

An Aerial View of
SAHYADRI CAMPUS



Sahyadri campus is located at Adyar, 7 kms from Mangaluru City, making it one of the nearest Engineering colleges to the city. This is the only city well connected by air, train, road and sea transport in the state of Karnataka. The sprawling campus just off the Mangalore-Bangalore National Highway 48 is situated on the banks of the river Nethravathi. Surrounded with nature's pristine beauty and an excellent infrastructure coupled with dedicated and experienced faculty has made the Campus a much sought-after abode of learning.

QR CODE - WEBSITE



To know more about conclave
visit the website www.sahyadri-conclave.com



SAHYADRI

COLLEGE OF ENGINEERING & MANAGEMENT

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SAHYADRI CONCLAVE
SCIENCE • TECHNOLOGY • MANAGEMENT

Graced by Nobel Laureates & Turing Awardee



Prof. Ada Yonath
Nobel Prize in Chemistry



Prof. Serge Haroche
Nobel Prize in Physics



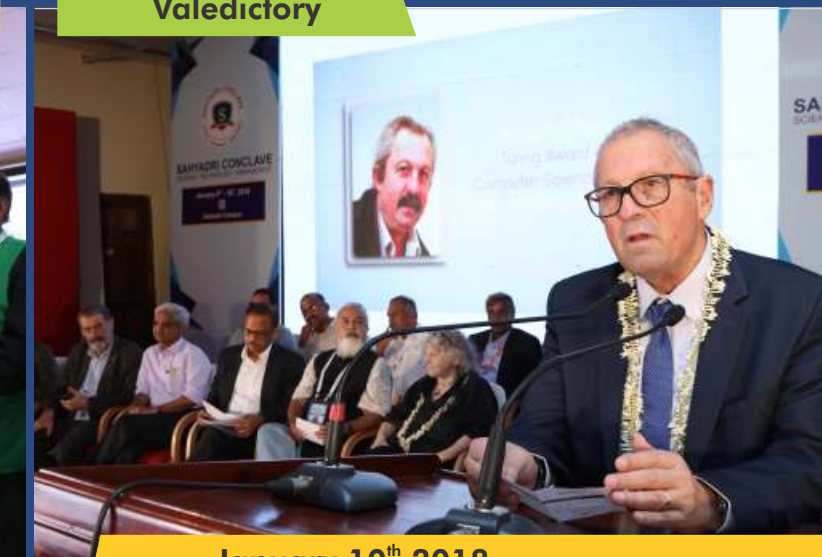
Prof. Joseph Sifakis
Turing Award in Computer Science

Inauguration



January 6th 2018

Valedictory



January 10th 2018



SAHYADRI
COLLEGE OF ENGINEERING & MANAGEMENT
MANGALURU





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Mr. Manjunath Bhandary, M.Phil., Ph.D.
Chairman
Sahyadri College of Engineering & Management

Sahyadri College of Engineering & Management is the flag bearer of quality education in the coastal Karnataka. With its vast, sprawling campus on the banks of quietly flowing river Nethravathi, modern, aesthetically designed buildings, state-of-the-art research and development centers, Sahyadri represents truly innovative academic ambience for those who would be the future builders of the nation. The college has Academic MoU with various National, International Universities and also has collaborations with leading Corporate & Industries that have given a tremendous boost to the students for innovation, research, certifications, internships and hands on experience. The Institute is committed to benchmark with best practices in teaching – learning processes towards holistic development of the institution. We continuously strive to meet or exceed the expectations of all stake holders. Sahyadri is able to attract best talented students, extend quality infrastructure, resource and training to make them industry ready so as to face the future challenges.

The Sahyadri Conclave is an exceptional opportunity to interact with Nobel Laureates, eminent scientists, innovators and recognized experts from both Industry and academia to learn about the latest advances in the field of basic sciences, engineering and technologies and its applications.

Sahyadri Conclave

The inception of Sahyadri Conclave was done to nurture a vision that will foster new ideas, inspire scientific inquiry, enable the critical examination of scientific question and activities from a new point of view and directions for a better tomorrow, in addition to establishing and encouraging personal contacts.

The “Sahyadri Conclave” is an initiative to popularize Science, Technology & Management amongst the masses and create an awareness regarding its impact on Socio-economic levels for a sustainable development of the nation. It provides a platform for budding young scientists and managers to deliberate on a panel discussion on varied topics of Science, Technology and Management. Interactive sessions presented by the Nobel Laureates, Turing Awardee, Renowned Scientists and Industrialist relating to various application oriented themes and issues were discussed.



Conclave Themes

Day 1: 7th Jan 2018



Water

Water is the most precious gift to the humanity by the nature. Life on the earth is possible only because of water. Three-fourth surface of the earth is covered by the water even after people are suffering from water scarcity in many regions of India and other countries. Sahyadri Conclave is identifying water issues and sharing the best practices in water use efficiency in agriculture, industry and urban area.

Day 2: 8th Jan 2018



Energy

Energy is the main requirement of humans ever since humans invented steam engines and electricity. Most of the manually done tasks are now replaced by machines that frequently require electrical energy or fossil combustion. The Energy theme in the science conclave is to address the issues currently faced and also explore the opportunities to work towards energy efficiency or alternative energy sources.

