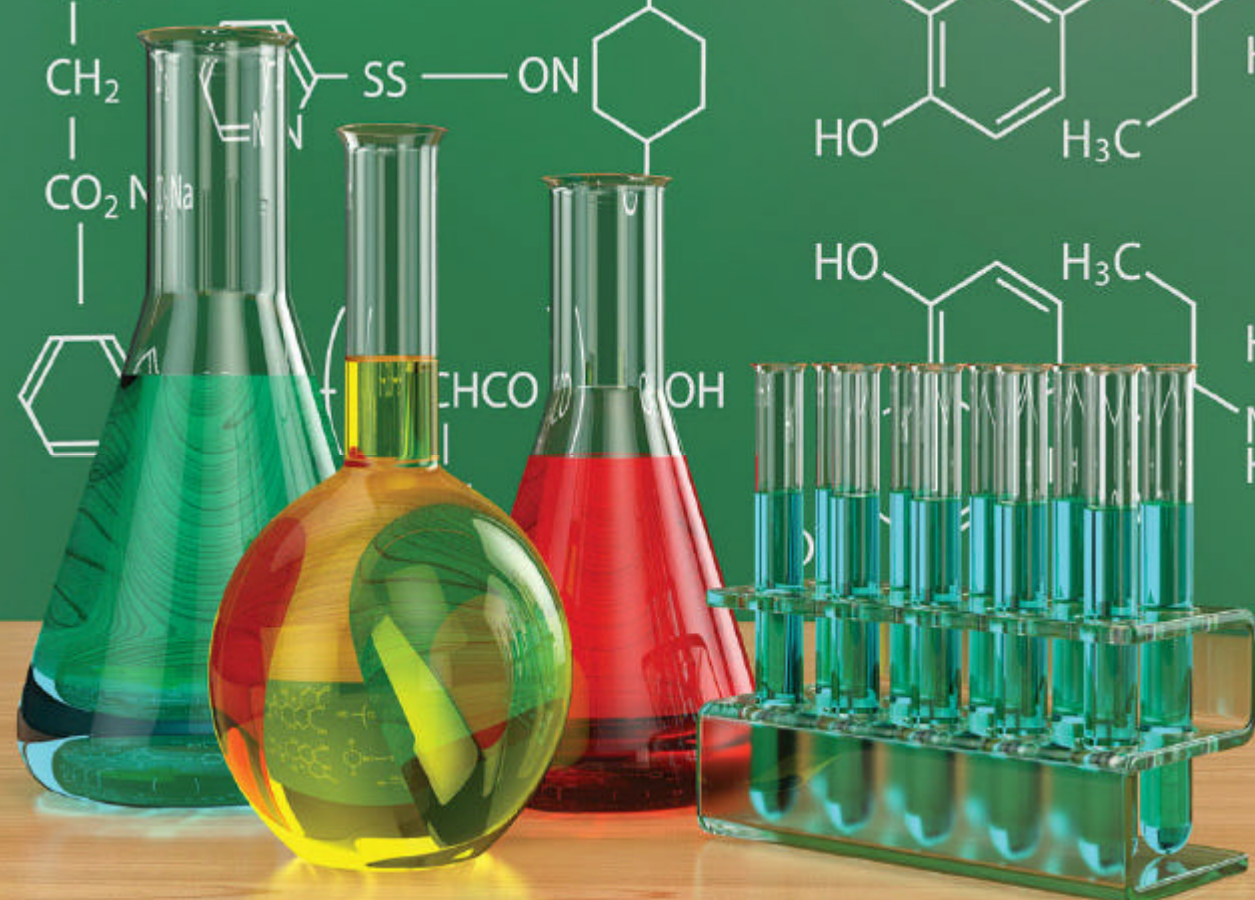
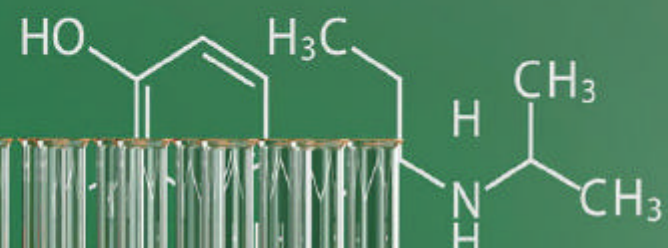
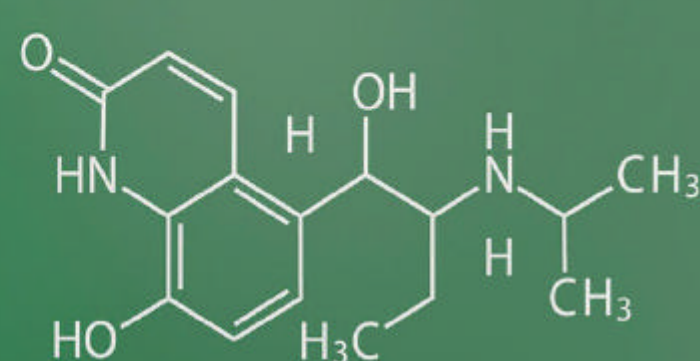
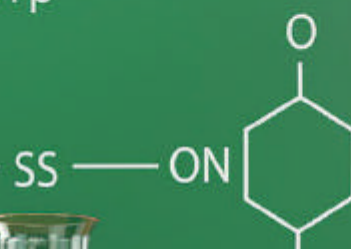
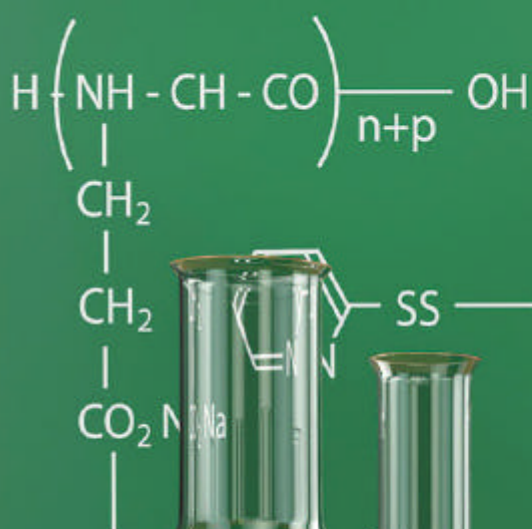




