are used to harness sunlight and drive redox reactions. PEC cells combine solar light absorption with electrochemical water splitting using materials like Fe_2 O_3 or Cu_2 O, while solar thermal systems utilize concentrated solar power (CSP) to drive thermochemical reactions at high temperatures.

The effectiveness of these solar fuel technologies heavily depends on the chemical and physical properties of the materials used. Chemically, an ideal material should possess an appropriate band gap (typically between 1.8–2.6 eV) for visible light absorption, along with high redox activity to facilitate reactions like water splitting or CO_2 reduction. Stability against corrosion and photocorrosion is essential for long-term performance. Additionally, alignment of the conduction and valence band positions with the redox potential of the desired chemical reaction is crucial for achieving high efficiency.

Physically, materials with high crystallinity and controlled morphology (such as nanosheets, nanorods, or mesoporous structures) are preferred as they enhance charge transport and minimize recombination losses. A large surface area increases the number of active catalytic sites, while strong optical absorption ensures maximum utilization of the solar spectrum. Thermal stability is particularly important for solar thermal processes, where materials must retain their catalytic properties at elevated temperatures, often exceeding 400°C. Furthermore, electron mobility and the ability to effectively separate charge carriers are critical for maximizing solar-to-fuel conversion efficiency.

In conclusion, solar fuel technologies integrate the principles of materials science, nanotechnology, and energy engineering to convert sunlight into storable and usable fuels. The chemical and physical tuning of photocatalytic and thermal materials plays a vital role in improving efficiency and stability. With continuous research and advancements in material design and reactor development, solar fuels hold great promise for providing clean, scalable, and sustainable energy solutions, especially in solar-rich countries like India.

Academic Participation of ACT Members

1. **Dr. Mannam Krishna Murthy,** Secretary, ACT South Zone has delivered an invited lecturer on "Hydrogen: The Sustainable Energy for Future", are the Two day UGC National Seminar on 'Recent Advances in Chemical Sciences for Sustainable Development', during 3-4 March 2025, organised by Acharya Nagarjuna University, Guntur, Andhra Pradesh..
2. **Prof. D. V. Prabhu,** President, ACT **and Prof. Sudesh Ghoderao, S**ecretary, ACT West Zone represented ACT in EPISTEME conference at HBCSE during 3 to 7 January 2025. For this ACT gave a considerable fund to organizers.
3. **Prof. Dr. Sudesh Ghoderao,** Secretary ACT West Zone has delivered lecture on 'Miraculous demonstrations and development of scientific temper' at MGV's Arts and Commerce College, Yeola, Dist. Nashik on 1st March 2025.
4. **Prof. Wasudeo Gurnule**, Vice President of ACT West Zone, Delivered Invited Talk on "Sustainable Development" in One Day National Conference, on Biochemical Approach towards Sustainable Development" organized by G. M. Momin Womens College, Bhiwandi , 11th January 2025.
5. **Prof. Wasudeo Gurnule,** Vice President of ACT West Zone, Delivered Keynote Address on "Advanced Multifunctional Nanomaterials" in National Conference, on Development Trends and Techniques in Chemical and Materials Science (DTTCMS-2025)) " organized by Jagadamba Mahavidyalaya, Achalpur City , 10th January 2025.
6. **Prof. Wasudeo Gurnule,** Vice President of ACT West Zone, Chaired the Technical session " One Day National Level Seminar on Recent Trends in Material Science for Sustinalbe Development (ISESD-2024), " organized by S S Jaiswal College, Arjuni-Morgaon and Natioal Academy of Science, India (NASI) , 3rd February 2025.
7. **Prof. Wasudeo Gurnule**, Vice President of ACT West Zone, Delivered Invited Talk on "An Overview of Elastomers Reinforce SBR Nanocomposite with Tin Oxide Filler" in the 16th International Conference, on Advancement in Petrochemical Sector and Empowering Sustainable Development, " organized by CIPET-IPT, Lucknow, 9th March 2025.
8. **Prof. Wasudeo Gurnule,** Vice President of ACT West Zone, Delivered Keynote Address on "Functional Nanomaterials and Green Chemistry" in International Conference, on Innovation in Science for Sustainable Development (ICISSD-2025) " organized by Smt. Narsamma Science College, Amravati and ACT Mumbai , 19th March 2025.
9. **Prof. Wasudeo Gurnule**, Vice President of ACT West Zone, Delivered Keynote Address on "Multyfunctional Sustanable Materials" in International Conference, on Recent Trends in Advanced Functional Materials for Sustainable Development (AFMSD-2025) " organized by BTC DAV College, Baniket, Dalhousie and ACT Mumbai , 17th May 2025.

