Special Edition

SRM UNIVERSITY
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98th INDIAN SCIENCE CONGRESS
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SPECTRUM

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Water and environment issues to be key thrusts of science in India: Prof. Pandey

PM to open 98th Indian Science Congress; 14 sessions to cover S&T

A Spectrum Reporter

With the focal theme of Quality Education and Excellence in Scientific Research in Indian Universities, the curtain goes up for the 98th Indian Science Congress meet at SRM University.

As many as 7,000 delegates including Nobel Laureates, eminent scientists of national and international repute, academics, research scholars and students from India and overseas will be participating in this mega annual event spread over five days. And staying with tradition the Prime Minister of India, Dr. Manmohan Singh, will inaugurate the Science Congress.

Prof. Pandey

Dr. Pachamuthu

Prof. Sathyanarayanan

There are many facets to this mega event. Besides the focal theme several plenary sessions will be held. Notable among them include Space, Science Policy, Engineering Science, Energy Security, Academia Industry Interaction and

↳ P2

Today's Schedule

10.00 am - 11.30 am
Inauguration by the Hon. Prime Minister of India, Dr. Manmohan Singh Venue : Main Pandal
11.30 am - 12.00 noon Tea Break
12.00 noon - 12.30 pm
Inauguration of Pride of India Exhibition
Visit to Pride of India Exhibition
12.30 pm - 2.00 pm Lunch, Sannasi Hostel
2.00 pm- 4.00 pm Plenary Session :
Science Policy Agenda for next Five years
Venue : Dr. T.P.Ganesan Auditorium
3.00 pm - 3.55 pm
Nobel Laureate Lecture Dr. Timothy Hunt
Venue: Main Pandal
4.00 pm - 4.15 pm Tea Break
4.15 pm - 6.15 pm
Plenary Session :
International Year of Chemistry - Chemistry of Future
Venue: Dr.T.P.Ganesan Auditorium
Plenary Session :
Challenges of Maintaining Quality Education
Venue: Main Pandal
6.15 pm - 7.05 pm
Nobel Laureate Lecture Dr. Ada Yonath
Venue: Dr.T.P.Ganesan Auditorium
7.05 pm- 8.00 pm Cultural Programme
Venue: Dr.T.P.Ganesan Auditorium
8.00 pm Dinner Sannasi Hostel

• Children's Science Congress - P2 • SRM University - P4-5 • Nobel Laureates - P7

Bridging the knowledge divide

Anuradha Parakat

India has the third largest scientific and technical manpower in the world. Almost 162 universities award 4,000 doctorates and 35,000 postgraduate degrees and the Council of Scientific and Industrial Research runs 40 research laboratories that have made some significant achievements. In the field of Missile Launch Technology, India is among the top five in the world.

Yet , India needs to accelerate its scientific growth to have new ideas and innovation. According to Mr. Kapil Sibal, India is lagging behind in science and technology compared to developed countries. India has only 140 researchers per 1,000,000 population. Another study by Mr. T C James, Dept. of Industrial Policy states that every year American universities obtain an average of 4000 patents and Indian institutions fail to get past the one hundred mark!

The science communicators meet , which is also called *Vigyan sancharak sammelan* is the 4th edition and promotes scientific writing and communication. The theme this year is *Public communication of scientific research- bridging the knowledge divide*.

The programme is being inaugurated by Dr Martin Chafie, 2009 Nobel laureate in chemistry, Columbia university on the January 4, 2.00 pm at the Mini Hall II. Prominent personalities at the inaugural session include Prof Sathyanarayanan, Vice Chancellor, SRM University, Dr K K Diwedi, DST, Prof K C Pandey General President-ISCA, and Ms. Vijaylakshmi Saxena, General Secretary ISCA.

Mr Sentil Kumaran , Director Information, Education and Communication, Delivers the BC Deb Memorial Award Lecture. There are other 24 speakers sharing their thoughts on how to communicate scientific research and create interest in the subject. The emphasis is on the media and there is the need to convey information on research in simple and easy language. Science Communication can be used as a tool for development, agriculture,transportation, medicine, health care, global peace and environment protection. It is essential to communicate science and technology in regional languages for them to reach the common people.

The meet engages the scientific community to transfer learnings confident that in due course the research will culminate in technical development that could be patented and commercialised. The convention also has the aim to inspire young minds to communicate more effectively and enhance writing skills.

(Ms Anuradha Parakat is Director, Corporate Affairs and Student Mentoring and Convenor of the Science Communicators Meet)

Motivating young minds

T.Mythili

Showcasing the talents of children from across India is one of the major ingredients of the Indian Science Congress.The Children Science Congress(CSC) to be held between January 4 and 6, 2011 will be inaugurated by Dr.Venkatraman Ramakrishnan, Nobel Laureate in Chemistry.

A main feature of the programme is the Science Exhibition where the creation of children will be displayed. These projects are the result of dedicated work of the children under the guidance of specially trained teachers. Eighty projects selected from National Council for Science & Technology Communication (NCST) and 25 projects selected by NCERT will be displayed at the CSC.