# ASSOCIATION OF CHEMISTRY TEACHERS NEWS LETTER

ISSUE : 7, JANUARY - APRIL 2017



# ACT News Letter, Issue 7

January – April, 2017

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## Association of Chemistry Teachers Promoting Excellence in Chemistry Education

### From the Editorial Desk...

#### *Members of the Editorial Board:*

Prof. M. Swaminathan, Kalasalingam University, Krishnakoil, Tamilnadu.

Prof. Shraddha Sinha, BB Das National Institute of Technology and Management, Lucknow.

Dr. W.B. Gurnule, Kamala Nehru Mahavidyalaya, Nagpur.

Prof. Prem Mohan Mishra, MLSM College, Darbhanga.

Dr. Hari Sankar Kakati, D.K. College, Mirza, Kamrup, Assam.

Dr. Dheeraj Mandloi, Insitute of Engineering and Technology, Indore

Dr. Hemant Ponde, Hislop College, Nagapur.

Prof. Brijesh Pare, Jawaharlal Nehru PG College, Ujjain.



Dr. Mannam Krishnamurthy, Editor  
Varsity Education Management Limited, Hyderabad

We begin with a happy note that ACT successfully completed 17 years of service in Chemistry Education and Popularisation of Chemistry with a life membership of about two thousands.

The contributions of ACT ranges from International Olympiads, organizing seminars, science exhibitions, workshops, expert invited talks, innovating conceptual science experiments, conferences, talent search examinations, training faculty and students etc.

We, the new team of the news letter attempted to bring you a new look with the reports on the ACT activities, latest innovations, new trends, views and news. We invite good suggestions and better contributions from the readers to get best output of the future issues.

## ACT EC MEET AT HBCSE, MUMBAI

ECM-1 of 2016-2017 was held on March 4, 2017 at Homi Bhabha Centre for Science Education (TIFR), Mumbai 400088, under the *Chairmanship of Prof. D. C. Deka, President, Association of Chemistry Teachers.*

Prof. D.C. Deka warmly welcomed all the newly elected members of the ACT Executive Council and the special invitees by offering them flowers. The ACT EC put on record its appreciation of the valuable contributions of the outgoing members especially Dr. M.A. Tandel (Founder Member and Treasurer from 2000 - 2016) and Prof. S. D. Samant (President of ACT during 2014-2016) and profusely thanked them for the same. A citation felicitating and honouring Dr. M. A. Tandel for his dedicated services to ACT was read out and will be presented to him at a later date. The EC congratulated Prof. K. Sudhakar Babu on his appointment as the Registrar of S. K. University, Ananthapur and wished him the best of success in his new challenging assignment.

Dr. D. V. Prabhu, General Secretary ACT read out the minutes of ECM-2 of 2015-2016 held on October 21, 2016 at Raja N. L. Khan Women's College, Midnapore, West Bengal. Dr. P. M. Mishra proposed that the minutes be accepted and Prof. M. Swaminathan seconded. Thereafter the minutes were accepted and passed.

Dr. D. V. Prabhu presented the report of ACT activities conducted during October 2016–March 2017. Principal Dr. Umesh Chandra Jain proposed the report be accepted and Dr. P. V. S. Machi Raju seconded. Thereafter the report of ACT activities was accepted and passed.