Day 3: 9th Jan 2018



Environment

Rapid industrialization and other allied human activities has offered significant challenges towards conservation of environment. The onus also lies with academic institutions to bring awareness to students by organizing distinguished workshops and conclaves. The Environment theme in Sahyadri Conclave is to identify issues and sharing the best practices that could be inculcated to conserve environment.

Day 4: 10th Jan 2018



Health

Today almost all the countries across the world face new challenges in the provision of preventive and curative health services. Life style, Migration, ageing populations, climate change, political & economic policies all threaten the provision of high quality, affordable and equitable health care services. There is a need for innovations and implemented throughout health and social care systems.



About Sahyadri College

Sahyadri College of Engineering & Management is in existence since a decade, being recognized by AICTE, Government of India, affiliated to VTU, Government of Karnataka, NAAC accredited with "A" Grade and certified by ISO.

The Sahyadri college has Academic MoU with various National, International Universities and also has collaborations with leading Corporate & Industries that have given a tremendous boost to the students for innovation, incubation, internships, research, projects and hands on experience.

Sahyadri encourages students to "Walk-in with the Idea and Walk-out with the Product". The College aims at imparting Project based learning, thus enabling students to understand the process of learning concepts.

Students right from day one are offered an opportunity to take part in the events held at IIT's, NIT's and SAE events, thus improving their analytical skills, connectivity and gain exposure across the globe. The total student and staff strength at campus is nearly 4000.

Unique initiatives taken by the Institute

Sahyadri Science Talent Hunt (SSTH) is an event to motivate the PU (10+2) students towards innovation and creativity with participants from across Karnataka, with over 400 student projects funded by the college management for 200 colleges and more than 10000 students.

Sahyadri Center for Social Innovation (SCSI) is to motivate the students in the area of Social Innovations by providing hands on experience and practical exposure to solve socially relevant problems. With the problems growing in the society, the engineers should have solutions ready kits to solve those problems and thereby create an ideal environment to evolve.

Hand-on Experience Lab: It is built on the lines of "Make in India" concept where students are encouraged to pursue their ideas and innovate continuously. In order to bridge the gap between theory and technology, the college has initiated this lab. It is a full-fledged 24X7 technical workspace.

Student Project Support Scheme (SPSS): is mainly initiated to impart project based learning from Day one of Engineering. This scheme is driven by the concept of Project to Product on completion of engineering course, with funding support from the college management. Nearly 600-700 Projects under this scheme are being done by our students.

Innovation Center: To meet the new and existing market requirements, Innovation is the application to find better solutions. Similarly, students at the institute with innovative ideas and those who have the potential to move projects from research to development are encouraged in this platform provided. These innovative ideas are mentored and guided by the faculty members and industry personnel.

Incubation Centre: To further motivate and encourage the students, their innovative ideas, which are obtained by societal visits, are incubated at the incubation centre. These are further converted into products and are hand held by the industries that are well established at the campus.

Entrepreneurship Cell - E-Cell: The Sahyadri e-Cell aims to ignite the creative thinking of students towards innovation and thereby mentoring them to become successful entrepreneurs by providing the right entrepreneurial ecosystem.

Start-ups: The products materialized to be a start up. Many start-ups have been established at Sahyadri E-Cell by the students of the institute.



The Aesthetic Hub of KNOWLEDGE



Sahyadri College of Engineering & Management is the flag bearer of quality education in the coastal Karnataka. With its vast, sprawling campus on the banks of quietly flowing river Netravathi, modern, aesthetically designed buildings, state-of-the-art research and development centers, Sahyadri represents truly innovative academic ambience for those who would be the future builders of the nation. The college has Academic MoU with various National, International Universities and also has collaborations with leading Corporate & Industries that have given a tremendous boost to the students for innovation, research, certifications, internships and hands on experience. The Institute is committed to benchmark with best practices in teaching-learning processes towards holistic development of the institution. We continuously strive to meet or exceed the expectations of all stake holders. Sahyadri is able to attract best talented students, extend quality infrastructure, resource and training to make them industry ready so as to face the future challenges. **The Sahyadri Conclave** is an exceptional opportunity to interact with Nobel Laureates, eminent scientists, innovators and recognized experts from both industry and academia to learn about the latest advances in the field of basic sciences, engineering and technologies and its applications.

Sahyadri is well complemented by the state-of-the-art infrastructure and modern facilities like Govt. Research Center, Incubation, Placement & Training Center, Mech Tech Garage, Sahyadri Center for Social Innovation which includes Hands on Experience Lab, Life Science Lab, Innovation Lab, and Product Design Lab.

To a great extent, the success of the College must be credited to the excellent academic results year after year. The College is unique and is one among the few who can take pride in having a dedicated department for researching, analyzing and developing effective methods of imparting quality education.

The College campus is aesthetically constructed, in the contemporary style. Courtyards provide open-to-sky in the middle, spacious class rooms with good ventilation even on the ground floor. All the spaces of the college remain well-lighted with natural light, not depending upon any artificial lights during daytime. Well-equipped laboratories, spacious library, seminar halls, and auditorium with all modern acoustic facilities, Food court & cafeteria and well developed sports facility indoor & outdoor gym are provided in the campus.

