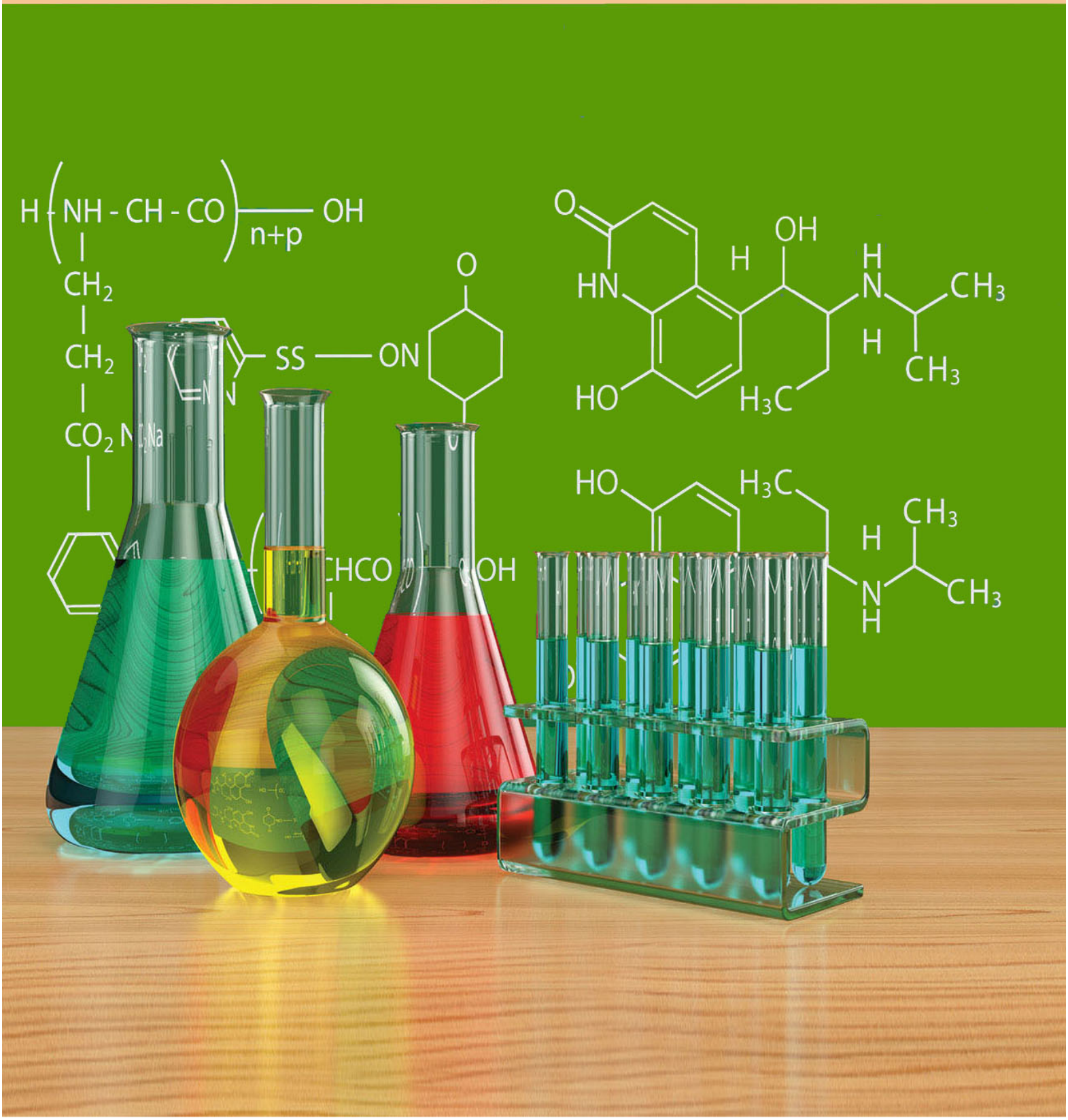
ASSOCIATION OF CHEMISTRY TEACHERS

NEWS LETTER

ISSUE : 8, MAY- AUGUST 2017



ACT News Letter, Issue 8

May – August, 2017

Association of Chemistry Teachers

Promoting Excellence in Chemistry Education

From the Editorial Desk...

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

We are happy to inform that 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. ACT proposes some new activities to be implemented.

We are bringing in the present issue of the news letter with the reports on the ACT activities, latest innovations, new trends, views and news. An attempt is now made to include featured articles and experimentation in chemistry. We acknowledge Prof. R. Sambasiva Rao and S. Murugan for their academic contributions.

We invite good suggestions and better contributions from the readers to get best output of the future issues.

Objectives of ACT and New Activities

Association of Chemistry Teachers (ACT), launched in 2000 is the apex national registered body of Chemistry educators and brings together on a common platform higher secondary, college and university teachers, scientists and researchers from industry for organizing subject related activities. Since its inception, ACT has worked tirelessly to promote excellence in Chemistry education and to motivate students to pursue Chemistry as a life long vocation.

Main Objectives of ACT

1) To advance Chemistry education in the country by means of curriculum development and innovation in teaching and evaluation methodologies,
2) To organize workshops, symposia and conferences including an annual National Convention of Chemistry Teachers (NCCT) in different parts of the country,
3) To forge a vibrant synergistic relationship between academia, Industry and research centres for mutual benefit,
4) To explore and nurture talent in Chemistry with special reference to the Indian National and International Chemistry Olympiads,
5) To collaborate with International Science Teachers' organisations for exchange of ideas and organization of joint programmes.

Role of ACT in Chemistry Olympiad Programme

ACT plays an important role in the organization of the National Standard Examination in Chemistry (NSEC) which is the first stage examination leading to participation in the Indian National and International Chemistry Olympiads. Every year, more than 45000 higher secondary and CBSE students appear for NSEC from over 1000 centres spread all over the country. The toppers are given merit certificates and book prizes by ACT. The large network of over 2000 Life Members of ACT is actively involved in the different stages of the Chemistry Olympiad programme. All students selected for the Orientation cum Selection Camp of Chemistry Olympiad are presented Gold medals and merit certificates and students selected for the Orientation cum Selection Camp of Junior Science Olympiad are presented book prizes. It is a matter of pride and gratification that the performance of the Indian teams at the International Chemistry Olympiad has always been very good.

New Activities

1) Concept Test in Chemistry for Undergraduate students which is a multiple choice question test.
2) DST sponsored Chemistry Popularisation workshops in the smaller cities and towns. ACT has organized 12 workshops at different locations including Srinagar (JK) and Tezpur (Assam).
3) ACT interacts with Government Education Departments and assists in syllabi framing and implementation.