Book Published by ACT EC Members

1. **Dr. Mannam Krishna Murthy**, Secretary, ACT South Zone, **Dr. Sudesh Bhaskar Ghoderao**, Secretary, ACT West Zone, published book "**Hydrogen: The Eco-friendly Future Fuel (Marathi version)**" published by S. S. Publications, India, with ISBN number 978-81-975248-2-0.
2. **Dr. D. V. Prabhu** and colleagues (Prof Sakina Bootwala, Prof A N Gadgil, Prof Irena Kostova (Medical University, Sofia, Bulgaria), **Prof. H. A. Parbat**, Prof. Chetana M. Rana and Prof. Amruta Kaskar have authored the book "**A Handbook of Physical Chemistry Experiments**" for M. Sc. courses of Indian Universities which was published in March 2025 by Iterative International Publishers(IIP), India and Michigan USA.

ASSOCIATION OF CHEMISTRY TEACHERS (ACT)

Homi Bhabha Centre for Science Education (TIFR)

V. N. Purav Marg, Mankhurd, Mumbai -400088

ECM-1

ECM-1 of 2024-2025 was held on April 5, 2025 at HBCSE (TIFR), Mumbai -400088 under the Chairmanship of Prof. D. V. Prabhu, President, ACT.

The following members were attended the meeting, Prof. D. V. Prabhu, Prof. Ramesh Yamgar, Dr. Harichandra A. Parbat, Dr. Keshav Lalit Ameta, Prof. Nayan Kamal Bhattacharyya, Dr. Mannam Krishnamurthy, Prof. Sudesh Ghoderao, Dr. Amrit Krishna Mitra, Dr. Umesh Chandra Jain, Dr. Amar Srivastava, Prof. Brijesh Pare, Prof. Wasudeo Gurnule, Dr. Vijendra Singh, Dr. V. P. Singh, Dr. P. S. Ranawat, Dr. Hemant Pande, Prof. Prem Mohan Mishra, Prof. Raakhi Gupta, Prof. Gitimoni Deka, Prof. Helen Kavitha, Dr. Diganta Bhuyan, Dr. Daniel Kibami, Dr. Purabi Sarmah and Dr. Ram Babu Pareek.

Apologies for absence were received from Prof. Sudha Jain, Prof. Shraddha Sinha and Prof. Subhash Prasad Singh. Special Invitee Prof. Uma Sharma, Head, Department of Chemistry, Vikram University, Ujjain, MP.

Dr. D. V. Prabhu welcomed all the EC members and read out a message of good wishes from Prof. Arnab Bhattacharya, Director, HBCSE(TIFR), Mumbai.

The ACT Executive Committee held its scheduled meeting on 5th April 2025 to review key developments, ongoing initiatives, and strategic priorities for the upcoming session. Key Highlights from the meeting:

1. Committee to scrutinize proposals for ACT grants
2. ACT Website Committee
3. ACT Newsletter Editorial Board
4. Prof. D. V. Prabhu presented the proposed budget for 2025-2026