Sahyadri has started an Entrepreneurship Cell to ignite the creative thinking of students towards innovation and thereby mentoring them to become successful entrepreneurs by providing the right entrepreneurial ecosystem.

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Manjunath Bhandary, Chairman, Sahyadri College of Engineering and Management, Mangaluru

“ Sahyadri Conclave-2018 is a cerebral gathering of scientists and students that aims to impart knowledge of science and technology in order to create awareness of how the knowledge could be harnessed to produce efficient engineers, technocrats and scientists who could add value proposition in the growth and development of the country. It also aims to provide practical exposure and know how on best practices used by industries on how scientific advancement are percolating in the society by the intervention of the industries. The amalgamation of scientists, technocrats, managers and students from across the country would aim at holding highly motivating interaction that could instill the mind of the participants to appreciate the excitement of scientific research/ investigation such that it compels them to think for their career progression in the direction of scientific advancement & allied technology.

Dr. U M Bharti, Principal, Sahyadri College of Engineering and Management, Mangaluru

About Sahyadri Conclave

Sahyadri Science Conclave was initiated with a vision that will foster great new ideas, ignite scientific inquiry, enable the critical examination of societal problems and scientific solutions for a better tomorrow. Sahyadri Conclave brought together Nobel Laureates, Turing Awardee, internationally renowned Scientists and Management experts into one rare platform. Students and teachers from high schools, pre university, undergraduate and post graduate institutions made use of this golden opportunity and actively participated in the deliberations from January 6-10, 2018 and experienced the excitement of scientific investigations leading to fruitful results to the entire world community. Young and energetic student community got a wonderful exposure, experience and confidence to find solutions to problems threatening the sustainability of our mother earth.



Proceedings

Sahyadri Conclave began with an inaugural function on Jan 6, 2018 at 4:00 pm in the august presence of Nobel Laureates, Eminent Scientists, Technocrats and industrialists and policy makers. During the next four days, the theme of water was deliberated on January 7, the theme of energy on January 8, the theme of environment on January 9 and the theme of health on January 10. On all the four day every morning plenary sessions began with the talks by Nobel Laureates followed by two sessions of eminent scientists and a panel discussion. Parallel technical sessions were happening at five different locations.

The plenary and technical sessions were enriched with a series of exhibitions to have a practical feel to enthuse and arouse interest among the students. Further, on all the four days after the sessions there were cultural programmes. On the concluding day, sessions ended with closing ceremony at 1.00pm.



SAHYADRI CONCLAVE CELEBRATING DISCOVERY

PROCESS FLOW AND DELIVERABLES

Taking a step ahead, Sahyadri Science Conclave is aimed to provide opportunity for about 800 students from different institutions and schools, research scholars and teachers from different disciplines of Science, Technology and Management to come together and interact with Nobel Laureates, Scientists and Management experts to foster lateral thinking. The intellectual gathering of scientists and students from across the country provides a rare platform for interaction and expose the students to the excitement of scientific research/investigation and motivate them to take up study of science, technology and management and take teaching/research as their career options.

The conclave will throw light upon 4 core issues related to Water, Health, Environment and Energy. This event will address constructive and progressive approaches to ensure conservation and sustainability on the above mentioned themes. A major motivation for the conclave is to learn from past failure, to avoid repeating similar mistakes while attempting to prevent emerging threats to environmental and ecological systems.

The deliberations, technical sessions will also be augmented with series of exhibitions to have a practical feel to enthuse and arouse interest through:

- Planetarium from DST, Karnataka
- "BrahMos" Exhibition from DRDO
- Indian heritage
- "KRADLE", renewable Energy Exhibitions
- Butterfly Exhibitions

The "People's President" Dr. A.P.J. Abdul Kalam might not be with us anymore, but he will always be alive in the ambitious plans he made for our country. India Vision 2020, prepared under the chairmanship of our "Missile Man", was aimed at transforming India into a developed country focusing on core areas for social, scientific and economic development through an innovation-driven culture. Sahyadri Science Conclave is an humble effort to realize his vision.

Expected Outcome and journey ahead

- To bring together Nobel Laureates, Scientists, Management Experts and students under one conducive platform to encourage meaningful dialogue amongst themselves.
- To promote the importance of values in science education so that the learners will be future-ready for the exciting world which they will live and work in
- Motivating students to take up Science as a career and make them understand that Research is nation building.
- To create, ideate, innovate your own project, relentlessly work and proactively deliver.
- Bridging the gap between prototypes to world class product.

The inception of Sahyadri Science Conclave was to nurture a vision to foster new ideas, inspire scientific inquiry, enabling the critical examination of scientific questions, activities from a new point of view and directions for a better tomorrow. In addition establish encourage personal contacts.

The "Sahyadri Science Conclave" is an initiative to popularise Science & Technology amongst the masses and create an awareness regarding its impact on Socioeconomic for a sustainable inclusive development of the nation.