ACT Awards

To honour and felicitate the outstanding Chemistry teachers of the country, ACT has instituted seven awards including ACT Life Time Achievement Award which is given to a superannuated Chemistry teacher in recognition of his/her distinguished services to Chemistry teaching and research.

To commemorate IYC 2011, ACT and Tata Chemicals, Mumbai instituted "ACT-Tata Chemicals Best Chemistry Teacher Award" in five categories.

THREE DAY CEPT-2017 & NCCT-2017

National Conference on Innovative Perspectives of Chemistry in Environment, Pharmacy and Technology (CEPT-2017) & National Convention of Chemistry Teachers (NCCT-2017) will be held between 6 and 8, October 2017. It will be organised by Department of Chemistry, Pragati Engineering College, Surampalem, Near Kakinada, Andhra Pradesh.

The brochure was released by Dr. P. Krishna Rao, Chairman of Pragati Institutions on 24th July 2017, in the presence of Dr. S. Sambu Prasad, Chair person of CEPT-2017 and Prof. P.V.S. Machiraju, Convenor of NCCT-2017.

Thrust areas of the Conference: Climate change ❄ Chemistry of Nature Products ❄ Energy and Fuel Technologies ❄ Organic Process Research and Development ❄ Food Chemistry and Technology ❄ Water and Soil health ❄ Green Technologies and Sustainable Chemistry ❄ Spatial Distribution of Radioactive elements in environment ❄ Industry and Sustainable Chemistry and Waste Management ❄ Green and Sustainable Pharmacy ❄ Hydrology and Water Resource Management ❄ Radio Isotopes ❄ Innovative Teaching Methods in Learning Chemistry ❄ Nano Technology.

For details ☛ web: www.cept2017.pragati.ac.in; email: ncct2k17pragati@gmail.com; Mobile: 9246691641

Academic Participation of ACT Members

Prof. Brijesh Pare, Vice President of ACT Central Zone organised two 'Royal Society of Chemistry, Workshops, during second week of May 2017. At Indore Sahodaya 52 science teachers, while at Jabalpur Sahodaya 53 teachers actively participated in 'Y. Hamied Inspirational science teachers training programme'. Dr. Vimala Oak from Bangalore was the teacher developer from RSC.

Dr. M.R.R. Prasad, Life Member of ACT acted as resource person and gave an invited talk, at the 'UGC Summer School for Teaching Faculty', Dr. B.A. Marathwada University, Aurangabad during last week of May 2017.

Dr. Mannam Krishnamurthy, EC Member of ACT acted as mentor and resource person in Chemistry, at 'RMSA Orientation and Refreshing Camp for Science Teachers', organised by DEO office, Guntur, Andhra Pradesh, during last week of May 2017.

Dr. Dheeraj Mandloi, EC Member of ACT was active in the organisation of 'National Workshop on Quality Technical Education', at Devi Ahilya University, Indore, on June 9, 2017. Prof. Anil Sahastra Buddha, chairman AICTE and Prof. Deepak Patak, IIT Mumbai gave invited talks.

'ISRO Space Exhibition' was organised at Sonopant Dandekar Shikshan Mandali College, Palghar, Maharastra, during 20-21, June 2017. **ACT Life members Dr. Paritosh Rama and Dr. Dilip Yadav** were the active organisers of the exhibition. This exhibition was inaugurated by Dr. M.R.R. Prasad, Retd. Scientist of ISRO, Thiruvanthapuram.

Prof. M. Swaminathan, EC Member of ACT and President of IASSCAS inaugurated 10th 'National Conference on Solid State Chemistry and Allied Areas', organised by Delhi Technological University, Delhi, during July 1-3, 2017. He delivered invited lecture and chaired a scientific session.

Dr. Hari Sankar Kakati, EC Member of ACT acted as a resource person on the 'Community Education Programme', organised at Muduki Village, South Kamrup, by Assam Science Society, during second week of July 2017.

Prof. Prem Mohan Mishra, Vice president of ACT East Zone was guest for the Inaugural Function of one day seminar on 'Application of Spectroscopy : An overview, at MLSM College, Darbhanga on July 15, 2017. Prof. S.K. Singh, Vice chancellor of LNM University and Prof. Syed Mumtazuddin, Vice chancellor of VKS University also graced the function.

Prof. Amar Srivastava, EC Member of ACT acted as a resource person for a theme on 'co-existence of science and superstition of Indian society', on the Birth Anniversary of Acharya P.C. Ray, organised at J.N. Vidya Mandir Inter College, Kanpur, on August 2, 2017.

Dr. Hemant Pande, Vice President of ACT West Zone was active in organizing a workshop on 'Innovation for future and competitions' at Bharatiya Vidya Mandir, NTPC, Mandal, Maharastra on August 7, 2017.

ACT Members at International Venues

Prof. M. Swaminathan of Kalisalingam University and EC member of ACT, has delivered Plenary talk at the International Conference on Current trends in Chemistry, on 7th June 2017, organised by ICC at Bali, Indonesia.

Prof. Prem Mohan Mishra of MLSM College, Darbanga and vice president of ACT East Zone presented a research paper, on 8th June 2017, at the 5th International Conference of ICC, Bali, Indonesia.

Prof. M. Swaminathan, EC member and former vice-president of ACT South Zone, was invited by Petronas University of Technology, Malaysia to visit for 2 days. After visiting chemical and environmental engineering laboratories, 13-14, June, 2017, he delivered a special lecture on "Nanomaterials for Energy and Environment". He had a lively discussion with research scholars and faculties. He also visited University Putra Malaysia, Kuala Lumpur.

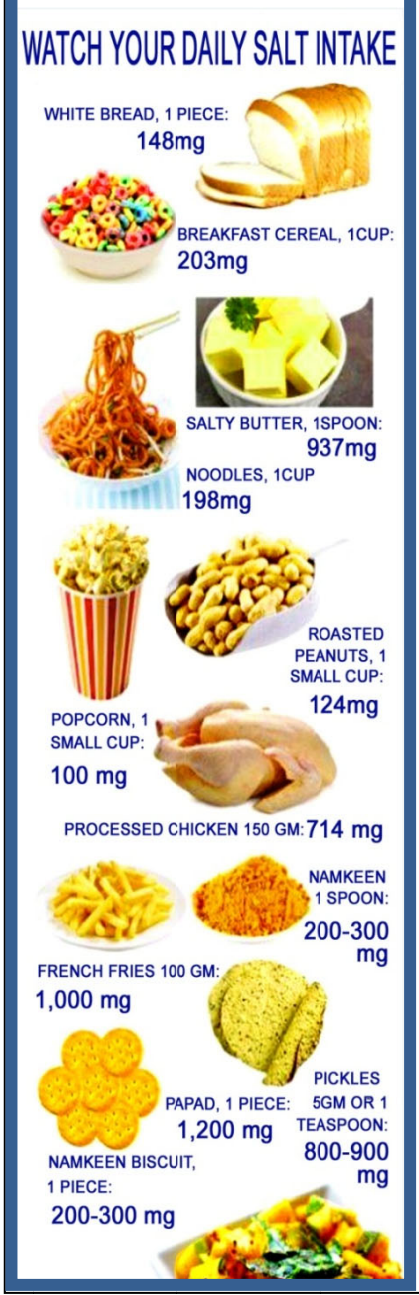
Prof. Shradda Sinha, BB Das National Institute of Technology & Management, Lucknow and Secretary ACT North Zone has participated and presented a paper, on 6th July 2017 at International Conference on Obesity and Chronic Disease, organised by United Scientific Group, San Francisco, United States of America.