5. Prof. Uma Sharma, Head, Department of Chemistry, Vikram University, Ujjain made a presentation in which she highlighted activities of the Chemistry Department of Vikram University, Ujjain and organization details of NCCT 2025 which will be hosted by Vikram University ,Ujjain.
6. ACT is celebrating its Silver Jubilee Year in 2025 hence it was suggested by Prof Helen Kavitha that at least 25 activities should be organized during the silver jubilee year. Prof. D. V. Prabhu urged that each member of the EC should organize at least one activity in a year.
7. The discussion on possible modifications in ACT Constitution (Rules and Regulations) was differed to the next ECM.
8. Prof. Shraddha Sinha offered to institute am award in the name of "ACT Prof Shraddha Sinha Best Woman Chemistry Teacher with a corpus of Rs 1 lakh.
9. It was suggested that the ACT Elections should be held online. The necessary changes in the election rules will be discussed in the next ECM.


Prof. D.V. Prabhu conducting the meeting at HBCSE, Mumbai


Group Photo of EC Members

News/Views and More

Green Cement – New Approach to Emissions-Free Production

MIT researchers find a way to eliminate carbon emissions from cement production — a major global source of greenhouse gases. It's well known that the production of cement — the world's leading construction material — is a major source of greenhouse gas emissions, accounting for about 8 percent of all such releases. If cement production were a country, it would be the world's third-largest emitter. A team of researchers at MIT has come up with a new way of manufacturing the material that could eliminate these emissions altogether, and could even make some other useful products in the process.

The findings were reported on September 16, 2019, in the journal PNAS in a paper by Yet-Ming Chiang, the Kyocera Professor of Materials Science and Engineering at MIT, with postdoc Leah Ellis, graduate student Andres Badel, and others.

"About 1 kilogram (2.2 pounds) of carbon dioxide is released for every kilogram of cement made today," Chiang says. That adds up to 3 to 4 gigatons (billions of tons) of cement, and of carbon dioxide emissions, produced annually today, and that amount is projected to grow. The number of buildings worldwide is expected to double by 2060, which is equivalent to "building one new New York City every 30 days," he says. And the commodity is now very cheap to produce: It costs only about 13 cents per kilogram, which he says makes it cheaper than bottled water.

So it's a real challenge to find ways of reducing the material's carbon emissions without making it too expensive. Chiang and his team have spent the last year searching for alternative approaches, and hit on the idea of using an electrochemical process to replace the current fossil-fuel-dependent system.

Ordinary Portland cement, the most widely used standard variety, is made by grinding up limestone and then cooking it with sand and clay at high heat, which is produced by burning coal. The process produces carbon dioxide in two different ways: from the burning of the coal, and from gases released from the limestone during the heating. Each of these produces roughly equal contributions to the total emissions. The new process would eliminate or drastically reduce both sources, Chiang says. Though they have demonstrated the basic electrochemical process in the lab, the process will require more work to scale up to an industrial scale.

In the new process, the pulverized limestone is dissolved in the acid at one electrode and high-purity carbon dioxide is released, while calcium hydroxide, generally known as lime, precipitates out as a solid at the other. The calcium hydroxide can then be processed in another step to produce the cement, which is mostly calcium silicate.

The carbon dioxide, in the form of a pure, concentrated stream, can then be easily sequestered, harnessed to produce value-added products such as liquid fuel to replace gasoline, or used for applications such as oil recovery or even in carbonated beverages and dry ice. The result is that no carbon dioxide is released to the environment from the entire process,

Chiang says. By contrast, the carbon dioxide emitted from conventional cement plants is highly contaminated with nitrogen oxides, sulfur oxides, carbon monoxide, and other materials that make it impractical to "scrub" to make the carbon dioxide usable.

Calculations show that the hydrogen and oxygen also emitted in the process could be recombined, for example in a fuel cell, or burned to produce enough energy to fuel the whole rest of the process, Ellis says, producing nothing but water vapor.

In their laboratory demonstration, the team carried out the key electrochemical steps required, producing lime from the calcium carbonate, but on a small scale. The process looks a bit like shaking a snow globe, as it produces a flurry of suspended white particles inside the glass container as the lime precipitates out of the solution. While the technology is simple and could, in principle, be easily scaled up, a typical cement plant today produces about 700,000 tons of the material per year.