The National Children's Science Congress made its debut in 1993 at the initiative of National Council for Science & Technology Communication, Department of Science & Technology, Government of India. The CSC has been the flagship program of the NCSTC Network.

The primary objectives of the Children's Science Congress is to make a forum available to

children in the age-group of 10-17 years, both from formal school system as well as from out of school, to exhibit their creativity and innovativeness, particularly in their ability to solve a societal problem experienced locally using the method-of-science.

The projects should be innovative, simple and practical;represent teamwork; based on exploration of everyday life-situations;involve field based data collection;have definite outputs, arrived through scientific methodology;related directly to community work in the local community;and have definite follow-up plans.

With a view to motivating young minds committee members of this year's CSC have taken initiatives to ensure school children from in and around Chennai and Kancheepuram visit the exhibition .

One of the special features of this year's event is "Meet the Nobel Laureate", a unique programme where school children will get to interact with the Nobel Laureates.Another initiative planned is to bring out a booklet detailing the personal experiences of about 100 students who have displayed their projects.

(Prof T.Mythili is Head, Career Guidance Cell of SRM University and this year's Convenor of the Children Science Congress)

Water and environment issues to be key thrusts of science ...

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Climate Change. Apart from these, the Congress has 14 sectional sessions covering different areas of Science and Technology.

A Children Science Congress will be organised with a view to sensitise young minds on education and a career in science.

In his welcome message, Dr. T R Pachamuthu, Chancellor of SRM University, said, "Science is an international enterprise. Excellence in research and science in particular has to be ascertained. Needless to say that well-equipped laboratories are a must for excellent research. But equally important is that a scientific researcher should have a deep understanding of the fundamentals of the discipline and a never-ending thirst to pursue his research."

While giving out his message, Prof. P. Sathyanarayanan, Vice Chancellor of SRM University and Chair of the Organising Committee, 98th Indian Science Congress, said, "Research and teaching are simply different aspects of academic work. To teach effectively at the University level one needs to be actively engaged in research. Teaching and research are intertwined and are inseparable because the task of the Universities is not only to impact knowledge to the young people but also to give them opportunities to create their own knowledge." "The quality of research done in our universities needs to be greatly improved by providing necessary infrastructure, support and congenial environment to make really good innovations. It is not just the curriculum or the teachers that make the difference in quality education. It is the competitive spirit created by attracting the best students from all over India, creating a multi-cultural environment and cross learning from each other that pulls the students to the higher quality of learning," Prof Sathyanarayanan added. "Quality education should encourage the university students to acquire more knowledge and deep understanding of science subjects because a large higher education sector is our strength. For quality education and path-breaking research in India, high quality teachers with devotion and dedication who can stimulate the thinking process of their students are required," said Prof K C Pandey, the General President of the Indian Science Congress Association. Speaking to Spectrum, Prof. Pandey said, "The challenges of water resources management, environmental problems, information technology for rural development, energy security, quality research in life sciences, including medicare and above all population control will have to be the focal thrusts of science in India in future." "Teachers should perform their duties to the best of their abilities and with total commitment; and students should opt for science as their career to make a knowledge empowered, hunger free, healthy and developed India," he added.

Science Congress to focus on quality education and excellence in scientific research in Indian universities

According to the Concise Oxford Dictionary, 'to education' means "to give intellectual and moral training to." 'Education' to accordingly, is a "systematic instruction [for] development of character or mental powers". Quality education, besides imparting the latest progressive step about the subject taught, should encourage students to acquire more knowledge and deep understanding of the subjects studied.

Science is an international enterprise. Excellence in research in science has to be ascertained in what is being done in the field elsewhere. Needless to say that well-equipped laboratories are a must for excellent research. But equally important is that a scientific researcher should have a deep understanding of the fundamentals of the discipline. Teachers, besides providing knowledge of the subject, should also be able to stimulate the thinking process of their students.

A large higher education sector is our strength. The number of students of our country is the third largest in the world after China and the United States. We have a long academic tradition. But the weaknesses in education in general and science education in particular outweigh our strengths.

In many of our universities there is continued erosion of intellect and moral values. After Independence there has been an excessive increase in the number of students from primary to higher education levels. There has been no commensurate increase in buildings and other infrastructural facilities and teachers to cope with this increase. There has been a steep decline in academic standards and steep ascent of mediocrity. Academic standards, admission of students, appointment of teachers, etc. have been adversely affected due to intrusion of politics in the university campuses. Under-investment in libraries, laboratories and classrooms make it difficult to provide quality education to our boys and girls. There is need to strengthen inter-library loans among universities to stop spending money on buying multiple copies of essential journals in various subjects which are very costly.

I.I.Ts and other such institutions get many times more funding than does an average Indian University. These institutes have freedom to select a limited number of students through an all-India admission test. The number of trained students who come out of these institutions is very small in comparison to an Indian University which is starved of funds by most of the State Governments which 'control' them. The irony is that many of the products of I.I.Ts and other such institutions leave for overseas in search of greener pastures.