Salt : Enemy in Your Food

WHO recommends 5g of salt consumption per day.

Its excess intake causes high blood pressure.
brain strokes,
cardiovascular ailments,
kidney failure, stomach cancer, obesity and diabetes.

Source : The New Sunday Express Magazine



A recent study by George Institute for Global Health (GIGH) revealed some worrisome facts about this insidious enemy we use everyday. It indicates that as against the World Health Organisation's (WHO) recommendation of 5g consumption of salt per day for a healthy adult, Indians consume over 10.98g each day – 119 percent more than the recommended limit. The study analysed the salt intake of 227, 214 Indians, aged 19 years and older.

High salt consumption contributes high blood pressure and increases the risk of cardiovascular diseases (CVDs), kidney failure, brain stroke, obesity, thyroid and many more serious ailments. A high salt intake causes water retention in our body, which leads to hypertension.

Salt absorbs moisture because it is an ionic compound with strong attractive forces for highly polar water molecules. Sodium ion, a major ingredient of salt, attracts water like a sponge and increases fluid in the body. More than 70 percent of the human body consists of water. Blood is also mostly water. When the water level increases in the blood, the force of blood flow through vessels consistently remains high and becomes dangerous. Blood pressure rises and falls throughout the day, but can cause health problems if it stays high for a long time.

According to Indian Council of Medical Research, the country has a prevalence of 25-30 percent hypertension cases. A study indicates high blood pressure is a leading cause of CVDs, which accounted for 23 percent of all deaths in India between 2010 and 2013.

Consuming too much salt gives a bloated and uncomfortable feeling. Expert say this is also a sign when one needs to be alert as a constant bloated feeling could mean a person is consuming too much salt.

Extreme thirst is another sign of extra salt consumption. An alarming problem arising out of high salt intake is obesity. Excess salt consumption leads to slowing down of metabolism. Hence, instead of converting into energy, fat starts deposition in the body, leading to obesity.

In rural areas, salted pickles, papad and other traditional food items account for relatively high consumption levels of salt. People of rural areas must probably be educated with adverse effects of high salt intake.

Use herbs and spices instead of salt to add flavor in home-cooked meals. Include fruits and vegetables in your daily diet.

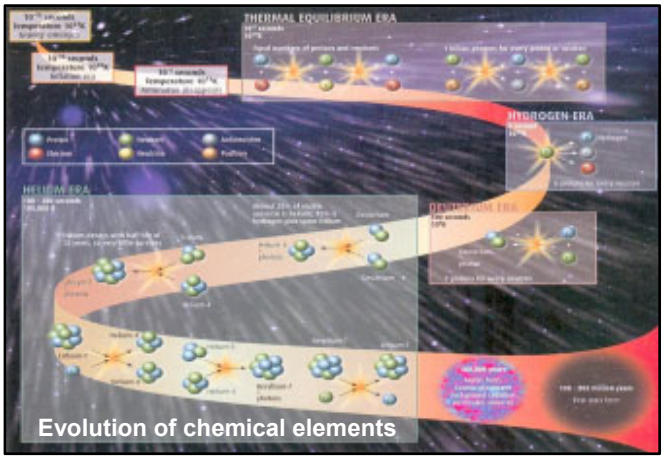
Third Eye of 21st Century Chemistry (TeCh)

Dr. Rupenaguntla Sambasiva Rao
Professor of Chemistry, Andhra University
Visakhapatnam, A.P.

The two eyes of Science are measurement and computation. The living species make several types of measurements of varying precision and accuracy in commensurate with their needs. The man made instruments with technological evolution range from Vernier calipers to those in Mars rover. Computer hardware/software/man-machine interfaces are fast (time saving) tools in arriving at hindcast/current trends/ future prediction of multi-dimensional and multi response real time phenomena inspacio-temporal domain. Peta/exa scale computations/memories are aids for sustained progress in astro-, nano, interfacial chemical outcome in present time and near future.

The third eye is a superset of time tested knowledge (K), information-bits/intelligence (I), of course, derived and complimented by the output of first two eyes (Data). KID system comprises of both discipline independent (meta- : for example meta knowledge, meta data, abstract intelligence), discipline-specific and method based components. Here, the impetus of third eye on evolution, prospects and utility of twenty first century chemistry is briefly pictured.

Origin of chemical elements: The consequence of Big-bang was a hot (10^{32} K) soup of energy inflated into space followed by formation of billions of photons, protons and neutrons. In the succeeding period of few seconds hydrogen era started with emergence of its isotopes (deuterium, tritium). Later, helium (^{4}He, ^{3}He, ^{4}He), lithium (^{7}Li), beryllium (^{7}Be) and so on formed setting stage for chemical elements. Mother Nature prepared most of chemical elements during its evolution. Mother Nature prepared all naturally occurring chemical elements during its evolution over billions of years. The animate/inanimate world around as well as inside us contain simple to complex chemical moieties emerged over trillions of interactions under wide range of environment of nature's laboratory. The synthetic (artificial) chemical element era started in 1930s and the number grew. They are all unstable with half-lives ranging from few hundred microseconds to millions of years.



Evolution of chemical elements

Universe Visible (Materialistic): The simple chemical compounds, water, carbon dioxide, ammonia, oxides nitrogen/Sulphur are not only the constituents of atmosphere around earth, they were building blocks of life (mono-cellar, dinosaurs, and human beings).

Water: Water, the basic component of life is omnipresent in the Universe. It is present to an extent of 70% on earth and nearly 60% in adult human being and also to the extent in brain. The water is most extensively researched liquid by experimental, instrumental and computational procedures over a century with terabytes of information. But, it is the chemical compound which is not understood even at the level of tip of iceberg.