It will be providing a platform for budding young scientists and managers, deliberate on a panel discussion on varied topics of Science, Technology and Management, lectures presented by the Nobel Laureates, Scientists and Question & Answer sessions relating to various application oriented themes.

The word "science" probably brings to mind many different pictures: a fat textbook, white lab coats and microscopes, an astronomer peering through a telescope, a naturalist in the rainforest, Einstein's equations scribbled on a chalkboard, the launch of the space shuttle, bubbling beakers in the chemistry Lab... All of those images reflect some aspect of science, but none of them provide a essence of it as big picture because science has so many facets.

Science is a way of discovering what's in the universe and how they worked in the past, how those things work today and how they will work for the next generations.

In school, science may sometimes seem like a collection of isolated and static facts listed in a textbook, which is often boring and students tend to lose interest in this wonderful subject.

To help the young minds better understand that Science is Exciting, Useful, Ongoing and a Human Endeavour.





Sahyadri Conclave was very much successful in sensitizing everyone who participated **“In the process of economic growth how we have destroyed the ecological balance and endangered the sustenance of human kind on this earth planet”**. The five days conclave threw light on various issues and problems related to the themes- **Water, Energy, Environment and Health** and also addressed constructive and progressive approaches to ensure conservation and sustainability of this earth planet. Students in particular, learnt about the damages done to this planet and were inspired to prevent emerging threats to environmental and ecological systems.



The conclave has provided a conducive platform to encourage meaningful dialogue amongst Nobel Laureates, scientists, management experts which in turn, has inspired hundreds and thousands of students to take up exciting world of Science and research as a career for nation building. The deliberations, discussions and interactions with Nobel Laureates, scientists, policy makers, practitioners and management experts brought out the importance of values in science education and research. The fruits of which would be used for the well being of the entire world community through innovative and environmental friendly projects and products. The entire exercise of conceiving, planning, organizing, executing and managing this grand conclave as a successful international event was a great learning for our students, teachers as well as supporting staff.

Empowering Young Minds

...for a better tomorrow

Dr. APJ Abdul Kalam
India Vision 2020



SAHYADRI CONCLAVE

SCIENCE • TECHNOLOGY • MANAGEMENT

Highlights of Conclave

Summary

- 2 Nobel Laureates
- 1 Turing Awardee
- 10 International Renowned Scientist
- 90 Management Experts
- Theme based Panel Discussions
- Technical & management Sessions
- Interaction with Students & Faculties

Exhibitions

- Planetarium from DST, Karnataka
- “BrahMos” Exhibition from DRDO
- “KRADLE”, renewable Energy Exhibitions
- Butterfly Exhibitions
- Technical Exhibition from Sahyadri Students
- Innovation Product from Start-ups companies
- Vedic Science on the River Bank



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SAHYADRI CONCLAVE

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**GRAND
INAUGURAL
CEREMONY**
6TH JANUARY 2018



A Grand Inauguration of Sahyadri Conclave

Swami Jitakamanandaji, President, Ramakrishna Mission, Mangaluru inaugurated Sahyadri Conclave by Lighting the Lamp in the august presence of Nobel Laureate Ada E Yonath, Nobel Laureate Serge Haroche, Shri. Basavaraj Rayareddy, Hon'ble Minister for Higher Education, Govt. of Karnataka, Shri. M. R. Seetharam, Hon'ble Minister for Planning, Statistics, Science and Technology, Govt of Karnataka, Dr. Murlidhar Tiwari, Former Director of IIIT, Allahabad & Dr. Shashikiran Shetty, Founder & Chairman, Allcargo Logistics, Mumbai. Speaking on the occasion, Swami Jitakamanandaji appreciated Sahyadri for its student-centric & knowledge-centric approaches, and he admires Chairman, Manjunath Bhandary for his passion to impart knowledge to students. Shri. Basavaraj Rayareddy in his inaugural address congratulated the institution for bringing together under one roof of Sahyadri, the Nobel Laureates, and Internationally renowned Scientists & Management Experts. He also shared the importance of Science & Technology and how it has impacted life for better.