In a demonstration of the basic chemical reactions used in the new process, electrolysis takes place in neutral water. Dyes show how acid (pink) and base (purple) are produced at the positive and negative electrodes.

Bye-Bye Teflon? This Slick New Material Could Change Cookware Forever

Safer Non-Stick Alternative Emerges

Researchers at the University of Toronto's Faculty of Applied Science & Engineering have created a new type of material that could provide a safer option for the non-stick coatings widely used in cookware and other everyday products. This innovation repels both water and grease as effectively as many standard non-stick surfaces, but contains much smaller amounts of per- and polyfluoroalkyl substances (PFAS). PFAS are a group of chemicals linked to environmental and health concerns.

"The research community has been trying to develop safer alternatives to PFAS for a long time," says Professor Kevin Golovin (MIE), who heads the Durable Repellent Engineered Advanced Materials (DREAM) Laboratory at U of T Engineering.

"The challenge is that while it's easy to create a substance that will repel water, it's hard to make one that will also repel oil and grease to the same degree. Scientists had hit an upper limit to the performance of these alternative materials."

The Science Behind Teflon and PFAS

First introduced in the late 1930s, Teflon (polytetrafluoroethylene or PTFE) became famous for its ability to keep water, oil, and grease from sticking. Teflon is part of the larger PFAS family. PFAS molecules are made of carbon atoms bonded to multiple fluorine atoms. These carbon-fluorine bonds are extremely stable, which is what gives PFAS their strong non-stick properties.

That same chemical stability also makes PFAS resistant to natural breakdown processes. This persistence in the environment has earned them the nickname "forever chemicals."

Health Concerns and Ubiquity of PFAS

In addition to their persistence, PFAS are known to accumulate in biological tissues, and their concentrations can become amplified as they travel up the food chain. Various studies have linked exposure to high levels of PFAS to certain types of cancer, birth defects, and other health problems, with the longer chain PFAS generally considered more harmful than the shorter ones. Despite the risks, the lack of alternatives means that PFAS remain ubiquitous in consumer products: they are widely used not only in cookware, but also in rain-resistant fabrics, food packaging, and even in makeup.

Searching for a Safer Substitute

"The material we've been working with as an alternative to PFAS is called polydimethylsiloxane or PDMS," says Golovin.

"PDMS is often sold under the name silicone, and depending on how it's formulated, it can be very biocompatible — in fact it's often used in devices that are meant to be implanted into the body. But until now, we couldn't get PDMS to perform quite as well as PFAS."

To overcome this problem, MIE PhD student Samuel Au developed a new chemistry technique that the team is calling nanoscale fletching. The technique is described in a paper published in Nature Communications.

Mimicking Feathered Arrows at the Nanoscale "Unlike typical silicone, we bond short chains of PDMS to a base material — you can think of them like bristles on a brush," says Au.

"To improve their ability to repel oil, we have now added in the shortest possible PFAS molecule, consisting of a single carbon with three fluorines on it. We were able to bond about seven of those to the end of each PDMS bristle.

Toward a PFAS-Free Future

Golovin says that the team is open to collaborating with manufacturers of non-stick coatings who might wish to scale up and commercialize the process. In the meantime, they will continue working on even more alternatives."The holy grail of this field would be a substance that outperforms Teflon, but with no PFAS at all," says Golovin.