Chemical interactions: Chemical interactions are a subset (or small band) in the wide energy spectrum. Making and breaking of covalent bonds remains the core of chemical interactions in solid/liquid/gaseous and solution phases.

Alchemy: The alchemy, now a history, was around conversion of base metals (lead) into noble ones (gold). The focus of modern science is to synthesize materials for health, comfort, transport, defense from natural calamities and catastrophes resulting from man promoted activities. The transition of material wealth to information revolutionized pursuits of this century to turn attention to knowledge based approach.

Milestones of Science in twenty first century: The laser focus of elite brains of current century is to further reduce the hidden gap between 'what is understood' and 'what is it? And How to and how far to understand'. This is the impetus to realize in twenty second century (third eye) dream viz. 'How it should be and means to achieve with method flow conscious map'. The analogy is today's mandate in medical sciences that following noninvasive means of 'see and cut if essential' over "cut and see even as exploratory exercise" of yesteryears' only option. At, this juncture, it is not inappropriate to call earlier findings as 'classical', if not alchemy II, AlSci (pronounced as ***all see***), just like artificial intelligence-2 (AI-2), computer science-2 (CS-2) etc.

Electron, H^+ and OH^-: The study of proton in water started with Grotthuss in 1806 with the proposition of water wire. Eigen-Zundel-Eigen mechanism is an outcome of molecular dynamic and photoelectron spectroscopy. The knowledge is of utmost relevance in biochemical research and fundamental perspective of solution processes. Hydroxyl ion forms a weaker H-acceptor bond and stronger H-donating bond. Although the interaction is weak, their presence in troposphere is of concern in solar absorption.

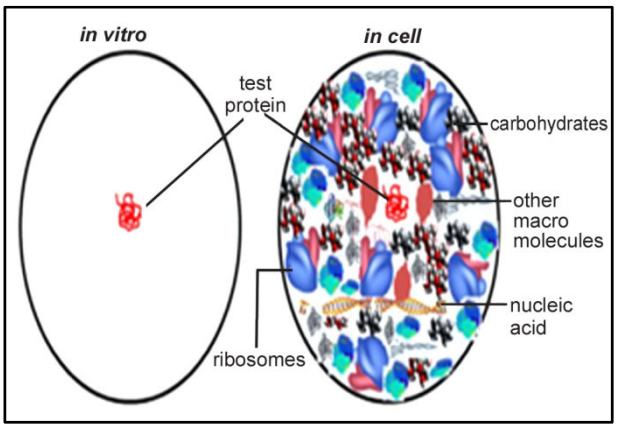
Salts in solvent: Over hundred years ago, making and breaking of water by ions in aqueous solution was introduced as Hofmeister series. The solutes now are classified as structure makers and structure breakers. The interest in hydrophobic solutes arose followed later.

Monovalent metal cations: The number of water molecules in first and second hydration spheres of monovalent cations (Na), Li,K, Cs), anions (Cl, I) in water from computational quantum chemistry (Molecular Dynamics, Monte Carlo) and spectroscopic studies during the last one decade is commendable.

Ion pairs: The contact-ion-pairs and solvent-separated-ion-pairs formed with iodides of Li and Cs with explicit salvation. The role of H-bond and other non-covalent interactions will be illustrated.

Protein machine: A protein is a heterogeneous polymer of amino-acids. It is the basic unit of protein machinery, the heart of life processes. Biologists call it a biomolecule and chemists a chemical compound. But, for a quantum chemist, it is multi-electron pool revolving relentlessly around encapsulated bundle of neurons and protons. The biological function in a cell, a macroscopic response is a culmination of several covalent and non-covalent intra-protein interactions.

In vitro research – limitations: Most of laboratory studies of interactions of proteins with water or small molecules has been carried out in dilute buffer solutions. These in vitro studies were stepping stones to probe into in vivo processes. But, most of the results are good knowledge bits in physics and chemistry of proteins. But, direct extrapolation to in vivo biological processes remained to be a failure. This unpalatable hard reality is the impetus for newer approaches in theoretical, experimental and computational fronts to understand micro-processes.



To Reduce Expenditure in Chemistry Practicals

Murugan Subramanian
HOD of Chemistry (Retd.), S.T. Hindu College,
Nagerkovil, Tamilnadu

Day by day the cost of chemicals are sky rocketing. This is a great concern for both the managements and the staff in schools and colleges. This problem can be easily addressed adopting Microscale Experiments.

What are Microscale Experiments?

This is doing the chemistry practicals with very minimal quantities of chemicals (5mg of solid/ 1 drop of reagent) in organic and inorganic qualitative analysis. In these experiments the QUALITY is not compromised, only the QUANTITY is reduced. For volumetric analysis two burette titrations can be followed. This will considerably reduce the volume of solutions to be used in volumetric analysis. Accuracy in this procedure is as good as the conventional method.

What about The Safety Aspect ?

Only small quantities of chemicals and solvents are used to perform the experiments. So the students can perform the experiments in a safe and pollution free atmosphere.

What are the Benefits?

If the microscale method is adopted in schools and colleges this will lead to lesser consumption of, (a) chemicals and solvents (b) LPG, water and electricity. Other benefits include lesser time to perform the experiment and pollution free environment. **There is no need for a large store room.** In short the cost of running the chemistry practicals will come down by about 70%.

How many institutions have adopted this method?

The author have given demonstration of the techniques in many colleges and universities totally in Tamilnadu, Kerala, Karnataka and Maharashtra. In Tamilnadu, on seeing the merit of it, the members of board of studies of Manonmaniam Sundarnar University, Tirunelveli have formally adopted it in their curriculam. Cochin, Kerala and Calicut Universities and NIT-Calicut also adopted the method in their curriculam.

Whom to contact?

The pioneer in this field is Dr.S.L.Kelkar, Retired Professor of Organic Chemistry, PUNE University. There are a good number of professors and volunteers involved in spreading this message in India*.

What is the Charge?