Prof. Subhash Prasad Singh, National Coordinator, CONTECH 2016 presented the detailed report on Concept Test in Chemistry for Under Graduate students-2016. EC members complimented Prof. Singh on the successful conduct of the test and praised his strenuous efforts to popularize the test in different parts of the country. Prof. Singh informed that certificates were presented to all centre coordinators as a token of appreciation of their help in conducting the test.

Prof. Savita Ladage suggested that the next International Conference on "Education in Chemistry" ICEC may be organized in December 2018/January 2019 at HBCSE (TIFR), Mumbai.

Prof. P. M. Mishra suggested that ACT should organize a National workshop to discuss in detail the UGC Chemistry syllabus and convey the findings to UGC. Prof. S. R. Gadre offered to help in the organization of the workshop. Prof. P. M. Mishra was requested to be the convenor of the workshop and prepare a proposal.

Prof. Paresh K. Joshi explained the salient features of the International Junior Science Olympiad programme and offered all help to conduct Junior Science Olympiad workshops for teachers in different parts of the country. Prof. Joshi's offer was gratefully accepted.

Dr. D. V. Prabhu informed that Prof. Dr. K. R. Desai, Director, Department of Chemistry, UkaTarsadia University, Bardoli-Mahuva Road, Bardoli, Surat has offered to organize an International Conference on Education in Chemistry in collaboration with ACT. The EC authorized Dr. D. V. Prabhu to explore the feasibility of organizing the conference in consultation with Prof. Desai.

At the request of Dr. M. R. R. Prasad, Editor ACT Newsletter, a new editorial board was constituted with effect from January 1, 2017, comprising Dr. Mannam Krishnamurthy (editor), Prof. M. Swaminathan, Dr. Shraddha Sinha, Dr. W. B. Gurnule, Prof. P. M. Mishra, Dr. H. S. Kakati, Dr. Dheeraj Mandloi, Prof. Brijesh Pare and Dr. Hemant Pande. EC members put on record its appreciation of the excellent work done by the outgoing editorial board especially Dr. M. R. R. Prasad, Editor of the news letter.

Efforts are on to finalise the dates and venue of NCCT 2017. Prof. D. C. Deka, Prof. M. S. M. Rawat, Prof. P. M. Mishra and Prof. P. V. S. Machi Raju offered to explore the possibility of holding NCCT 2017 at different institutions.

Prof. D. C. Deka furnished details about the DST Science Popularisation Award Scheme and assured that he would send the relevant information to the General Secretary, ACT for necessary action.

contd..

**The Executive Council of ACT unanimously passed the following resolution:**

**“Resolved to close UCO Bank Savings Account No.00900100025267 (IFSC UCBA 0000090) and 8 FDs in the name of Association of Chemistry Teachers with effect from April 1, 2017 and transfer the amounts and interest accrued to the following savings account: Association of Chemistry Teachers, Central Bank of Indian Savings Account No. 3175982972 (IFSC CSIN 0282523), Mankhurd Branch, Mumbai 400088. The President, General Secretary and Treasurer of Association of Chemistry Teachers are authorized to do the needful.”**

**It was resolved to open new FDs in Central Bank of India, Mankhurd Branch, Mumbai 400088 for the period 1 year to less than 2 years. The President, General Secretary and Treasurer of Association of Chemistry Teachers were authorized to do the needful.**

Mr. Shailendra Jain, Shaivi Industries, Lucknow gave detailed information about Essential Oil Association of India ([www.eoai.in](http://www.eoai.in)) and proposed that a joint workshop be organized in collaboration with ACT. Mr Shailendra Jain and Prof. Sudha Jain, Editor, Indian Perfumer (Quarterly Journal of EOAI) were requested to be the convenors of the workshop and prepare a proposal.

Dr. D. V. Prabhu informed that Mrs. Yeshwanti Saxena, wife of late Prof. Dr. Bhupendra Sahai Saxena has offered a corpus of Rs. One lakh to institute an award in memory of her husband to be given to a college teacher teaching post graduate (MSc) classes. The EC gratefully accepted the generous offer of Mrs. Yeshwanti Saxena. Dr. D. V. Prabhu was authorized to frame the rules and norms of the award which will be called “ACT Prof Dr. Bhupendra Sahai Saxena Best Chemistry College Teacher teaching Postgraduate classes”. The first award will be given during NCCT 2017. Further it was decided that hence forth, the Prof. Lallan Singh award will be given only to Postgraduate teachers teaching in State Universities.

It was suggested that the past NSEC questions papers may be uploaded on the ACT website.

Prof. D. C. Deka urged ACT EC members to write authoritative Chemistry textbooks and monographs and to translate Chemistry reference books into Indian languages. The suggestion was well accepted. Prof. Prem Moham Mishra informed that he had translated Banwell's “Molecular Spectroscopy” into Maithilli language. EC members appreciated Dr. Mishra's academic achievement as an example for all academicians to emulate. Prof. S. R. Gadre urged all ACT EC members to contribute good subject related articles to “RESONANCE” which is published by Indian Academy of Sciences, Bangalore. Prof. Gadre's suggestion was well accepted.