For quality education and path-breaking research India needs high quality teachers with devotion and dedication to the pursuit of knowledge and capacity to impart/transmit it to worthy recipients/students. The tendency to make temporary part-time teachers, guest lecturers, etc. and often freeze on the appointment of regular permanent teachers is very detrimental to our education system. Additional posts must be created as per need. Service of the teacher who excels, both teaching and research, during active service is rarely considered worth utilization after his retirement – a colossal national loss. Timebound or personal promotion, on the whole, has been detrimental as it has killed the desire among many teachers to excel by high-quality research. The moot point is can this system be scrapped? No, not at all! India has carried the load of mediocrity in higher education for decades. But even this moderately trained personnel have taken the country forward. However, it is not enough. Higher quality of science education and real excellence in scientific research is becoming important day-by-day. Private enterprise can create a limited number of institutions like the Tata Institute of Fundamental Research. It is the responsibility of the Government to allocate more funds for the education sector in general and in particular for higher education and research. To try to create a world class University from scratch instantaneously is a pipe dream. Harvard was not created in a day. It will be good to finance some of the existing Universities which are quite old and have done well with limited resources at their disposal.

Medium of instruction cannot be glossed over. We need proficiency in a foreign language for keeping abreast of what is happening in the scientific world. It can, without doubt, be only English. We have to devise effective ways to teach the language so that those who want to pursue a career in science should comprehend and express themselves through English reasonably well. One last point, in brief, relates to the accountability of teachers. There is hardly any way to ensure that teachers perform their duties to the best of their ability and with total commitment. This loose end needs to be tightened.

The 98th session of Indian Science Congress aims to address several thrust areas through plenaries, symposia, panel and round table deliberations to make India a knowledge empowered, hunger-free, healthy and developed country.

> "Higher quality of science education and real excellence in scientific research is becoming important day-by-day."

USIEF to award 125 Fulbright scholarships in 2011

Fulbright-Nehru and other Fulbright fellowships offer Indian students, academics, teachers and professionals excellent opportunities for study, research, teaching and professional development in the United States. The fellowships are offered in a variety of disciplines and provide a monthly stipend, round trip airfare, and some allowances. The Fulbright Programme was established in 1946 to "increase mutual understanding between the people of the United States and the people of other countries." United States-India Foundation (USIEF) since its inception in 1950 has awarded approximately 8,350 Fulbright Fellowships to Indians and Americans to date. The new India-U.S. bilateral Fulbright agreement signed on July 4, 2008, has resulted in a significant increase in the number of scholarships awarded each year- USIEF expects to award around 125 Fulbright-Nehru scholarships for Indians in 2011. In 2010, of 121 Fulbright-Nehru grants, 15 were awarded in the field of Agriculture and allied sciences. Fulbright-Nehru fellowships are jointly funded by the Governments of India and the U.S. Interested applicants should visit the USIEF website www.usief.org.in for application material, eligibility criteria and further information. The competition for the 2012-2013 Fulbright-Nehru and other fellowships will be announced in February 2011.

Young Scientist Award selection process changed

The process of selection for the Young Scientists Programme, below the age of 32 years, has undergone a change, from 2007. Applications for this programme have to be submitted by May 31, each year. These will be scrutinized by experts in the respective fields. On the basis of the reports of referees, a maximum of six young scientists in each section will be invited to present their research work during the meeting of the council of ISCA at Chennai.

The experts will evaluate the depth of the subject and presentation of the paper following which a maximum of fourteen awards will be selected. The award carrying cash Rs.25,000/- and a Certificate of Merit will be given away during the 98th Indian Science Congress.

SRM University - Excelle at home and beyond

Over the last 25 years SRM University has set standards in experiential learning and knowledge sharing across various fields. The institution has gone beyond borders to tie up with universities and corporates. Nurturing these relationships, it has inspired thousands of students with an international standard of education, world-class infrastructure and an industry-ready curriculum.

A continuous emphasis on modern teaching methods, global links for research, student exchange and knowledge sharing, and industry-institute interactions have consistently placed SRM students ahead in every field. This dedication to academic excellence brought accolades to the University. SRM University stands at the forefront of India's educational revolution, as the No.1 Private University in the country.

There are three sprawling campuses in Chennai and one near New Delhi spread across 600 acres with every facility. Around 25,000 students from across the country and the world pursue 187 wide-ranging disciplines. Students of SRM University can experience unparalleled freedom in choosing their own future. There are a wide variety of courses available ranging from certificate diploma undergraduate, postgraduate and doctoral programmes in the fields of Engineering and Technology, Medicine and Health Sciences, Management, and Science & Humanities. Cutting-edge specialisations like nanotechnology, bioinformatics, genetic engineering, remote sensing and GIS, embedded systems, aerospace engineering and computer forensics are a few to name.

SRM University is one of the few universities in the country that has an international network of advisors from various varsities and industries. Alliances with University of London, Queen's University and the Partners International. Healthcare (Harvard Teaching Hospitals) give the University an international dimension in terms of knowledge and student exchange

programmes, as well as joint research. Many of the courses are associated with collaborative projects like the "learning by discovery" education model, which was developed incollaboration with the Massachusetts Institute of Technology, USA.