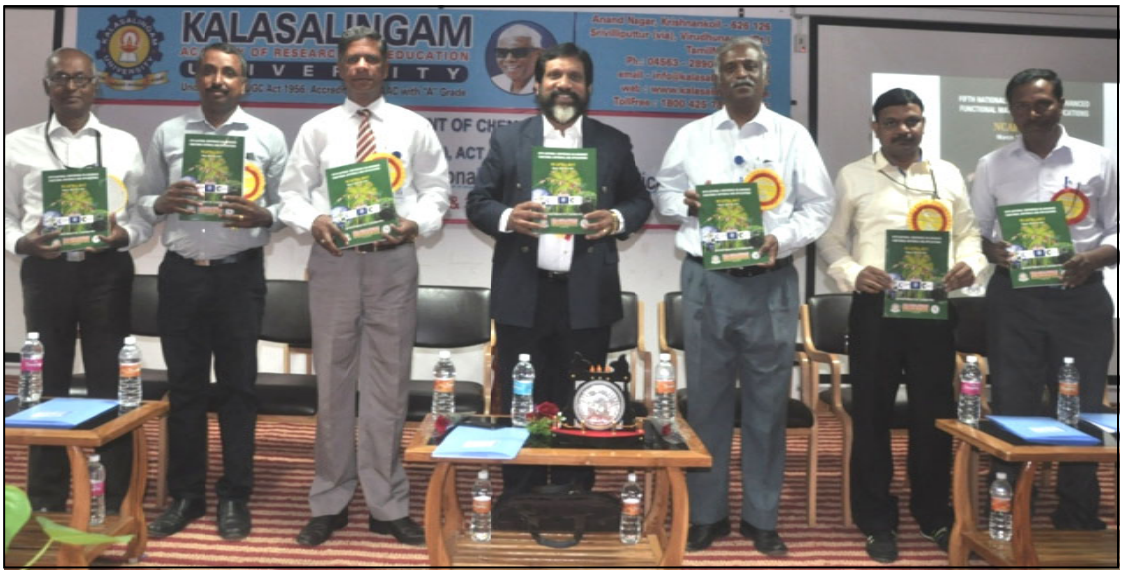
Teaching and advising on microscale experiments is purely voluntary. For long distances, travel assistance and local hospitality would be preferred.

*__Note :__ The author is available to lecture and demonstrate the method ; mail : mgansthc@gmail.com
Mobile : 09443313526; Youtube : 'Microscale Chemistry-Author Vicky'.

Subject Reports on National Seminars

National Conference on 'Advanced Functional Materials and Applications' was organized at Kalasalingam University, Krishnankoil, Tamilnadu on 30-31 May, 2017.

The two day conference was sponsored by DST, ACT and RSC. Prof. M. Swaminathan of International Research Centre, Kalasalingam University and EC member of ACT welcomed the gathering. The conference was inaugurated by Prof. Kuruvillah Joseph, IIST, Thiruvanandhapuram. Prof. Joseph stressed the importance of functional materials in day to day life and advanced research. Dr N. Selvapalam, Department of Chemistry proposed vote of thanks at the inaugural session.



There were seven invited lectures delivered by Dr. M. Chandrasekharam from IICT, Hyderabad; Dr. Arindam Das from IGCAR, Kalpakkam; Dr. Radha V. Jayaram from ICT, Mumbai; Dr. Rajadurai Chandrasekar from University of Hyderabad; Dr. P. Jai Shankar from USV Pharmaceuticals Ltd., Bengaluru; Dr. M. G. Sethuraman from Gandhigram Rural Institute, Dindigul and Dr. M. Padmanabhan from Amrita Vishwa Vidyapeetham University, Amritapuri. These invited talks delivered in two days of the conference were in the top-notch areas of materials research and the relevant discussions were useful.

There were 130 papers presented in the conference both as oral as well as poster forms. About 350 participants from various parts of the subcontinent attended the conference. Eventually, awards have been given for each three best oral as well as poster presentations in the valedictory function.

National seminar on 'Solid waste Disposal and Management to protect Environment' was organized by Journal of Applicable Chemistry at Siddartha College of Pharmacy, Nuzvid, Andhra Pradesh, on June 4, 2017.

This National seminar was academically supported by Association of Chemistry Teachers (ACT) and Indian Council of Chemists (ICC).

Prof. G. Nageswara Rao, Vice Chancellor of Andhra University and ACT life member was the Chief guest for the inaugural session and Mr. Ch. Rangaiah, Revenue Divisional Officer, Nuzvid was guest of honour. The seminar was started with the lightening of lamp by Prof. M.V. Basaveswara Rao, Special Officer of Dr. MRKR PG Centre, Nuzvid and life member of ACT. Key note address was delivered by Prof. G.R.K. Naidu of Sri Venkateswara University, Tirupathi.

There were three invited talks in the technical sessions of the seminar. Dr. K.S.K. Murthy, Secretary, Andhra Pradesh Medical Academy, Vijayawada and Dr. Sreedhara R. Oleti of Indras (P) Ltd., Hyderabad discussed respectively on the medical and pharmaceutical waste disposal.

Dr. Mannam Krishnamurthy of Varsity Education Management Limited, Hyderabad and EC member ACT gave a presentation on solid waste management. Dr. Mannam reviewed various sources of solid wastes, methods of waste disposal and eco-friendly green chemistry principles involved in the waste management, leading to wealth from waste.

Dr. M.R.R. Prasad, ACT life member chaired the academic sessions and paper presentation. During the concluding session of the National Seminar Prof. Kaza Somasekhara Rao, Lumami Campus of Nagaland University was felicitated by ACT on his 70th birthday.

About 200 teachers, research scholars and students participated in the one day National Seminar.

One Day Seminar on 'Role of Chemistry in Community Education' was organised at Shree Velagapudi Ramakrishna Memorial College, Nagaram, Andhra Pradesh on July 20, 2017.

The One Day Chemistry Seminar was sponsored financially by UGC and academically by ACT.

Dr. K. Surendra Babu, Director, PG Courses and ACT Life Member inaugurated the seminar by lighting the lamp. Mr. M. Sudhakara Rao, Convenor of the seminar and ACT Life Member, spoke on the seminar objectives.

Dr. M. Krishnamurthy of Varsity Education Management Limited, Hyderabad and EC Member ACT gave keynote address. He reviewed the community education principles, ranges of skills and approaches. The key role of food, water, manures, festicides, artificial rains, building materials and health related chemicals was emphasised, leading to the informal education system.

Two guest speakers gave their talks in the pre-lunch academic session. Prof. P.V.S. Machiraju of Pragathi Engineering College, Kakinada and Vice President of ACT South Zone gave an invited talk on 'The Significance of Chemistry in Service of Society'. Dr. B. Haribabu of Acharya Nagarjuna University, Guntur and ACT Life Member gave another invited talk on 'Organic Chemistry and Natural Products in Community Development'.

In the post-lunch session, a workshop was organised to chemistry students and research scholars on youth work, adult education, mass communication skills and social pedagogy.

In the concluding session, participants came out with their views on methods of supporting rural and non-urban groups. Certificates were presented to the newly joined ACT Life Members.

World Nature Conservation Day Celebrations were organised by Prof. Prem Mohan Mishra, Vice President East Zone of ACT at Darbhanga, on July 28, 2017.