*ACT EC Members (2017-2019) Group Photo (taken at HBCSE, Mumbai)*

## SUBJECT REPORTS ON NATIONAL SEMINARS

### National Seminar on Recent Advances in Chemical and Environmental Research, 20-21 Jan 2017 at Annamalai University, Tamilnadu.

This National Seminar was organized in association with UGC-SAP, BRNS, RSC and ACT. It was inaugurated by the Prof. S.D. Samant, Institute of Chemical Technology, Mumbai and he also released the seminar souvenir and delivered the inaugural address.



Dr. R.V. Subbarao from IGCAR, Kalpakkam, Prof. A.K. Mishra from IIT, Chennai, Prof. Bala Subramaniam from University of Madras, Chennai and Prof. Radha Jyaram, ICT, Mumbai delivered invited lectures. Around 300 participants across the states were participated in this conference. Totally 165 research abstracts have been received.

Dr. K. Arumugam, Registrar, Annamalai University delivered the presidential address and Dr. S. Balasubramanian, Secretary, Royal Society of Chemistry (RSC), South India, Department of Inorganic Chemistry, University of Madras, Chennai, delivered the valedictory address. Dr. S. Thiruvalluvan, Dean, Faculty of Linguistics and Indian Languages, Annamalai university and Prof. S. Kabilan, Head, Department of Chemistry, Annamalai University offered felicitations.



The best oral and poster presentation prizes were distributed in the valedictory function. Prof. M. Shanthi, Convener of this seminar proposed the vote of thanks. Prof. M. Swaminathan coordinated the seminar on behalf of ACT.

National Level Seminar on Recent Advances in Bioinorganic and Medicinal Chemistry  
Feb 15, 2017 at V.H.N Nadar College, Virudhunagar.

The National Seminar was sponsored by ACT and Royal Society of Chemistry, South India. About 150 delegates participated in the seminar and 75 papers (26 oral and 49 poster) were presented in the seminar.

Prof. M. Swaminathan, Nanomaterials Laboratory, International Research Centre of Kalasalingam University, Krishnankoil, Tamilnadu, ACT E.C. member and Convener of the seminar inaugurated the seminar and delivered a lecture.



Prof. Sabyasachi Sarkar, FASC, Senior Research Associate, SERB-DST Honorary Visiting Professor, Centre for Healthcare Science and Technology, Indian Institute of Engineering Science and Technology, Shibpur, West Bengal delivered the keynote address.

Prof. S. Bala Subrahmanian from University of Madras, Chennai and Dr. A. Sakthivel, Department of Chemistry, Central University of Kerala, Periyar delivered invited lectures.



The prizes and certificates of merit were issued to the winners and participants in the valedictory function. Dr. N. Rama, Co-ordinator proposed the vote of thanks.

**National Conference on Recent Trends in Chemistry**  
17-18 February 2017, at Sikkim Manipal Institute of Technology, Majitar, Assam.

The National Conference was organized by Department of Chemistry, SMIT in collaboration with ACT and Wilson College, Mumbai.

The convenor of the conference Prof. Sangeeta Jha highlighted the aims and objectives of the conference. The conference was started by lightening the ceremonial lamp by Air Marshal G.S. Joneja, on the forenoon of 17<sup>th</sup>.

Key note address was delivered by Prof. Arun Chattopadhyay, IIT, Guwahati and Plenary lecture was delivered by Prof. S.K. Saha of North Bengal University, Siliguri.



There were technical sessions including invited lectures by Dr. Somendranath Chakraborty from Sikkim University, Dr. Arup Gayen from Jadavpur, Prof. M.N. Roy from NBU; Dr. Sudarshan Tamang from Sikkim University; Dr. Chanchal Das from Sikkim Govt. College and Dr. Biswajie Gopal Roy from Sikkim University covering a wide range in fields of Chemistry. These sessions were followed by research paper presentations of various young researchers of different parts of the country.



Dr. Amik Garg, Director, SMIT graced the valedictory function as the Chief Guest on the afternoon of 18<sup>th</sup>. Best paper award has been given to Mr. Sanay Naha, Research Scholar, NIT Tiruchirappalli.

**National Conference on Recent Advances in Science and Technology**  
27-28 February 2017 at Uttarakhand University, Dehradun.

National Conference on Recent Advances in Science and Technology was held at Dehradun on the occasion of “National Science Day”. It was organized by Uttarakhand College of Applied and Life Sciences, Uttarakhand University, Dehradun with the collaboration of ACT. The conference was inaugurated by the Dr. Rajendra Dobhal, Director General – Uttarakhand council of Science and Technology.