SPEAKERS | SAHYADRI CONCLAVE 2018

SCIENCE | TECHNOLOGY | MANAGEMENT



Speakers – Science & Technology

| Sl.No. | Name |
|--------|---------------------------------|
| 1 | Ada E. Yonath, Nobel Laureate |
| 2 | Joseph Sifakis, Turing Laureate |
| 3 | Serge Haroche, Nobel Laureate |
| 4 | Shankara K Prasad |
| 5 | Padmashree Anant Agarwal |
| 6 | Anish Arora |
| 7 | Anoor Anantha Krishna Sharma |
| 8 | Antony PiriyaKumar |
| 9 | Anuradha Agarwal |
| 10 | B. A. Hasanabba |
| 11 | Bashir Ahmed |
| 12 | C.D. Balaji |
| 13 | D. P. Agrawal |
| 14 | Deva P Sitharam |
| 15 | Dipshikha Chakravorty |
| 16 | Gopal Hegde |
| 17 | Hari Krishna Maram |
| 18 | Jagadeesh Gopalan |
| 19 | K Byrappa |
| 20 | K. Chidananda Gowda |
| 21 | Kavi Mahesh |
| 22 | Hisashi Yanasaki |
| 23 | Kiran Thamankar |
| 24 | Kapil Dev Sharma |
| 25 | M. V. Subramanian |
| 26 | S M Sunder Moorthy |
| 27 | M.N. Vidhya Shankar |
| 28 | NN Kumar |
| 29 | Nataraja Karaba |
| 30 | Prahlada Rama Rao |
| 31 | Prakash Bettadapur |
| 32 | Rajashekar Hiremath |
| 33 | Ramakrishna YB |
| 34 | Robert C. Richardson |
| 35 | S. N. Omkar |
| 36 | S. S. Murthy |
| 37 | Sanjay Sahay, IPS |
| 38 | Satish K. Tripathi |
| 39 | Satya Prakash |
| 40 | Suresh Nagesh |
| 41 | T.G. Sitharam |
| 42 | U. Chandrasekhar |
| 43 | V Krishna |
| 44 | V Krishnamurthy |
| 45 | VeerabhadraYadwad |
| 46 | Yugratna Srivastava |
| 47 | Rajendran D |
| 48 | Anand Venugopal |

Management

| Sl.No. | Name |
|--------|---------------------|
| 1 | Sandeep S.P |
| 2 | H. V. Dinesh Prasad |
| 3 | Amar Kumar Pandey |
| 4 | Rahul Kini |
| 5 | Chethan Shenoy |
| 6 | Bharath Shivappa |
| 7 | Dileep Chandra |
| 8 | B. K. Ravindra |
| 9 | Anita Pai |
| 10 | Ananth Ravi |
| 11 | Kamlesh Manuja |
| 12 | Prashanth Prakash |





Prof. Ada E. Yonath
Nobel Laureate

Speaker Profile

Prof. Ada E. Yonath was graduated in chemistry in 1962 and master degree in biochemistry in 1964 from the Hebrew University, Jerusalem. She obtained her PhD in the year 1968 in the field of crystallography from Weizmann Institute of Science, Israel. She then joined as postdoc at Massachusetts Institute of Technology where she started working on the structure of ribosomes using X-ray crystallography. She has worked for different positions during her tenure as a scientist, senior scientist, associate professor and director in the department of chemistry at the Weizmann Institute.

She is currently the director of Helon & Milton A Kimmelman Centre for Biomolecular Structure & assembly, Weizmann Institute of Science, Israel. She is best known for her exclusive and pioneering work on the structure and function of



the ribosome. Ribosomes are tiny particles made up of RNA and proteins that specialize in protein synthesis and are found free or bound to the endoplasmic reticulum within cells..

Prof. Yonath's achievements include the designing of a new technique-cryocrystallography. Using this technique, the protein crystals can be rapidly cooled upto-200 degrees which overcomes the limitation of X-ray damaging of protein crystals that

was associated with previously existing X-ray crystallography. With this discovery of cryocrystallography, she was responsible for designing the only lab with high resolution analysis for over a decade throughout the world.

Prof. Yonath was elected as a member of the Israel Academy of Sciences and Humanities in 2000 and the U.S. National Academy of Sciences in 2003. In addition to the 2009 Nobel Prize, she received numerous other honours and awards throughout her career, including the Louisa Gross Horwitz Prize for Biology or Biochemistry in 2005, the Paul Ehrlich and Ludwig Darmstaedter Prize in 2007, and the Albert Einstein World Award of Science in 2008.



Dear wonderful academicians and scientists many thanks for inviting me and for your care and concern. I hope that by now you love even the ribosome

Session Topic “Fruits of Curiosity” and “Ecofriendly antibiotics”

Prof. Yonath in her talk on “Fruits of Curiosity” said that, she focused all her work in the field of understanding the mechanism of protein synthesis. As a young scientist she was curious about how is the protein synthesized in a cell when in needed, though it was well established that the RNA codes for the synthesis of protein. She explained that in all her work she concentrated on the mechanism and finally determined the high-resolution structure of the two asymmetric ribosomal subunits which organize themselves when the protein synthesis is needed. Madam explained the complete mechanism of protein synthesis as the coding passes through the active site of the ribosome framework formed by the two ribosomal subunits where the decoding happens and the protein is formed. After the protein is synthesized the tRNA interferes in the decoding process and the

protein is released along with the detachment of the two ribosome subunits.

With the discovery of the mechanism of ribosome involvement in the protein synthesis, she also explained how the antibiotics target the protein biosynthesis in the bacterial cells and hence kills the cells. She also elucidated the different modes of action of different functioning antibiotics which targets the protein biosynthesis. With satisfaction

in her eyes madam says that the novel results obtained was the sweet fruit of her curiosity and was awarded Nobel prize for her spectacular findings.

Speaking on the topic “Ecofriendly antibiotics” and on “Basic science to advance medicine” she said that during her work on ribosome structure and function elucidation, she also found out certain binding sites which were unique and present only in the pathogenic bacterial and hence can be potential sites for the modern antibiotics as the existing antibiotics are facing the drug resistant era. This discovery has showed a new spark as it can be a key for clinical usefulness and therapeutic effectiveness. This shall pave a way for many new structure-based drug designs. It shall answer the most dangerous threat to antibiotics i.e. drug resistance and start a new era of modern antibiotics.