Scientists developed a safer non-stick surface using a unique "nanoscale fletching" design that repels grease like Teflon, without the toxic baggage

International Conference on Breakthrough Innovations in Chemical & Sustainable Sciences : Research and Education

&

National Convention of Chemistry Teachers (NCCT-2025)

November 13th, 14th and 15th, 2025

Sub-themes

- Education for sustainable Development.
- Green & Renewable Energy
- Drug Design, Medicinal & Pharmaceutical Chemistry
- Organometallics, Coordination & Supramolecular Chemistry
- Polymer Science, Material Science & Nanomaterials
- Synthetic and Heterocyclic Chemistry
- Theoretical & Computational Chemistry
- Natural Product Chemistry & Herbal Formulations
- Nuclear Chemistry
- Reaction Kinetics and Catalysis
- Circular and Sustainable Chemistry
- Photocatalysis
- Metal Organic Framework
- Enantio-Selective Organocatalysis
- Flow Chemistry
- Directed Evolution of Selective Enzymes
- Reversible-Deactivation of Radical Polymerization
- Artificial Intelligence in Chemistry
- Sensors
- RNA Vaccines
- Aerogels
- Liquid Solar Fuels
- Photocatalytic Hydrogen
- Depolymerisation
- Click Chemistry
- Chemical Education
- Indian Knowledge System

High Lights

- Panel Discussion on The Stockholm Declaration on Chemistry for Future
- Expert Lectures
- Poster Presentation
- Hands-on Chemical Education

Registration

Last Date of Abstract Submission	:	15.10.2025
Abstract Acceptance Notification	:	20.10.2025
Last Date of Registration	:	15.10.2025
Late Registration	:	30.10.2025

Accommodation

Last Date of Accommodation Request
30.10.2025

Contact

Email : chembiochemdep@gmail.com
www.vikramuniv.ac.in
www.associationofchemistryteachers.org

Second circular will be released shortly.

Conference Venue

Vikram University, Ujjain (M.P.) India

Organized by:
School of Studies in Chemistry and Biochemistry, Vikram University, Ujjain (M.P.)
&
*Association of Chemistry Teachers (ACT), India
*Mailing Address: Homi Bhabha Center for Science Education, TIFR, Mumbai

List of ACT Life Members During January' 2025 to April' 2025

Sr. No.	Names	LM No.	Institution
1	Dr. Madhu Gupta	2682	Sri Krishna Dutt Academy, Lucknow
2	Dr. Sonu Pareek	2683	JECRC University, Dept. of Chemistry, Jaipur 303905
3	Prof. Sapna Sharma	2684	JECRC University, Dept. of Chemistry, Jaipur 303905
4	Prof. Ekta Menghani	2685	JECRC University, Dept. of Chemistry, Jaipur 303905
5	Dr. Saurabh Dave	2686	JECRC University, Dept. of Chemistry, Jaipur 303905
6	Dr. Nidhi Bansal	2687	JECRC University, Dept. of Chemistry, Jaipur 303905
7	Dr. Poonam Hariyani	2688	JECRC University, Dept. of Chemistry, Jaipur 303905
8	Vishnu Kumar Khandelwal	2689	JECRC University, Dept. of Chemistry, Jaipur 303905
9	Dr. Bhawana Jangir	2690	JECRC University, Dept. of Chemistry, Jaipur 303905
10	Dr. Aruna Sharma	2691	JECRC University, Dept. of Chemistry, Jaipur 303905
11	Dr. Priya Sharma	2692	JECRC University, Dept. of Chemistry, Jaipur 303905
12	Dr. Anita Nehra	2693	JECRC University, Dept. of Chemistry, Jaipur 303905
13	Dr. Anjali Yadav	2694	JECRC University, Dept. of Chemistry, Jaipur 303905
14	Dr. Reeta Rai	2695	Samtse College of Education, Royal University of Bhutan - 22002
15	Dr. Manisha Manohar Jiwatode	2696	Gurunanak College of Science, Ballarpur - 442701
16	Dr. S. Athavan Alias Anand	2697	Department of Chemistry, Prayoga Institute of Education Research, Bangalore South, Karnataka - 560116