Prof. M.S.M. Rawat, Vice President of North Zone and Former VC of HNB Garhwal University, Srinagar spoke on the Raman Discovery and Advances in Science and Technology. Guest of the honour Dr. Prashant Singh delivered a lecture on water quality and its analysis.

Prof. Y.S. Negi, Prof. Dhavander Singh and Prof. Vinit Mehrotra also delivered invited guest lectures on the advances in science and technology. Dr. Ajay Singh Professor of Applied Science, Uttarakhand University coordinated the program.



The conference provides a platform to share the experience gained over the years, in the field of science and technology. More than 300 delegates from various Universities/Institutes, IIT Roorkee, HNB Garhwal University, UPES, Himalayan University, Punjab University, AMU, Lucknow University, Amity University, Rajasthan University, DAV College, etc. participated in two days conference.



## Celebrations of National Science Day 2017

National Science Day was organized by ACT and Rural Development Society of Vijayawada, at Z.P. High School, Pakala, Andhra Pradesh on 25-27, February 2017. The celebrations were coordinated by Dr. M. Krishnamurthy.

An essay writing competition was conducted on a local coastal topic, 'Sea : A potential source of chemicals' in English as well as in local language Telugu, at local centers at Singarayakonda and Pakala on 25<sup>th</sup> February.

A total of 12 students received prizes for their merit and participation certificates were given to them.



A meeting was conducted on the afternoon of 27<sup>th</sup> Mr. K. Shivaji, Head master of the school chaired. Mr. R. Srinivasarao, Head Master, Government High School, S.Konda was the Chief Guest and he spoke on the need of Science Education. Dr. M. Krishnamurthy, Varsity Education Mgmt. Ltd., gave a talk on 'A day with Science'. At the end of the day, an assembly of students was addressed and the academic activities of ACT were explained.

\* \* \*

National Science Day Celebrations were organized by Prof. Helen Kavitha, Secretary South zone of ACT, on 25<sup>th</sup> February 2017, at SRM University, Ramapuram Campus, Chennai.

Dr. Kamachi Mudhali was the Chief Guest on the occasion. Experts from IGCAR, Kalpakkam performed experimental demos highlighting the magic of chemistry. Dr. S. Balasubramanian, Secretary, Royal Society of Chemistry, South India delivered a scientific talk.



Quiz and drawing competitions were held for school children by the SRM Science faculty. Cultural events were performed by the UG students of the university.

\* \* \*

National Science Day Celebrations were organized by ACT and Varsity Education Management Limited, Hyderabad at PVSS Z.P. High School, Karedu, Andhra Pradesh on 27-28 February 2017.

The science teachers of the school came forward and guided in conducting a science exhibition. The theme was 'Science : A systematized knowledge of nature'. Dr. M. Krishnamurthy, EC Member of ACT inaugurated the exhibition on the forenoon of 27<sup>th</sup> February 2017.

A meeting was conducted to school children. Mr. M. Basavaiah, Head Master of the school chaired the session and the guests spoke on the importance of concepts of science and emphasized on the need to popularization of science.



Twenty one science exhibits were opened to school children and about 3000 students of the nearby schools visited the exhibits on both days.

\* \* \*

National Science Day Celebrations were organized by ACT and Triveni Educational Academy at Triveni High School, Suryapet, Telangana on 27-28 February 2017.

A debate competition was conducted on a local water problem. "Fluoride Contamination and Quality Measures" on 27<sup>th</sup>. Children of 32 high schools of the area participated in the debate.

Four rooms were decorated with themes of science. Children of the age group 5-6 years explained the concepts of the themes. A welcome dance was also performed.



On 28<sup>th</sup> February, a meeting of the participants was chaired by the principal of Triveni Academy. Dr. M. Krishnamurthy gave a guest talk on the importance of science and the role of ACT in popularization of chemistry. Mr. K. Ravindra Kumar, Sri Chaitanya Educational Institutions gave a demo experiment on the plasma state. Copies of the book 'Experimentation in Physical Science' were presented to two students performed better from each of the school participated in debate.

\* \* \*

National Science Day was celebrated in the Chemistry Department of Wilson College on March 27, 2017. Dr. Meera H. Uchil was the convener of the celebrations.

Prof. A.K. Tyagi of BARC gave a very inspiring talk on 'Chemistry for a better future'.

Dr. Anand Burange of Chemistry Department, Wilson College, gave a wonderful exposure to the scientific genius of Prof. C.V. Raman talking us from a very young scientist fighting all odds in the Indian science scenario in the early 20<sup>th</sup> century right up to the world renowned Nobel Prize awardee.