The infrastructure is unparalleled The auditorium for example is one of the largest in South Asia with a seating capacity of 4000. There are two 16 storeyed buildings - one is the Tech Park that houses School of Computing and School of Electronics and Communication Engineering. The other is the University Building which has a world class library in addition to other facilities. The laboratories of Nano technology, Bio-technology, Genetic Engineering and Automobile Engineering have been set up with futuristic facilities. The smart class rooms take the learning process to a new level altogether.

The Semester Abroad Programme (SAP) and Faculty Abroad Programme (FAP) are very unique to SRM University. It gives students and faculty members an international exposure that takes them a long way. The foreign languages give SRM

ence

students an edge over their counterparts. The Personality Development Programme that is compulsory for all engineering students gives them holistic development and prepares them for not just their future career options but also to face life. SRM University aims to emerge as a leading world-class institution that creates and disseminates knowledge. It upholds the highest standards for instruction. Alongwith academic excellence, the curricula emphasise integrity and cultural sensitivity so that the graduates may best serve the nation and the world.

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ISCA - Origin and Growth

The founding of the Indian Science Congress Association (ISCA) was conceived with the foresight and effort of two British Chemists, namely, Professor J. L. Simonsen and Professor P. S. MacMahon. They felt that scientific research in India would be stimulated if an annual meeting of research workers similar to the British Association for the Advancement of Science could be arranged.

The Association was formed with the following objectives :

i) to promote the cause of science in India;

ii) to hold an annual congress at a suitable place in India;

iii) to publish proceedings, journals, transactions, etc;

iv) to popularise science.

The first meeting of the Congress was held from January 15-17, 1914 at the premises of the Asiatic Society, Calcutta, with the Honourable Justice Sir Asutosh Mookerjee, the then Vice-Chancellor of Calcutta University, as president. One hundred and five scientists from different parts of India and abroad attended. The 35 papers presented were divided into six sections Botany, Chemistry, Ethnography, Geology, Physics and Zoology under six Sectional presidents. From this modest beginning with hundred and five members and thirty-five papers communicated for reading at the first session, the ISCA has grown into a formidable fraternity with more than 22,000 members till date. The number of papers communicated for reading has risen to some 2,000. Of these there were 16 sections, two committees and six forums, namely Sections on Agricultural Sciences, Anthropology & Archaeology, Biochemistry, Biophysics & Molecular Biology, Botany, Chemistry, Computer Sciences, Earth System Sciences, Engineering Sciences, Material Sciences, Mathematics, Medical & Veterinary Sciences, Physics, Physiology, Psychology & Educational Sciences, Statistics, Zoology, Entomology & Fisheries, Committees-Home Sciences, Sciences & Society, Forums-Communication & Information Science, Environmental Sciences, Forensic Science, Science Education, Science for School Students and Women & Science.

There are now fourteen sections namely Agriculture and Forestry Sciences, Animal, Veterinary and Fishery Sciences, Anthropological and Behavioural Sciences (including Archaeology and Psychology & Educational Sciences and Military Sciences), Chemical Sciences, Earth System Sciences, Engineering Sciences, Environmental Sciences, Information and Communication Science & Technology (including Computer Sciences), Material Sciences, Mathematical Sciences (including Statistics), Medical Sciences (including Physiology), New Biology (including Biochemistry, Biophysics & Molecular Biology and Biotechnology), Physical Sciences, Plant Sciences and one Committee on Science & Society.

Silver Jubilee

The Silver Jubilee Session of the Science Congress was held in Calcutta in 1938. Lord Rutherford of Nelson was to be the General President of this Session. However, due to his sudden death, Sir James Jeans took the chair. It was at this Jubilee Session that the participation of foreign scientists in session of the Indian Science Congress was initiated.

Golden Jubilee

The Science Congress celebrated its Golden Jubilee in October,1963 in Delhi with Prof. D. S. Kothari as General President. On this occasion two special publications were brought out:

i) A Short History of the Indian Science Congress Association and

ii) Fifty Years of Science in India (in 12 volumes, each volume containing reviews of a particular branch of science).

Diamond Jubilee

The Diamond Jubilee Session of the Science Congress was held in Chandigarh during January 3-9, 1973, under the presidentship of Dr. S. Bhagavantam. On this occasion two special publications were brought out:

1) A Decade (1963-72) Indian Science Congress Association (with life-sketches of General Presidents)

And

2) A Decade (1963-72) of Science in India (published section-wise).

Platinum Jubilee

The Indian Science Congress Association celebrated its Seventy fifth year since its inception, what is other wise grandiosely called Platinum Jubilee, in 1988, with Prof.C. N. R. Rao as General President. A special brochure, entitled "Indian Science Congress Association Growth & Activities" was published so as to highlight the programmes of the Association over the Years. The main Programmes were:

i) Bringing out special publication on the occasion of the Platinum Jubilee;

ii) Presentation of plaques to the Past General Presidents of the Association

iii) Establishment of Platinum Jubilee Lectures to be organised in each section during the annual session of the Science Congress and

iv) Extension of the activities of the ISCA and its further diversification to generate scientific temper and popularise science.