List of ACT Life Members During January' 2025 to April' 2025

Sr. No.	Names	LM No.	Institution
17	Dr. Yogita Gulabrao Bodkhe	2698	Gurun Nanak College of Science, Ballarpur - 442701
18	Dr. Reena Gami	2699	PMCOE, Maharaja Bhoj Govt. P. G. College, Dhar (M.P.) - 454001
19	Dhanashri Dattakumar Pawar	2700	
20	Apramita Chand	2701	Department of Education, IIT Kharagpur, West Bengal - 721302
21	Prof.Sakshi Sachin Mokashi	2702	SVPMS College of Engineering, Malegaon, Baramati - 413102
22	Dr. Harshal Madhukar Bachhav	2703	Department of Chemistry, SICES Degree College of Arts, Science & Commerce Ambernath (W), Thane - 421 505 (Maharashtra)
23	Dr. Sandeep Mitharwal	2704	D-1 Basant Vihar, Jhunjhunu, Rajasthan - 333001
24	Dr. Vikas Vithal Gite	2705	School of Chemical Sciences, KBCNM University, Jalgaon - 425001 (Maharashtra)
25	Dr. Yamini Shukla	2706	RMP P. G. College, Sitapur - 261001 (U.P.)
26	Dr. Subramanian R	2707	Division of Chemistry, Faculty of Engineering and Technology, SRM Institute of Science and Technology, SRM Nagar, Irungalur,Tiruchirappalli, Tamil Nadu PIN:621 105
27	Dr. N. Prabu	2708	Division of Chemistry, Faculty of Engineering and Technology, SRM Institute of Science and Technology, SRM Nagar, Irungalur,Tiruchirappalli, Tamil Nadu PIN:621 105
28	Ms. Meenakshi Pandey	2709	Alpine Convent School, Sector 10, Gurugram, Haryana - 122 001
29	Kalleda Gopal	2710	Z.P.H.S. Pachalanadkuda, Vailpoor, Dist.- Niamabad, Telangana - 503307
30	Neha Gupta	2711	Dev Samaj College for Women, Ferozepur City - 152 002
31	Dr. Harleen Kaur	2712	Dev Samaj College for Women, Ferozepur City - 152 002
32	Dr. Muneesh Kashyap	2713	M.R.P.D. Govt. College, Talwara Sect-3, Talwara, Tal- Mukerian Dist.- Hoshiarpur, Punjab - 144216

List of ACT Life Members During January' 2025 to April' 2025

Sr. No.	Names	LM No.	Institution
33	Dharmesh Kumar	2714	The Galaxy School Wadi, Rajkot, Gujrat - 360110
34	Dr. Bharat Nagin Patil	2715	RFNS, Senior Science College, Akkalkuwa, Dist.- Nandurbar (M.S.) - 425 415
35	Dr. S. Kamalesu	2716	Division of Chemistry, Faculty of Engineering and Technology, SRM Institute of Science and Technology, SRM Nagar, Irungalur, Tiruchirappalli, Tamil Nadu - 621 105
36	Dr. Devendra Kumar Rodge	2717	Quarter No. B-1, Govt. College Shahpur, Dist.- Betul (M.P.) - 460 440
37	Dr. Mukesh Katakwar	2718	SBS Govt. P.G. College Pipariya - Narmadapuram - 461775 (M.P)
38	Dr. Sagar Vithoba Sanap	2719	B.N.N. College, Dist:, Varala Devi Rd, Dhamankar Naka, Padma Nagar, Bhiwandi Thane - 421305 (University of Mumbai Affiliated)
39	Dr. B. G. Kharode	2720	R. A. College, Washim - 444 505
40	Dr. Sanjay Annarao	2721	University College Mangalore, U.P.Mallya Road, Hampankatta, Mangaluru, Karnataka 575001
41	Sibsankar Palit	2722	Vivekananda Sarani, Champadali More, Barasat, Kalkata, West Bangal - india - 700124
42	Dr G. Ujwala	2723	G Pulla Reddy Engineering College, Kurnool, Andhra Pradesh, India - 518 007
43	Dr. Gaytri Kumari	2724	Mohini Devi Goenka Girls P. G. College, Lachhmangarh, Dist. Sikar, Rajasthan - 332315
44	Dr. V. Anuradha	2725	Professor, Dept. of Chemistry Vignan Degree College - 522 005
45	Mrs. A. Revathi	2726	Department of Chemistry, Vignan Degree & P. G. College, Palakaluru Road, Guntur - 522005
46	Mrs. D. Triveni	2727	Department of Chemistry, Vignan Degree & P. G. College - 522005
47	Dr. K. Krishnadevi	2728	Department of Chemistry, VFSTR, Guntur, Andhra Pradesh - 522005
48	Dr. G. Jayalakshmi	2729	Department of Chemistry, Vignan Degree & P. G. Collage, Guntur - 522002