Prof. Joseph Sifakis
Turing Awardee
Speaker Profile

Prof. Joseph Sifakis is Emeritus Senior CNRS Researcher at Verimag. His current research interests cover fundamental and applied aspects of embedded systems design. The main focus of his work is on the formalization of system design as a process leading from given requirements to trustworthy, optimized and correct-by-construction implementations. Joseph Sifakis has been a full professor at Ecole Polytechnique Fédérale de Lausanne (EPFL) for the period 2011-2016. He is the founder of the Verimag laboratory in Grenoble, which he directed for 13 years. Verimag is a leading research laboratory in the area of embedded systems, internationally known for the development of the Lustre synchronous language used by the SCADE tool for the design of safety-critical avionics and space applications.

In 2007, Prof. Sifakis received the Turing Award for his contribution to the theory and application of model checking, the most widely used system verification technique today. Prof. Sifakis had numerous administrative and managerial responsibilities both at French and European level. He has actively worked to reinvigorate European research in embedded systems as the scientific coordinator

of the « ARTIST » European Networks of Excellence, for ten years. He has participated in many major industrial projects led by companies such as Airbus, EADS, France Telecom, Astrium, and STMicroelectronics.

Prof. Sifakis is a member of the French Academy of Sciences, a member of the French National Academy of Engineering, a member of Academia Europea, a member of the American Academy of Arts and Sciences, and a member of the National

Academy of Engineering. He is a Grand Officer of the French National Order of Merit, a Commander of the French Legion of Honor. He received the Leonardo da Vinci Medal in 2012 and the Award of the Hellenic Parliament Foundation for Parliamentarism and Democracy in 2009. He is a commander of the Greek Order of the Phoenix. He was the President of the Greek Council for Research and Technology for the period February 2014 to April 2016.



Session Topic "ICT revolution"

Prof. Sifakis started the session by giving introduction about how the world of computers evolved and their impact on day to day life. He emphasized on four key factors- technological convergence, the vision of IOT, System design and system verification. He explained how a single converged network infrastructure can be installed and maintained and gave several examples related to IOT such as IBM-Smarter planet, Google thermo- stat and smoke detector. He also spoke about smart energy, smart vehicles, smart homes and smart farming. He discussed the behavioral segmentation of IOT i.e. Industrial IOT and Human IOT. The industrial IOT is self-directed in which the rules can change but human driven changes are external to normal behavior. The human IOT is interactive as the rules are dynamically changed by the people's explicit actions. Both type of IOTs contribute to health and safety and prevents injury, loss and discomfort.

Prof. Sifakis discussed about the industrial internet data loop and highlighted the vision of IOT and challenges faced in designing IOT systems. He stressed upon how to optimize the requirements by considering various factors like performance and resources. He discussed the correctness and criticality levels of system design. He spoke on the current limitations and how to face challenges in System design

trends. He discussed the various limitations of system verification during which he quoted that he won Turing award for his verification model. He discussed the blend of IOT with various emerging technologies like artificial intelligence, machine learning, Deep learning etc. for creating more sophisticated and powerful IOT systems. He concluded the discussion by giving the glimpse about the impact of IOT in the forth

coming years. The session covered details about intelligent systems adaptivity. According to Prof. Sifakis the Internet of things will hit the main stream by 2020. Lastly, Prof. Sifakis said that the IOT has limitations due to its integration, i.e. without significant change in design and networking infrastructure, IOT cannot emerge effectively. The discussion was followed an interactive session by the participants. Overall the session gave the past, present and future of IOT.



Session Topic
“On the nature
of computing”

Prof. Joseph Sifakis began the session by defining information using Turing's definition and explaining that information is in the mind of the beholder. He stressed that the theory of computation is time ignorant. Prof. Sifakis explained about the domains of knowledge - abstraction theories and modularity.

Sifakis introduced the two important approaches of linking physicality with computational differences namely Digital physics and Natural computing. Digital physics suggests that there exists a universal computer that computes the evolution of the universe. In natural computing, the computation is described by an underlying physical law such as quantum computing, bio-inspired computing, analog computing. Sifakis described how cyber physical systems can be developed by linking physicality with computation. He cited an example of modular car where one can buy components from different OEMS and make a 3D model online before actually assembling it thus creating a very custom-made car.

Sifakis spoke about artificial intelligence vs. natural intelligence. Computers surpass conscious human thinking by being faster and precise thus making people to believe that they have superior intelligence than humans. He said that artificial intelligence does not have "free will" and conscious thinking that is available in natural intelligence.

He stressed that natural intelligence has common sense element that is not available in artificial intelligence by showing a slide of plane crash images. He discussed how Turing test is not a valid test to test the artificial intelligence with natural intelligence. He spoke about how and why general intelligence is important that is very less to be found in artificial intelligence. He

emphasized that computers can be used to increase the capabilities of understanding complex systems and build new knowledge.

He also discussed a few words of wisdom. He said human beings are unique equipped with consciousness and free will. He quoted Plato “**an examined life is not worth living**”. He asked the audience to dream a great vision, ambitious and realistic and by pursuing that will lead them to self-satisfaction. He concluded his talk by citing a poem of Ithaka written by a Greek poet Constantine Cavafy.