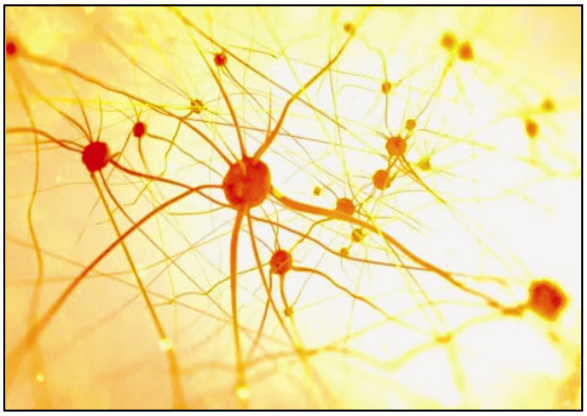
World Nature Conservation Day Celebrations were sponsored by Association of Chemistry Teachers and were organised by P.M. Mishra Science Club, on 28th July 2017 at DPM Gurukul, West Darbhanga, Bihar.

The inauguration session was chaired by Prof. P.M. Mishra. Distinguished Scientist and Engineer Manas Bihari Verma delivered the key note address. Professor Vidya Nath Jha, Principal M.R.M. College Darbhanga, Dr. Sharda Nand Choudhary, M.K. College, Lahariya sarai, Sri Narayan Jee Choudhary Social activist and Jal Purush gave lectures on plant, soil and water Conservation.

The awareness program to save the nature for our generations was successful. Many teachers and students participated in the celebrations. Best performance of students was rewarded with prizes.

Views, News and more ....

No Two Neurons are Genetically Alike



Source : Scientific American, May 2017.

The past few decades have seen intensive efforts to find the genetic roots of neurological disorders, from schizophrenia to autism. But the genes singled out so far have provided only sketchy clues. Even the most important genetic risk factors identified for autism, for example, may account for only a few percent of all cases.

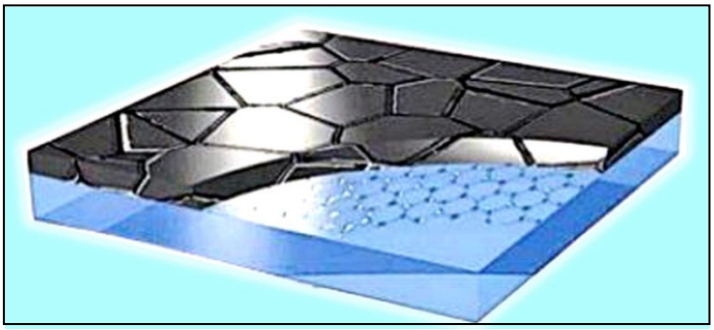
A paper published in Science 2017 by a group founded two years ago - The Brain Somatic Mosaicism Network (BSMN)- outlines a research agenda for using new technologies to explore the genetic diversity found in each cell and to investigate what links, if any, tie such mutations to a variety of neurological conditions.

Wealth from Waste Carbondioxide

Carbondioxide is familiar as global warming gas. Increase of its concentration levels is contributing more to environmental pollution. A good news is that recently a factory was constructed in Zurich district of Switzerland, which collects carbondioxide and then sell it for commercial purpose. The factory has 18 air fans which succs air. The filters in the fans absorb carbondioxide and leaves air. After few hours filters will be saturated with carbondioxide. These filters are then taken and heated to 100^0C. The released carbondioxide then sent through pipes to a huge green house. This eco-friendly method is well appreciated by environmental and agriculture chemists.

Sieve that can Convert Sea Water

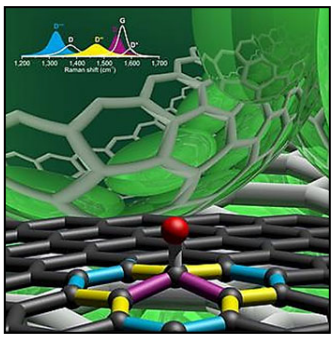
A new sieve was released in London, which can convert salt water into parable water. This sieve contains graphene oxide which can absorb salt content of sea water. Indian born scientist Dr. Rahul Nair is one of the important member of the group of this new invention.



Polar Ice Caps are Dissolving

It is estimated that the normal time for the dissolution of ice at both the poles of earth is 5000 years. Slow dissolution of ice at Arctic is a known fact since few decades. Ice of area about 3000 sq km at Antarctica has broken recently. The huge broken ice lump was immersed in sea and is slowly dissolving. A sure reason for this is global warming. This will lead to adverse effects on the costs of South Africa, Gulf, Indonesia, Myanmar and Bangladesh. Mumbai, Goa, Chennai and Kolkata are also expected to have some effect of the polar ice dissolution.

Chemically Tailored Graphene

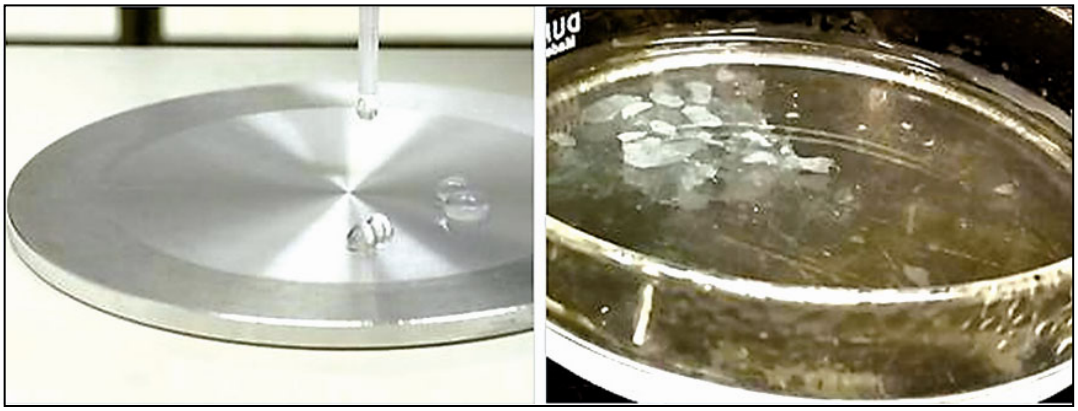


Two-dimensional graphene consists of single layers of carbon atoms and exhibits intriguing properties. The transparent material conducts electricity and heat extremely well. It is at the same time flexible and solid. Additionally, the electrical conductivity can be continuously varied between a metal and a semiconductor by inserting chemically bound atoms and molecules into the graphene structure - the so-called functional groups. These unique properties offer a wide range of future applications such as developments in optoelectronics and ultrafast components in semiconductor industry.
Source : Friendrich Alexander-Universitat Erlangen-Nurnberg.