Nehru presides

On the eve of Indian independence, the 34th Annual Session of the Indian Science Congress was held in Delhi in January 1947 with Pandit Jawaharlal Nehru, Prime Minister of India, as General President. Pandit Nehru's personal interest in the Science Congress continued and ensured his presence in every session for the rest of his life. He immensely enriched the activities of the Congress by his sustained interest in the development of scientific atmosphere in the country, particularly among young succeeding generations.

Interaction

From 1947, programme for inviting representatives from foreign societies and academies was included in the Science Congress. This trend still continues with the support of the Department of Science and Technology, Government of India. After Independence, ISCA has been actively represented in various foreign scientific academies/associations, like the British Association for the Advancement of Science, American Association for the Advancement of Science, French Academy of Sciences, Bangladesh Academy of Sciences, Sri Lankan Association for the Advancement of Science, etc. with a view to having a first hand knowledge on topics of mutual interest.

Focal Theme

The year 1976 witnessed a significant development in the trend of deliberations of the Congress. It was felt for quite a while that such a gathering of scientists, covering a wide spectrum ought to have in its agenda national issues that have scientific and technological implications. In 1976, Dr. M. S. Swaminathan, the then General President of ISCA introduced the Focal Theme of national relevance which is now discussed in every section, during the annual session. Apart from these, several Plenary Sessions are organised around various facets of the Focal Theme in which scientists and technologists as well as policy makers and administrators interact with one another. ISCA has thus become a platform where members from different disciplines and from different walks of life can contribute to discussions on the Focal Theme.

Task Force

Another significant breakthrough was made in 1980 when the Department of Science & Technology, Government of India, set up a permanent Task Force involving representatives of ISCA and chiefs of different agencies and voluntary organizations chaired by Secretary, DST, being responsible for following up various recommendations on the Focal Theme. Every year follow-up actions on recommendations made in the previous Science Congress are discussed at the General Session organized by DST during the Science Congress. Through this process, the Indian Science Congress Association has been contributing to the development of Science in general and to the National Science Policy in particular.

Young Scientist Award Programme

Indian Science Congress Association introduced the programme for Young Scientists from the 68th Session of the Indian Science Congress in 1981. The Programme enables Young scientists to present their research work with opportunities to exchange ideas in the relevant scientific problems with their counterparts and specialists. The ISCA Young Scientist Awards are given to candidates for making the best presentations. Fourteen such awards are given at present. The award amount has been enhanced from Rs. 5,000/- from 93rd session and now carries Rs. 25,000/- and a Certificate of Merit.

Presentation of Papers

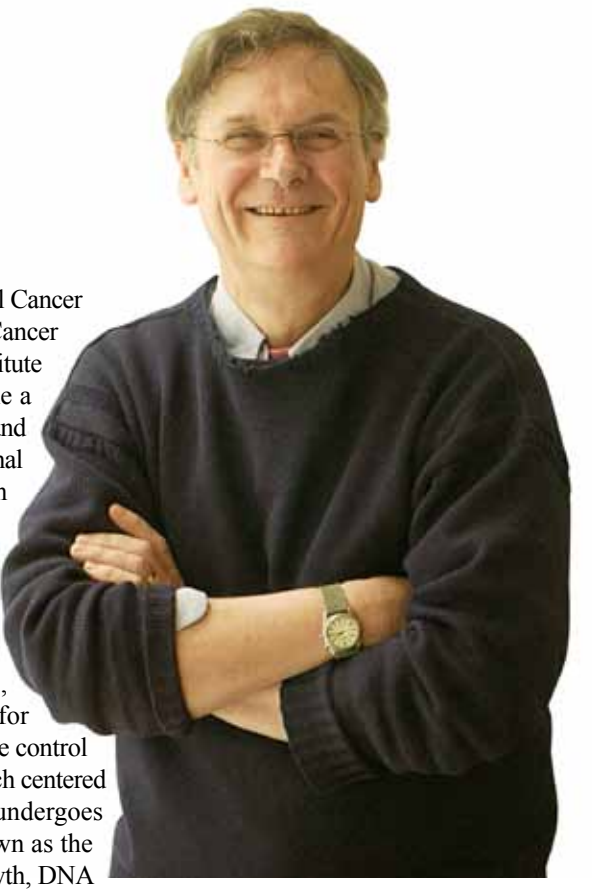
It was decided that generally most of the contributed Papers, which were accepted on the basis of a careful screening by the concerned Sectional Presidents with the help of participating experts would be presented by way of posters. Further, to encourage scientists it was decided that at most two Prizes of Rs.1,000/- in cash along with a certificate to be awarded to the best presentation in each Section from 86th Session. The award money has been enhanced to Rs 5,000/- from 94th Session.