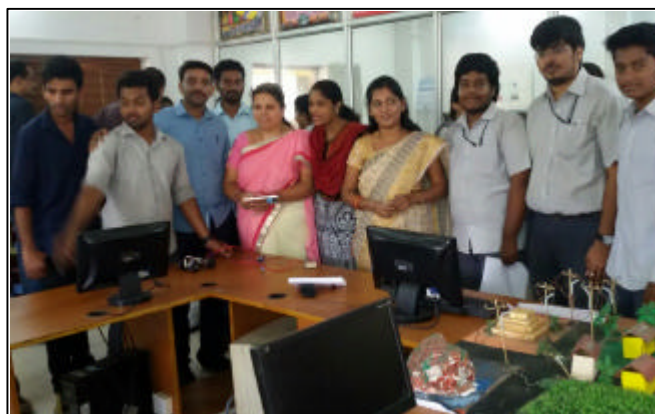


The UG and PG students of Chemistry department, were highly enthused and inspired by these two talks, one of which was a vibrant glimpse into history, whereas, the second was a real peep into the future.

\* \* \*

NSD Celebrations at Gayatri Vidya Parishad College for Degree and P.G. Courses, Visakhapatnam, on 28<sup>th</sup> February 2017, organized by Prof. P. Rajaganapati.

Students of Department of Chemistry and Organic Chemistry exhibited models like urea plant, ethanol plant, biogas plant, reverse osmosis, waste water treatment, sewage sludge treatment, nuclear reactor, crude oil refinery, pollution, sugar industry, plastic recycling, volcano etc. Students from the same department have also demonstrated chemical live experiments under the guidance of Dr. T. Sandhya.



Students from various schools have visited the college and have seen the live demonstrations. They observed models exhibited in various departments and gained knowledge in respective subjects.

\* \* \*

National Science Day was organized at Regional Science Centre, Lucknow by Prof. Sudha Jain and at B.B.Das NITM, Lucknow by Dr. Shraddha Sinha.

NSD was also organized at SGG College, Banswara, Rajasthan by Dr. Ashok Kumar Kokodia. ACT supported all these events of NSD 2017.

## Workshops and Science Camp

### Workshop on Junior Science Olympiad

Under the banner of ACT, “Workshop on Junior Science Olympiad” was organized in two schools were facilitated by Prof. D.C. Deka in association with the authorities of the schools. In both the workshops Dr. P.K. Joshi of Homi Bhabha Centre for Science Education, Mumbai acted as the resource person. The expenses were born by HBCSE.

On 25<sup>th</sup> of January 2017, the workshop was organized in Gauhati University Model School. The workshop was started with an welcome address by the Headmistress of the school followed by the introduction of Dr. Paresh K Joshi to the students by Prof. D.C. Deka. One hour presentation by Dr. P.K. Joshi was followed by interaction with the students. Around one hundred students attended the workshop and participated in the interaction.



On 27<sup>th</sup> of January 2017, the workshop was organized in Ramanujan Secondary School, Nagaon. More than two hundred students attended the workshop. After formal welcome by the Principal of the school, the workshop was inauguration by Prof. D.C. Deka. An hour long presentation by Dr. P.K. Joshi was followed by discussion and interaction with the students and teachers.

### DST Inspire Science Camp

Dr. M. Krishnamurthy, EC member of ACT acted as mentor and coordinator for the Internship Science Camp financially supported by Department of Science and Technology, Govt. of India. The five day camp was organized at K.B.N. Autonomous College, Vijayawada, between 5 and 9 January 2017.



Dr. V. Narayana Rao, Principal, K.B.N. College chaired the inaugural session and Vice chancellor of Krishna University, Machilipatnam, Prof. S. Ramakrishna Rao gave the key note address. 150 students of class XI were selected for this camp on merit basis. These students were exposed to eminent scientists, latest science experimentation and discussions during 'walk n talk'.

Prof. S.K. Dogra, IISER Bhopal; Prof. M. Periya Swamy, University of Hyderabad; Dr. V. Sridhar, IGCAR, Kalpakkam; Dr. B.L. Deekshitulu, University of Hyderabad; Prof. P. Kanda Swamy, Bharatiyar University Coimbatore; Prof. V. Kannan, University of Hyderabad; Prof. B.N. Reddy, Osmania University, Hyderabad and Dr. M. Satyanarayana, D.N.R. College, Bhimavaram were among the invited speakers.

### Workshop on Resource Generation Camp

A two day workshop was organized by Dr. Paresh K. Joshi, President of International Junior Science Olympiad on the resource generation for the Junior Science Olympiad on 25-26 March 2017 at HBCSE.



Delegates from Association of Chemistry Teachers including its president Prof. D.C. Deka and general secretary Prof. Damodar V. Prabhu participated in the discussions.