Weight is less, but strength is more

Scientists at Cargne Institute have developed a glassy carbon which was tested as a strong solid up to 9800C. It's relative weight is less, strong, has elasticity and can act as conducting material. The material is suitable for parts of aeroplans. This material may find several useful applications in military, aviation and information technology in the years to come.

Creating Anticancer Nanomaterials by Simulating Underwater Volcanic conditions



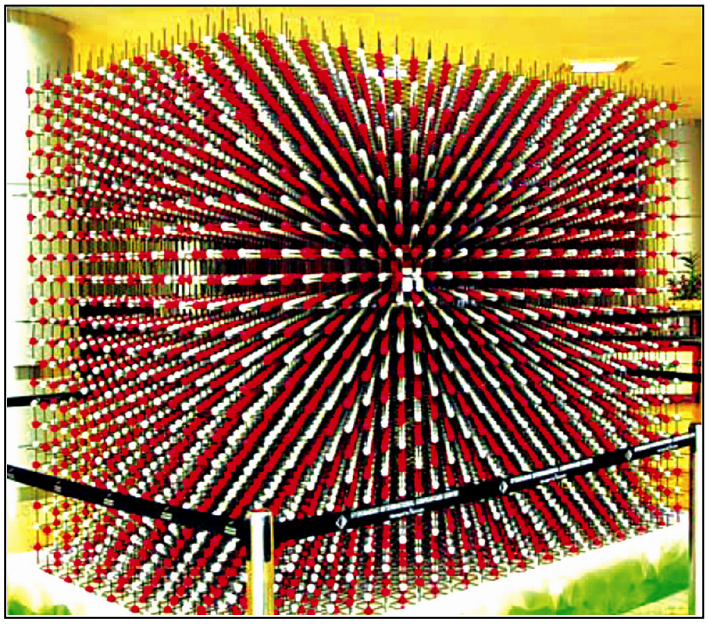
Researchers at Aalto University, Finland, have developed anticancer nanomaterials by simulating the volcano-induced dynamic chemistry of the deep ocean, making use of the Leidenfrost effect. The novel method enables making nanoclusters of zinc peroxide in an environmentally friendly manner, without the use of additional chemicals. The as-synthesised zinc peroxide nanoparticles can be used as a tool for cancer therapy and against other complicated diseases.

The dynamic underwater chemistry seen in nature is inspiring for the next generation of eco-friendly nanochemistry. In this context, green synthesis of size-tailored nanoparticles in a facile and scalable manner via a dynamic process has not been introduced so far, tells Professor MadyElbahri at Aalto University.

The Biggest model of Sodium Chloride Crystal

The Biggest model of sodium chloride crystal was exhibited first time in India on August 21, 2017, during the 24th Congress of International Union of Crystallography, organised at HICC-Madhapur, Hyderabad.

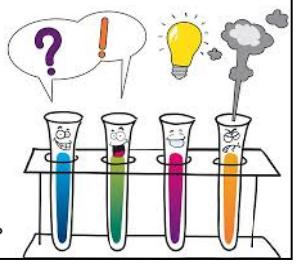
A 3D Chemical illustration replicate the repeating lattice of sodium and chloride ions found in a crystal of salt. Standing more than 3m tall, the model was built by Austrian Crystallographer Dr Robert Krickl from 42,875 balls and 10km of sticks. The world record attempt was adjudicated by the Guinness Book of Records in 2015 and was commemorated on an Austrian postage stamp.



Recent ACT Memberships (w.e.f. January 2017)

LM No.	Name	Particulars
1950	Dr. Geeta Varma	Doctors Colony, Raja Bagh, Sehora, Madhya Pradesh.
1951	Dr. Devendra K. Awasthi	Eldeco Udyan 214, Sector4, Rai Bareli Road, Lucknow.
1952	Dr. Ashma Aagarwal	3-D, Kanya, Nofra, Near RC Church, Colaba, Mumbai.
1953	J.K.B. Gawad	103/D, Rajvaibhav, M.M. Bypass, Palghar, Maharastra.
1954	Dr. Ashok K. Kakodia	Lecturer, 3/360, Rati Talai, Banswara, Rajasthan.
1955	Dr. Ramesh Menaria	Lecturer, 3/360, Rati Talai, Banswara, Rajasthan.
1956	Praveen Meena	26, Aditya Villa, Udaipur Road, Banaswara, Rajasthan.
1957	Dr. Preeti Ameta	H.No. 4, Road 5, Shyam Purg, Udaipur Road, Banaswara, Rajasthan.
1958	Dr. B.K. Sharma	3, Akashardam Bag, Pratap Circle, Banaswara, Rajasthan.
1959	Sivamani J	4, Subburayalu Nagar, Street 6, Cuddalor, Tamilnadu.
1960	C. Govindarasu	2/304, Kalanikattur, Nagarkoodal, Nallampalli, Dharmapuri Dist.
1961	Mary Jacintha	53/25, R S Lakshmipuram, Amali Arul Illam, Krishnagiri.
1962	Prof. R. Venkata Ramanam	411, 2nd cross, College Road, Velur, Namakkal Dist.
1963	Dr. Dengle Shalini	Nandadeep, 23-A, New Shantiniketan colony, Aurangabad
1964	Shaikesh Gupta	R-203, Polytechnic Colony, Nowgong, Madhya Pradesh
1965	Sachin K. Dhawale	GIT Campus, A/P Lavel, Khed, Ratnagiri Dist.
1966	Dr.A. Sakthivel	I-174, Devadas Niwas, Kasargod, Kerala.
1967	Dr. Syed K. hasan	AL-Fatima, Basantpur, PO Gita Press, Gorakpur.
1968	Dr. Qasimullah	4/619-C, Dvamanzil, Hamdard nagar-A, Aligarh
1969	Dr. Ashatosh Gupta	65, Nand Nagar, Karaundi, Varanasi
1970	Prof. N. Krishnamurthy	25, V K M Street, Sivakasi, Tamilnadu
1971	Dr. Ratiram Chowdary	201, Mayureswar Apt. Sidheshwar Nagar, Nagpur
1972	Dr. Sudip Mondal	C.A. Saha, Rameswari Road, Kukde layout, Nagpur
1973	Vinay V Hiwase	MSEA Quarters, Janta Nagar, Arvi, Vardha Dist.
1974	R.D. Utane	S.T. Ghode, 44 Manewada, Balakrishna Nagar, Nagpur
1975	Dr. Pawan B Thakare	Ekvira Nagar, Pandurang Ward, Arvi, Vardha Dist.
1976	Shubhajit R Halder	Radha Pride 303, Kamala Nagar, Amaravati Road, Nagpur.
1977	Bellamkonda Kotaiah	305, Staff Quarters, Badagardi, Bilagi, Bagakot, Karnataka.
1978	D. Prasannanjaneyulu	Sri Chaitanya PU College, Moka Road, Gandhi Nagar, Bellary, Karnataka.
1979	S. Parvathi Devi	Jhangmeiband, Near Manipur Assembly, Imphal, Manipur.
1980	Srinu Ramineni	Sri Chaitanya PU College, Kottara Chowki, Bangra Kotur, Mangalore
1981	M.V. Krishna Reddy	6-3-91, Prasanth Nagar, Miyapur, Hyderabad.
1982	Shaik Abdul Basheer	Sri Chaitanya Jr. College, Culvary Temple Road, Hydernagar, Hyderabad
1983	Nagaiah Tigalapalli	301, La Gardenia Apt., Pragathi Enclave Colony, Miyapur, Hyderabad.
1984	V. Kumar	Sri Chaitanya Jr. College, Himayat Nagar Fly over, Hyderabad.
1985	V. Surendra Babu	1805, Block 3A, SMR Vinay Fountain Head, Manjeera Water Works, Hyderabad.
1986	Shaik Showkatulla	Z.P. High School, Ramayapatnam, Ulavapadu Mandal, Prakasam Dist.
1987	K. Ravindra Kumar	Flat No. 101, Sita Homes, 6/19, Brodipet, Guntur.
1988	Dr. Poonam Dixit	Shanti Gyan Niketan, Sr. Secondary School, Goyla, Dwarka, New Delhi.
1989	Dr. P. Vallinayagam	Chemistry, MEPCO Schlenk Engineering College, Sivakasi.
1990	Dr. A. Dinesh Karthik	Shanmuga Industries Arts & Science College, Tiruvannamalai.
1991	Dr. A. Sakthivel	Chemistry, MEPCO Schlenk Engineering College, Sivakasi.
1992	Dr. Mausumi Ganguly	Chemistry, Cotton College, Guwathati, Assam.
1993	Ramesh D. Sul	Rajarambabu Institute of Tech, Islampur, Maharastra.
1994	Dr. Balakrishna Kalluraya	Padmanabhan House, Behind Pinto Complex, B.C. Road, Mangalore.