ISCA Chapters

The Association started organising popular science lectures in different centres in India from 1962- 63. The scheme envisages constructive work for the popularisation and advancement of science throughout the year. Till 1985-86 these lectures were delivered at seventeen centres spread over the country. However, this was restructured with the formation of Regional Chapters from 1986-1987. One of the major objective of the ISCA is to inculcate the Scientific temper among the people and to encourage young scientists to grow up steadily in this direction involving them in the programmes relevant to fundamental, experimental and operational activities. With these objectives in view, ISCA started Chapters from 1986-87 in different places in India. At present ISCA has 22 Chapters.

MEET THE NOBEL LAUREATES

Hunt trying to understand cancer - cell development



Dr. Richord Timothy Hunt was born on 19th February 1943 in Neston Cheshire, England. In 1961, he was accepted into Clare College, Cambridge to study NaturalSciences, graduating in 1964 and immediately began work in the Department of Biochemistry, Cambridge under Asher Korner and working with scientists such as Louis Richard and Tony Hunter. A talk by Vernon Ingram (1965) interested him in haemoglobin synthesis, and at a conference in 1966, in Greece, on the subject he persuaded Irving London to allow him to work in his laboratory in New York, staying from July to October 1966. He finished his PhD in 1968 and again returned to New York to work with Irving London, where he collaborated with Nechama and Edward Kosower and Ellie Ehrenfeld. While there, they discovered that tiny amounts of glutathione inhibited protein synthesis in reticulocytes, and that tiny amounts of RNA killed the synthesis all together. After returning to Cambridge, he again began work with Hunter and Richard Jackson, who had discovered the RNA strand used to start haemoglobin synthesis.

After receiving Ph.D, he conducted research at the Albert Einstein college of Medicine in New York. He later taught at Cambridge (1981-90). While doing summer work in 1982, at the Marine Biological Laboratory at Woods Hole, Massachusetts, using the sea urchin egg as his model organism, he discovered the cyclin molecule. Hunt found that cyclins begin to be synthesized after the eggs are fertilized and increase in levels during interphase, until they drop very quickly in the middle of mitosis in each cell division. He also found that cyclins are present in vertebrate cells where they also regulate the cell cyclin.

In 1990, he began work at Imperial Cancer Research Fund, now known as the Cancer Research UK London Research Institute in the United Kingdom. He became a fellow of the Royal Society in 1991 and a foreign associate of the U.S. National Academy of Sciences in 1999. In 2001, he was awarded the Nobel Prize in Physiology or Medicine with Leland Hartwell and Sir Paul Nurse for their discoveries regarding cell cycle regulation by cyclin and cyclin-dependent kinases. In 2006, he was awarded the Royal Medal for discovering a key aspect of cell cycle control and the protein cyclin. Hunt's research centered on the chain of events that a cell undergoes from one division to another. Known as the cell cycle, the process includes growth, DNA duplication, and division. Concentrating on cyclins, the proteins that form and break down during the cell cycle, he was able to isolate the first cyclin in 1982 using sea urchins. Hunt discovered that cyclin binds to the Cyclin-Dependent Kinase (CDK) molecules discovered by Nurse, functioning as a biochemical enabling agent to activate the CDKs (key enzymes involved in many cell functions). Hunt also showed that the periodic degradation of cyclin is an important general regulatory mechanism in the cell cycle. By 2001, about 10 cyclins had been identified in humans. Hunt's work focuses on the understanding of cancer-cell development.

He has 38 primary research publications in reputed/ refereed Journals. He is now Principal Scientist at the Imperial Cancer Research Fund (now Cancer Research UK London Research Institute).

Yonath in a world of ribosome and antibiotics

Dr. Ada Yonath was born on 22nd June 1939 in Jerusalem, Israel. She graduated with bachelor's degree in Chemistry (1962) and a master's degree in Biochemistry (1964) from Hebrew University of Jerusalem and earned Ph.D in X-Ray Crystallography at Weizmann Institute of Science (1968). She has also accepted Post doctoral positions at the Carnegie Mellon University (1969) and MIT (1970). In 1970 she established protein crystallography laboratory in Israel. After returning from a sabbatical year at the University of Chicago, she headed a Max-Planck Institute Research unit in Hamburg, Germany (1986-2004) in parallel to her research activities at the Weizmann Institute, Israel.

She received first European Crystallography Prize in 2000, the Israel Prize for chemistry in 2002, the Wolf Prize in chemistry with George Feher in 2006, the Paul Ehrlich and Ludig Bamstaedter Prize in 2007. She became the first Israeli woman to win the L'Oreal-UNESCO award for woman in science for her vital work identifying how bacteria become resistant to antibiotics in 2008. She has also secured Harvey prize, the Kilby Prize, the Cotton Medal of the USA Chemical Society, the Anfinsen Award of the international protein Society, the Paul Karrer Gold medal from the University of Zurich, the University of Southern California's Massry Award and Medal, the Datta Medal of the Federation of European Biochemical Societies, the Fritz Lipmann Award of the German Biochemical Society and Louisa Gross Horwitz Prize from Columbia University.