\* \* \*



## How do we do it differently?

The Faculty Round Table Competition in the second half saw some of the most amazing innovations in teaching and learning in higher education

In keeping with this year's theme of faculty and faculty development, HEF this year hosted a unique Faculty Round Table Competition instead of the usual second panel discussion. This initiative offered a lot of takeaways to the teacher delegates present in the room. Eleven faculty members from different institutions across the country participated in the competition, with the jury comprising of Dr. G.S. Singh – Higher Education Advisor and Senior Member, HEF; Thothathri Raman – Chairman, SEAA Trust; Delhi and Raj Adhikary – CEO, Japan Education Centre in India (JECI), Delhi.



Dr. Damodar Prabhu – Adjunct faculty Chemistry, Wilson College and General Secretary ACT, spoke of all the various initiatives undertaken by his students over the years in semi micro chemical analysis. He was given the runner up position by the jury.

## Emerging trends covered in International Conference

A two day International Conference on Emerging trends in Chemical, Pharmaceutical, Environmental Science and Technology sponsored by U.G.C. in association with ACT and Anveshana Educational and research foundation was organized on 24-25, January 2017 at Department of Chemistry, Pithapur Rajah's Government College, Kakinada.

D. Rama Rao, PR College, Kakinada and Life member of ACT acted as organizing secretary.

The chairman of the conference and principal of PR College Dr. C. Krishna chaired the inaugural session. Commissioner of technical and collegiate education of AP State, G.S. Panda Das, IAS illuminated the lamp and released the abstracts book. Prof. M. Peria Samy, Interim Vice Chancellor, University of Hyderabad gave a key note address.



Prof. A. Murab Basha, Wolaita Sodo University, Ethiopia; Dr. S. Venkat Mohan, Indian Institute of Chemical Technology, Hyderabad; Prof. D.B. Rama Chary, University of Hyderabad; Dr. B. China Raju, Indian Institute of Chemical Technology, Hyderabad; Dr. Y.R. Satyaji Rao, National Institute of Hydrology, Kakinada and Dr. A.V. Narasaiah, Indian Institute of Chemical Technology, Hyderabad gave invited talks on various emerging trends of the Global Science and Technology.



Dr. T. Mallikarjuna Rao, Adigrat University, Ethiopia; Dr. B. Sridhar, I.I.C.T., Hyderabad and E.V.S. Subrahmanyam, Head, Department of Chemistry, P.R. College and Life member of ACT were very active in the academics of the conference and its proceedings.

Dr. P.V.S. Machiraju, Vice-president of ACT South zone delivered an invited talk on Nature's Action – Human's Reaction. In this talk Dr. Machiraju focused on the issues how nature is supporting the people and in which way the human's activities are disturbing the natural resources thereby causing pollution in the components of Environment like Water, Soil and Air. He also explained the measures to be initiated for protecting the Environment to safeguard the interests of the Public.

Dr. Mannam Krishnamurthy, EC member of ACT gave an invited talk on 'Emerging and Eco-friendly Hydrogen Fuel Technology'. In his presentation Dr. Mannam reviewed energy resources, problems in burning fuels, green house effect, global warming and types of renewable energy. Salient features of hydrogen, the forever fuel, that we can never run out of were explained. The development of a new train, which runs on a hydrogen fuel cell, was discussed. The new eco-friendly train was made in France and may start running in Germany in December 2017.

\* \* \*

## Achievements and Honours



Prof. K. Sudhakar Babu, E.C. Member of South zone ACT was appointed as Registrar of Sri Krishnadevaraya University, Ananthapur, Andhra Pradesh. Dr. Sudhakar Babu served ACT earlier as Vice president from South Zone.

Dr. M. R. R. Prasad, Life Member of ACT has been nominated as a Member of the Editorial Board for the Journal of Applicable Chemistry. Dr. Prasad acted as editor of ACT News Letters for three years, till 2016.



Dr. D. V. Prabhu, General Secretary, ACT has been nominated, by the Members of the Council of the Indian Chemical Society at its Meeting held at 92, Acharya P.C. Road, Kolkata on February 17, 2017, as a Member of the Editorial Board for the periodical entitled "Education in Chemical Science and Technology". This periodical is published by the Indian Chemical Society, Kolkata.

## Views, News and more ....

### Carbon Dioxide Pumped into the ground can be made into a solid stone

Carbon capture is an important part of maintaining the balance of CO<sub>2</sub> emissions on the planet. Whenever fuels are burned, all of the CO<sub>2</sub> that was stored within is released into the atmosphere. Humans have been causing this problem for a long time, and we are seeing the effects of global climate change.



Photo credit :  
Juerg Matter

Scientists in Iceland have found a way to permanently capture carbon emissions so that they do not go into the atmosphere further harming the greenhouse effect. CO<sub>2</sub> was pumped into volcanic rock in Iceland, which sped up a natural process that turns basalt into carbonate minerals, which then become limestone. This process normally takes hundreds of thousands of years, but the scientists in Iceland were able to do it in only two years. The result is carbon capture into a rock that could be stored underground or even used as a building material so that the captured CO<sub>2</sub> never reenters the atmosphere.