Session Topic
“Smart Grids and IOT”

Prof. Sifakis began the session with the introduction of how the world of computers and electronic devices have been emerged and their impact on daily life. He discussed on four key factors- technological convergence, the vision of IOT, System design and system verification. He explained how convergence of technology makes planet instrumented, interconnected and intelligent. He spoke about smart energy, smart vehicles, smart homes and smart farming. He discussed the behavioural segmentation of IOT i.e. Industrial IOT and Human IOT. The industrial IOT is self-directed in which the rules can change but human driven changes are external to normal behaviors. The human IOT is interactive as the rules are dynamically changed by the people's explicit actions. Both type of IOTs contribute to health and safety and prevents injury, loss & discomfort.

Prof. Sifakis discussed about the industrial internet data loop and highlighted the vision of IOT and challenges faced in designing IOT systems. He stressed upon how to optimize the requirements by considering various factors like performance and resources. He discussed the correctness and criticality levels of system design. He spoke on the current limitations and how to face challenges in System design trends. The various verification techniques and models were discussed along with

their limitations. In order to achieve a good result, he emphasized the necessity of a consistent and complete faithful model which needs to be generated automatically from the system. Prof.Sifakis pointed out the importance of V model in verification process, though it has lost its significance at present. He explained the cyber physical systems, the types of components and extending 3D printing paradigm. He discussed the

intelligent systems, its challenges and adaptivity. According to Prof. Sifakis the Internet of things will hit the main stream by 2020. Lastly, Prof. Sifakis mentioned the main limitations of IOT i.e. IOT integration. He highlighted on the point that without significant change in design and networking infrastructure, the IOT cannot emerge effectively. The discussion was followed an interactive session by the participants. Overall the session gave the past, present and future of IOT.



Keep education connected to practice and real economy.



Prof. Serge Haroche
Nobel laureate
Speaker Profile

Prof. Serge Haroche is a French physicist, received Nobel Award in Physics – 2012, along with David Wineland for devising experimental methods that enabled measuring and manipulation of individual photons in superconducting cavity or box. He obtained his Doctoral degree from the University of Paris and is a Professor at the Collège de France and holds the Chair of Quantum Physics. He also received Commander of the French Legion of Honour, the highest French order of merit for military and civil merits award. Prof. Haroche works primarily in atomic physics and quantum optics. During the Sahyadri Conclave- 2018, he gave four technical talks and took two interactive sessions with school/college students of the region.

Session Topic
“Controlling and manipulating single photons in a box – the scientific adventure of a lifetime”

Prof. Haroche started off the session quoting that “being a scientist is not a profession, it is a passion”. He spoke about what fascinated him at his young age to take up research in the area of physics. He had immense interest in the field of astronomy and was keen to learn more and discover the laws beholding the same. He briefed about immense contribution of great scientist, which included the great Newton, Louis De Broglie, Huygens, R. Bohr etc. The session included briefing about low orbit velocity and escape velocity of satellites for successful launching of the same.



He spoke about the term 'Optical Pumping', in which the position of atoms could change by the light and mutual relationship between atoms and light, highlighted that understanding the interaction between light and atoms and exploring the same is very essential to improve modern physics. He spoke about how classical physics could not answer the puzzle of spectrum of light being emitted from heated bodies and also the concept of photoelectric effect to which the

justification would be possible only by the quantum physics approach.

Atomic energy levels and optical resonance, momentum of quantum particles, momentum and wavelength, optical masses and magnetic trap were a few additional highlights of his technical session. Lastly he spoke about contribution to the field of research which included trapping one or a few photons and observe their interaction with one atom.

Session Topic
“How Laser has Revolutionized Physics in Last Fifty Years”

Prof. Haroche, took over the session with the brief history of Lasers. He started with the Einstein bright idea i.e. “stimulated emission of light”, explained the Einstein's proposal that excited atom in isolation can return to a lower energy state by emitting photons, a process called as spontaneous emission. He pointed out the differences between the Classical Lights and the Laser Lights. He continued the session by explaining various types of Lasers. He also spoke about how laser has made tremendous progress and has led to quantitative and qualitative revolution in basic research.

Prof. Haroche illustrated the history of Measurement of Time by highlighting various kinds of devices used for measuring time across various generations before watches were discovered. He also spoke about how atomic physics spectacularly



meets other field of science like Information Science, Chemistry, Biology, Astrophysics, Particle Physics. He emphasized that everything starts with the observation of nature, then it proceeds with building theoretical model, prediction of new effects and build technology. He listed out the scientists who won Nobel Prize in the field of Laser. He explained 2017 Nobel Prize discovery of detection of gravitational waves. He also

explained how LIGO team detected gravitational waves by using a pair of ultra-sensitive detectors. This discovery proved the Einstein prediction. The session was moderated by Dr. Shankar Prasad, Founder and Chairman, Sampurna Swaraj Foundation. The discussion was followed by an interactive session with the audience.