Dr. Ada Yonath was the first Israeli woman awarded Nobel Prize in Chemistry in 2009 co-recipient with Thomas Steitz and Ramakrishnan for the studies of structure and functions of ribosome. She determined High-resolution structures of ribosome, universal dynamic cellular ribonucleoprotein complex, the cellular machines that translate the genetic code into proteins, revealed the decoding mechanism, detected the mRNA path, identified the sites of the tRNA molecules in the ribosome, elucidated the position and the nature of the nascent proteins exit tunnel, illuminated the interactions of the ribosome with non-ribosomal factors, such as the initiation, release and recycling factors.

Notably, her study on these structures proved that the ribosome is a ribozyme whose active site is situated within a universal symmetrical region. As this symmetrical region is highly conserved and provides the machinery required for peptide bond formation and for ribosome polymerase activity, it may be the remnant of the proto-ribosome, a dimeric prebiotic machine that formed peptide bonds and non-coded polypeptide chains. Structures of complexes of ribosome with antibiotics targeting them revealed the principles allowing for their clinical use, identified resistance mechanisms and showed the structural bases for discriminating pathogenic bacteria from hosts, hence providing valuable structural information for antibiotics improvement and for the design of novel compounds that can serve as antibiotics.

She has published 189 research papers/articles in reputed journals. She is now the Director of the Helen and Milton A.Kimmelman Center for Biomolecular Structure and Assembly of the Weizmann Institute of Science, Israel.

Scientists delivering special/ public lectures

1. Dr. Venkataraman Ramakrishnan
   2009 Nobel Laureate in Chemistry, Cambridge.
2. Dr. Thomas A. Steitz
   2009 Nobel Laureate in Chemistry
   Yale University, New Haven, CT, USA
3. Dr. Ada E. Yonath
   2009 Nobel Laureate in Chemistry
   Weizmann Institute of Science Rehovot,Israel
4. Dr. Martin Chalfie
   2009 Nobel Laureate in Chemistry
   Columbia University, U.S.A.
5. Dr. Amartya Sen
   Professor of Economics, Jadavpur University.
6. Dr.Timothy Hunt
   Cancer Research UK South Mimms, U.K.
7. Prof. Sukhdev Thorat
   Chairman, U.G.C, New Delhi
8. Mr. R. Chandrasekhar, IAS
   Secretary to the Govt. of India
   Dept. of Information Technology, New Delhi
9. Dr. Srikumar Banerjee (To be confirmed)
   Chairman, Atomic Energy Commission
   Department of Atomic Energy, Mumbai
10. Dr. G. Madhavan Nair
    Former Chairman, ISRO, Bangalore
11. Prof. S.K. Joshi
    Honorary JNCASR Vikram Sarabhai Professor
    National Physical Laboratory, New Delhi
12. Prof. J. Roettger
    Center for Space and Remote Sensing Research
    National Central University, Taiwan (R.O.C)
13. Prof. Iain Reid
    Adelaide University, Adelaide, Australia
14. Prof. Hassan Bencheriff
    Universite de La Reunion, La Reunion, France
15. Prof. Y.H.Chu
    Institute of Space Science
    National Central University, Taiwan (R.O.C)
16. Dr. Animesh Dhar
    Kansas City Veterans Affairs Medical Center,
    Kansas City, U.S.A.
17. Dr. Eric Howard
    University of Oklahoma Science Center
    Oklahoma City, U.S.A.
18. Dr. Addanki P. Kumar
    School of Medicine, U of T Health Science
    Center, San Antonio, Texas, U.S.A.
19. Dr. Balakrishna Lokeshwar
    University of Miami School of Medicine
    Miami, U.S.A.
20. Dr. Damodaran Chendil
    University of Kentucky
    Levington, Kentucky, U.S.A.
21. Dr. M.K. Mani
    Chief Nephrologist,
    Apollo Hospitals, Chennai
22. Prof. Mathur Kannan
    University of Minnesota
    Minneapolis, U.S.A.
23. Prof. Thomas M Murphy
    Duke University School of Medicine
    Durham, NC, U.S.A.
24. Prof. Newman L Stephens
    University of Manitoba
    Winnipeg MB, Canada
25. Prof Devendra K Agrawal
    Creighton University School of Medicine
    Omaha, U.S.A.
26. Dr. Pratap Challa
    Duke Medical Center
    Duke University, Durham, NC, U.S.A.
27. Mr. James Ridgway
    ECT, INC, U.S.A
28. Mr. John Jones
    JEM Environmental Systems INC, U.S.A
29. Dr. S. Kastury
    Tattahassee, Florida, U.S.A.
30. Dr. A.S. Reddi
    New Jersey Medical School, Newark
    New Jersey, U.S.A.
31. Dr. O.N. Paramasivan,
    Ortho Surgeon, Reepham, Lincoln, U.K.
32. Dr. Harish C. Panth, NIN DS,
    National Institute of Health
    Maryland, U.S.A.
33. Dr. Srinivas Pentyala
    Stony Brook Medical Center Stony Brook, U.S.A.
34. Dipak K. Banerjee
    School of Medicine
    University of Puerto Rico, San Juan, U.S.A.
35. Prof. Koichi Kato
    Okazaki Institute for Integrative BioScience
    Okazaki, Japan
36. Dr. Jamboor Viswanath
    University of North Texas Health Science Centre,
    Fort Worth TX, USA
37. Dr. Hafiz Ahmed
    University of Maryland School of Medicine
    Battimore MD, U.S.A.
38. Dr. Jens Wickert
    Geo Forschungs Zentrum Potsdam (GFZ)
    Potsdam, Germany
39. Dr. Prahlada
    Chief Controller of Research & Development
    Defence Research & Development Organisation,
    New Delhi
40. Dr. V. Bhujanga Rao
    Distinguished Scientist & Director
    Naval Scientific & Technical Laboratory,
    Visakhapatnam
41. Prof. U. C. Mohanty
    Centre for Atmospheric Sciences
    Indian Institute of Technology, New Delhi
42. Prof. S.K.Tandon
    Pro Vice-Chancellor, University of Delhi, Delhi
43. Prof. G.S.Agarwal, FRS
    Nobel Foundation Chair & Regents Professor
    Oklahoma State University, Stillwater, OK, U.S.A.
44. Dr. Elizabeth Pearce
    88 East Newton St, Boston, MA, USA 02118
45. Dr. Subimal Dutta
    Boston University School of Medicine
    85 East Newton St, Boston, MA 02118
46. Dr. Chun Scow
    University of British Columbia
    Van Couver, BC, Canada
47. Dr. B. Mark Evers
    Director Markey Cancer Center
    University of Kentucky College of Medicine
    Lexington, KY, USA, 40506
48. Dr. Ruiwen Zhang
    Professor and Chair, Pharmacology and
    Toxicology, Texas Tech University Health Science
    Center, Amarillo, TX 79106
49. Prof. Allam Appa Rao, Vice-Chancellor
    Jawaharlal Nehru Technological University,
    Kakinada
50. Dr. S.V. Gopal
    Retina Specialist, Sankara Netralaya, Chennai
51. Dr. Vijaya
    Glaucomologist, Sankara Netralaya, Chennai