1995	Vishakha Sharma	24/282, Narsingpura, Jones Ganj, Ajmer.
1996	Mahire R. Raghunath	Awdhan Post, Dhule Tal, Maharastra.
1997	Dr. Gore Rambhan P	64, Gate 53, Shiv Colony, Jalgaon, Maharastra.
1998	Praveen S. Gehlot	Rajput Street, Rohcra, Sirohi Dist., Rajasthan.
1999	Srijit Das	Dipak Dey, D D S Sarani, New Kadamtala, West Bengal.
2000	Md. Harunar Rashid	Nirguli P Sector, Nirguli, Arunachal Pradesh.
2001	Dr. Deepika Brijpuriya	128, Sree Krishna Apt., Jijamata, Kachimet, Nagpur.
2002	Dr. Gopinath Navankal	8025 Ohio, Dr. Apt 6112, Plano, Texas, USA.
2003	Krishnakant Waghmode	Ruparel College, Sanepati Marg, West Malunga, Mumbai
2004	Prof. D.C. Mukherjee	176 A, S.P. Mukherjee Road, Kolkata
2005	Jadhav A Vithal Rao	A101, Vaidya Bag, Kamat Lane, Alibag Raigad Dist.
2006	Dr. Milam Hait	A-11, Vaishnavi Vihar, Phase II, Uslapur, Ameri, Bilaspur.
2007	Dr. Surendra Lalwani	3/B, Civil Lines, Sagar, Madhya Pradesh
2008	Dr. Ashish G Sarap	Near Vithal Mandhir, Old City, Akola, Madhya pradesh
2009	Dr. P.K. Srivastava	HOD, Chemistry, B I T Mesra, Ranchi
2010	Dr. Ashotosh P Pande	Janardhan Kutir, Bithoragarh, Uttarakhand.
2011	Dr. Manish Kumar	Dept. of Envi. Science, Tezpur University, Nappam, Assam
2012	Dr. Yvonne J Fernandas	D/2, Xaviers Society, 8 Parsana Nagar, Rajkot
2013	Sadgir N Vithal	3, Roongta Classiq Apt, Bapu Banglow, Indira Nagar, Nashik
2014	D. Madhavan	1633, Solai Colony, PKN Road, Sivakasi, Tamilnadu
2015	Dr. Rashmi Varma	Behind Lajparrai schoo, Juni, Bilaspur.
2016	Nitin S. Kadam	547, Kadam Mala Saundare, Solapur
2017	Raksh K Yadav	Maa Jhura Kripa, Vijay Nagar, Bilaspur
2018	Abhishek Sharma	Firangi Kargi Road, Kola, Bilaspur.
2019	Jyoti Goswami	Nutan Colony, New Sarkanda, Bilaspur
2020	Dr. G.S. Chauhan	202, Mantra Apt., I I P Mohakumpur, Dehradun.
2021	Dr. Manmohan S. Jassal	1/221, Ghukhuwala, Dehradun
2022	Dr. A.R. Semwal	31/5, E.C. Road, Dalamwala, Dehradun
2023	Dr. Manish Upedhyay	A-2, Kanchan Vihar Colony, GGV Kani, Bilaspur
2024	Dr. Namita Bharadwaj	Old Hostel, CVR University, Kota, Bilaspur
2025	Falguni S. Bhaskar	2, Moraya Apt, Sudarshan Nagar, Pune
2026	Dr. Sanja K Sharma	23, Anukampa, Jankpuri, Ajmer Road, Jaipur
2027	Maganti S. Rao	7-12-2, Mandava Street, Ward 15, Repalle, Guntur Dist.
2028	Adusumalli K. Rao	Chakkavari Palem, Nijampatnam, Guntur Dist.
2029	Goli Srinivasa Rao	SVRM College, Nagaram, Guntur Dist.
2030	Praseeda P.N.	Karuvilayil, Thodiyaoori, Kollam, Kerala
2031	Dr. Nitu Subhash Gupta	Ward 12, Main Road, Ashti, Wardha Dist.
2032	Prof. Sanjay S. Chevan	Sunitha Vihar I, Rajendra Nagar, Kolhapur
2033	Suneetha Dondapati	H8-17, Abhinava Enclave-2, Gandhipuram, Rajahmundry, A.P.
	Institutional Member IM-16	Varsity Education Management Limited Ayyappa Society, Madapur, Hyderabad.



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

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ISSUE-8 MAY- AUGUST 2017

The Periodic Table of the Elements, in Pictures