List of ACT Life Members During January' 2025 to April' 2025

Sr. No.	Names	LM No.	Institution
49	Dr. Eswar Pagadal	2730	Department of Chemistry, Vignan Degree & P. G. Collage, Guntur - 522002
50	Dr. Ch. N. S. Sai Pavan Kumar	2731	Dept. of Chemistry, School of Applied Sciences & Humanities, Vignans Foundation for Science Technology & Research, Vadlamudi, Guntur - 522 213
51	M. A. Baseer	2732	Department of Chemistry, Yeshwant College, Nanded - 431602 (Maharashtra)
52	Dr. Obireddy Sreekanth Reddy	2733	Urology & Nephrology Center, Department of Urology, Zhejiang Provincial People's Hospital, Affiliated People's Hospital, Hangzhou Medical College, No. 138 ShangTang Road, Hangzhou, China PIN: 310014
53	Shilpa Vilas Deorukhakar	2734	Patkar Varde College, Goregaon (W) - 400 061
54	Saurabh Vijay Jagzap	2735	Chikitsak Samuhas Sir Sitaram & Lady Shantabai Patkar College of Arts and Science and V.P. Varde College of Commerce and Economics, Swami Vivekanand Road, Goregaon (W), Mumbai - 400 061
55	Dr. Darshana Mehta	2736	S. S. in Chemistry & Biochemistry Vikram University, Ujjain - 456 010
56	Dr. Dhyaneshwar Shamrao Wankhede	2737	School of Chemical Science, SRTM University, Nanded - 431 606 (Maharashtra)
57	Dr. Jaya Vasant Gade	2738	SHPT College of Science, Dept. of Analytical Chemistry, SNDT WU Juhu - 400 049
58	Dr. Naveen Kumar	2739	Department of Chemistry Maharshi Dayanand University Rohtak-124 001, Haryana, India
59	Dr. Sonalika V. Pawar	2740	Fergusson College (Autonomous), Pune F. C. Road, Shivaji Nagar - 411 004
60	Dr. Seema Habib Isa	2741	Department of Chemistry, G. M. Momin Women s College, Bhiwandi - 421302
61	Vishwas Kumar Pandey	2742	Department of Chemistry, Shia P. G. College, Lucknow - 226020
62	Anil Kumar Soni	2743	Department of Chemistry, Shia P. G. College, Lucknow - 226020
63	Amar Singh Yadav	2744	Department of Chemistry, Shia P. G. College, Lucknow - 226020
64	Dr. Mazhar Mehdi	2745	Department of Chemistry, Shia P. G. College, Lucknow - 226020