Science Exhibition

The achievements of Science and Technology should ultimately benefit the society at large. In this regard, the Indian Science Congress serves as a platform towards inspiring the students, academicians and the common man to appreciate the value of science and to cultivate scientific attitude. The Science Exhibition will be one of the major events of the 98th Indian Science Congress. The prominent developments, major achievements and the significant contributions largely of Indian Science and Technology to the Society will be showcased by leading scientific institutions, Government Departments, national, international, state as well as public and private agencies and laboratories that are expected to participate in the Exhibition. This Exhibition will focus on India's development, especially the country's recent emergence as a major power in different areas of Science and Technology. The exhibition will be intended for the scientists and technologists, different sections of the society, especially the large student community. This exhibition will provide a wealth of learning to all the visitors, the student community being the special focus.

Sectional Sessions and Symposia

Sl. No.	Section	Topic for Symposia
1.	Agriculture and Forestry Sciences	i. Quality Education and Excellence in Agricult rural Research in India for enhanced Capability and Competitiveness ii. Sustaining Agricultural Productivity in the Tropics in the face of Climate Change"
2.	Animal, Veterinary and Fishery Sciences	Maintaining Quality Education Through Innovative Research in Animal Sciences
3.	Anthropological and Behavioural Sciences (including Archaeology and Psychology & Educational Sciences and Military Sciences)	i. Visions and challenges of Anthropological Studies in 21st Century ii. Prospects and Perspectives of Anthropological Education and Researches in India
4.	Chemical Sciences	Frontiers of Chemistry : Molecules, Materials, and Drugs
5.	Earth System Sciences	i. Climate Change Scenarios of Indian coast Line and its Impaction on Andaman and Lakshdeep Island ii. Alternate Energy Resources : Gas hydrate, Geothermal energy and Ocean Energy
6.	Engineering Sciences	Sustainability issues (Ethical, Environmental, Social Economic etc.) in Education and Research
7.	Environmental Sciences	Impact of anthrapogenic activities on Biodiversity and Climate
8.	Information and Communication Science & Technology (including Computer Sciences	Information Technology Empowering Society & People
9.	Materials Science	i. Nanostructured Materials for Multifunctional Applications ii. Advanced Materials for Energy, Environmental and Smart Sensors
10.	Mathematical Sciences (including Statistics)	i. Number theory, Combinatorics and Special Functions. ii. Analysis : Some recent Facets iii. Econometrics and time series
11.	Medical Sciences (including Physiology)	i. Modern Trend in Endocrinology & Reproductive Physiology Research ii. Health & Disease : State of – the – art
12.	New Biology (including Biochemistry, Biophysics & Molecular Biology and Biotechnology)	Omic Research in Biology for Health and Environment
13.	Physical Sciences	Vibrational Spectroscopy: An excellent tool for Characterisation of biomolecules
14.	Plant Sciences	I. Plant Sciences : Biodiversity to Biotechnology. Ii. Plant in Ethics and Human Welfare.