### Nearly Eternal Data Storage Method Discovered

Everything degrades eventually, and there is no way to store data on one device for truly extended periods of time. But that may no longer be true due to a discovery made by the University of Southampton. Scientists have successfully used nanostructured glass to create a process for recording and retrieving data. The storage device is a small glass disk about the size of an American quarter that can hold 360TB of data and remain intact up to 1,000°C. This means that its average shelf life when held at room temperature would be approximately 13.8 billion years (roughly the same amount of time the universe has existed).

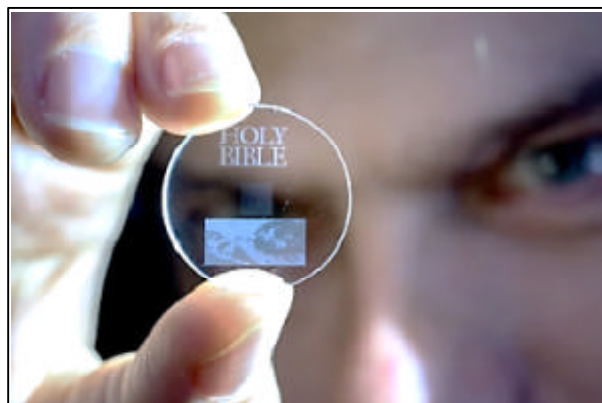


Photo credit :  
Southampton.ac.u

Data is written on the device using an ultrafast laser via short and intense light pulses. Each file is written in three layers of nanostructured dots that are only 5 micrometers apart. When read, the data is realized in five dimensions: the three dimensional position of the nanostructure dots as well as their size and orientation.



## The Mine of Giant Crystals



A lead, zinc, and silver mine in Naica, Mexico, holds one of the world's loveliest underground marvels. The cave has the biggest selenite crystals in the world. It was discovered in 1999.

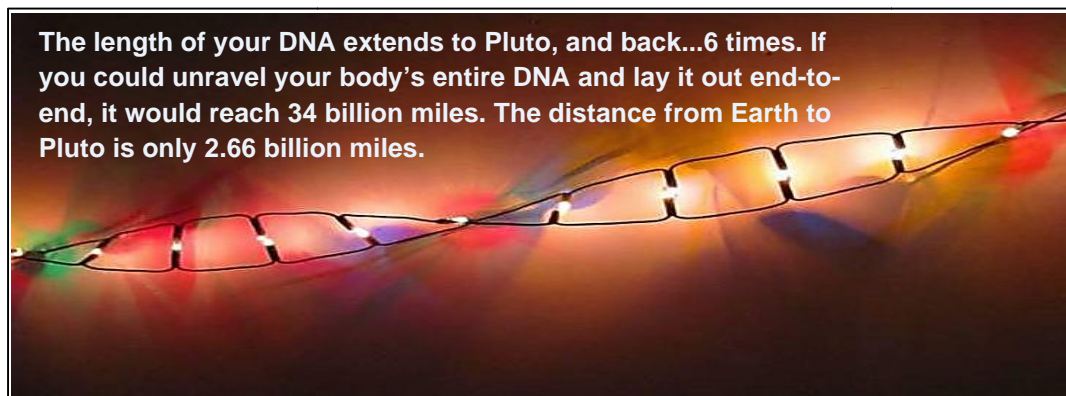
### High-Power-Density Organic Radical Batteries

Source : Topics of Current Chemistry (2017), Page 375

Batteries that are based on organic radical compounds possess superior charging times and discharging power capability in comparison to established electrochemical energy-storage technologies. They do not rely on metals and, hence, feature a favourable environmental impact. They furthermore offer the possibility of roll-to-roll processing through the use of different printing techniques, which enables the cost-efficient fabrication of mechanically flexible devices.

In this review, organic radical batteries are presented with the focus on the hitherto developed materials and the key properties thereof, e.g., voltage, capacity, and cycle life. Furthermore, basic information, such as significant characteristics, housing approaches, and applied additives, are presented and discussed in the context of organic radical batteries.

## The length of your DNA .....



*We conclude the present issue of the ACT News Letter here* 

# ASSOCIATION OF CHEMISTRY TEACHERS (Promoting Excellence in Chemistry Education)

c/o. Homi Bhabha Centre for Science Education (HBCSE, TIFR)

V.N. Purav Marg, Mankhurd, Mumbai – 400 088

[www.associationofchemistryteachers.org](http://www.associationofchemistryteachers.org)



## EXECUTIVE COUNCIL : 2017 - 2019

**President :** *Prof D C Deka, Gauhati University, Guwahati*

**General Secretary :** *Dr D V Prabhu, Wilson College, Mumbai*

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