List of ACT Life Members During January' 2025 to April' 2025

Sr. No.	Names	LM No.	Institution
65	Savita Senwar	2746	Govt. SSP Law & Arts College, Waraseoni, Dist. Balaghat (M.P.) - 481331
66	Yogita Patle	2747	PMCOE Govt. J.S.T. P.G. College Balaghat (M.P.) - 481001
67	Dr. Uma Sharma	2748	S. S. in Chemistry & Biochemistry Vikram University, Ujjain - 456010
68	Dr. Harish Kumar	2749	Dept. of Chemistry, Central University of Haryana - 123031
69	Upakarasamy Lourderaj	2750	School of Chemical Sciences. NISER Bhubaneswar, Khurdha-Odisha - 752050
70	Snehal Sampat Ukhade	2751	METs Institute of D. Pharmacy, Bhujbal Knowledge city, Adgaon, Nashik - 422 003 (Maharashtra)
71	Dr. Anuradha Tyagi	2752	Thakur Shyamnarayan Engineering College, Thakur Complex, Kandivali - East, Mumbai - 400101
72	Dr. Saubai Baba Wakshe	2753	Govt. College of Engg. Vidyanagar, Kolhapur - 416004
73	Dr. Shital Rajaram Shinde	2754	Dr. Ganpatrao Deshmukh Mahavidyalaya Sangola - 413307
74	Dr. V. Jeevana Jyothi	2755	Dept. of Chemistry, RBVRR Womens College, Narayanaguda, Hyderabad - 600024
75	Dr. Kemant	2756	A042, DESM Main Building, RIE (NCERT) Mysuru - 570006 Karnataka (India)
76	Prof. Anil Kumar Nainawat	2757	DESM, Reginal Institute of Education (NCERT) Ajmer Capt. D. P. Chaudhary Marg, Ajmer - 305004
77	Dr. Rajendra Kumar Sharma	2758	Reginal Institute of Education, Ajmer - 305004
78	Dr. Shuddhodan Narhari Kadam	2759	Dr. Ganpatrao Deshmukh Mahavidyalay, Sangola, Dist. - Solapur - 413307
79	Dr. Pratibha Sharma	2760	School of Chemical Sciences, Devi Ahilya University, Indore - 452 001
80	Dr. Barnali Deka	2761	Department of Chemistry, Barkhetri College, Narayanpur, Mukalmua, Nalbari, Assam - 781 126

L.M./IM No.:_____ Receipt No._____

ASSOCIATION OF CHEMISTRY TEACHERS (ACT)

Homi Bhabha Centre for Science Education
Tata Institute of Fundamental Research
103, NIUS Bldg.,V.N. Purav Marg,Mankhurd, Mumbai-400 088.
(Regd.No. Maharashtra Government, Mumbai 922,2010 G.B.B.S.D. dated 08/04/2010)
Website:www.associationofchemistryteachers.org

Date:_____

To,
The General Secretary,
Association of Chemistry Teachers,
HBCSE(TIFR), Mumbai-400 088.

Dear Sir,

I/We wish to take the Life/Institutional Membership of A.C.T.
[Fees: Life Rs.1500/- and Institutional (one time payment) Rs.15,000/-]
A cheque/Demand Draft No._____ dated _____ of Rs._____
drawn on _____Bank, payable at par at Mumbai, in favour of "Association of Chemistry Teachers" is enclosed.(Outstation members should remit through demand draft only.)

1. Name :_____
2. Membership Sought : Life/Institutional
3. Qualifications :_____
4. Designation :_____
5. Date of Birth :_____
6. **Office address** :_____
   _____PIN:_
   Telephone : Fax: Email:
7. **Residential address** :_____
   _____PIN:_
   Mobile: Landline: Email:
8. Area of teaching/research interest:_____
   _____

I am aware of the objective, rules and regulations of ACT and shall abide by them.

Place_____ Yours sincerely,
Date:_____

(Signature)

All correspondence should be made to the General Secretary, Association of Chemistry Teachers, 103, NIUS Bldg., Homi Bhabha Centre for Science Education (TIFR), V.N. Purav Marg,Mumbai -400 088.

FOR OFFICE USE ONLY

ACT Membership awarded: Life/Institutional
Received from_____ a sum of Rs._____
by Cash/cheque/DD no._____dated_____ drawn on _____
Bank being the _____membership fees of ACT.
Membership No.:_____
General Secretary Treasurer

ACT ACT

ASSOCIATION OF CHEMISTRY TEACHERS

(Promoting Excellence in Chemistry Education)
Homi Bhabha Centre for Science Education (HBCSE, TIFR)
V.N. Purav Marg, Mankhurd, Mumbai - 400 088

www.associationofchemistryteachers.org

ACT NEWS LETTER

ISSUE - 31 JANUARY - APRIL 2025