Session Topic
“A story about the interaction between light and matter in which water plays an important role”

Prof. Haroche started the session by saying that water and light are the most essential need for human's life. Mankind has recognized that light and water were essential for life and has worshipped these elements under various forms. Man is doing scientific research to satisfy the curiosity about the nature and to achieve useful tasks and fulfill the needs. Basic research is driven by mere curiosity, as illustrated by the great discoveries about the light and matter. Scientists like Newton, Coulomb and Faraday have invented many things about the light and matter, and they had no idea about what they could be useful for. But they have led to innovations which have changed our lives.

He supposed that the blue sky discovery is the main innovations done by the scientist which shows that light and magnetism are affections of the same substances and the light is an electromagnetic perturbation propagated through the field according to electromagnetic laws. Rabi the scientists in his blue sky discovery said “all atoms, in humans found to emit and receive long waves. A blue sky discovery made possible by technological advances (development of radars during the 2nd world war). He said from NMR we can obtain 3D images of human



organs. Field gradient can be used to discriminate signals coming from different positions inside body. Powerful computers can be used to decipher information and transform into 3D images. The blue sky discovery is the stimulated emission of light, which has led to the maser, then by extension to the optical domain, to the laser. There is a good connection between blue sky research and innovation in physics. While concluding the talk he said novel technologies often

come serendipitously from blue sky discovery which needs two priceless ingredients that is time and trust.



Man is doing scientific research to satisfy the curiosity about the nature and to achieve useful tasks and fulfill the needs.

Sessions
“Manipulating single photon in a box-with a discussion on the future of quantum technology”

Prof. Haroche, spoke about Fundamental particles such as photons that are difficult to isolate from their environment without destroying. He explained about Vacuum rabi oscillation box where atoms emit and absorb photons. He said when an atom interacts with non-resonant light the rate of its clock is slightly altered by the light shift effect. This effect produces a phase shift of the atomic dipole when the atom crosses the cavity. Non-resonant atom experiences light-shifts proportional to the photon number N, with opposite signs in levels e and g. He also said in their laboratory in Paris microwave photons bounce back and forth inside a small cavity between two mirrors, about three centimeters apart. The mirrors are made of superconducting material and are cooled to a temperature just above absolute zero. These superconducting mirrors are so reflective that a single photon can bounce back and forth inside the cavity for almost a tenth of a second before it is lost or absorbed. He also spoke about the Rydberg atom traverses and exits the cavity, leaving the microwave photon behind. But the interaction between the photon and the atom creates a change in the phase of quantum state of the atom, if you think of the atom's quantum state as a wave, the peaks and the dips of the wave become shifted. This phase shift can be measured when the atom exits the



cavity, thereby revealing the presence or absence of a photon inside the cavity. Without photon there won't be phase shift. He also explained about reconstruction of quantum state. He spoke about quantum computers.

In the interactive sessions students asked questions on quantum mechanics, photon, dark matter, universe, current problems in physics, anti-matter and also on laser and black holes. The active

participation of the students and the researchers made the session lively and useful. Interactive sessions were moderated by Dr. Shankar Prasad, Founder Chairman, Sampurna Swaraj Foundation, Bengaluru and Dr. Navin N Bappalige, Department of Physics, SCEM-Mangaluru.



The mirrors are made of superconducting material and are cooled to a temperature just above absolute zero.



Dr. Shankara Prasad
Founder
Sampoorna Swaraj Foundation

Dr. Shankara Prasad a Ph.D. degree holder from State University of New York. He is the Founder of Sampoorna Swaraj Foundation. The Foundation presently focuses on implementing Information and Communication Technology solutions at Panchayat level to enable participatory and transparent democracy.

During the Sahyadri Conclave Dr. Prasad was the **Chief Moderator** and he moderated the sessions of **Prof. Dr. Serge Heroche, Dr. Ada Yonath and Dr. Joseph Sifakis**. Dr. Prasad encouraged the students to ask more and more questions and instrumental in making the session successful and lively one.



Mr. Anoor Anantha Krishna Sharma
Anoor Anantha Krishna
Sharma Foundation for Music

Mr. Anoor Anantha Krishna Sharma, a Mridangist & the Founder of Anoor Anantha Krishna Sharma Foundation for Music. He has several awards such as "Best Mridangam Artist" by Gayana Samaja, "Laya Kala Prathibhamani" title, Vidwan H. Puttachar Memorial award.

Mr. Anoor Anantha Krishna Sharma, spoke on the different types of thala's, kriya's, the basis of the thala, beats and bits in the thala using the musical instruments. He gave a demonstration on mathematics being an integral part of music and musical instruments especially in the context of south Indian classical music.



Padmashri Ananth Agarwal
CEO of edX founded by
Harvard and MIT

Padmashri Ananth Agarwal is currently the CEO of edX founded by Harvard and MIT. He has served as the director of CSAIL, MIT's AI lab, and is a professor of electrical engineering at MIT and has co-founded companies including Tiler Corp and VMW. Prof Agarwal holds a PhD from Stanford and bachelor's from IIT-M.

Prof. Agarwal started his session titled "**Digital Education Transformation**" by talking about the advances in communication for the last 500 years. He then spoke about edX, an online learning platform in transforming education. He expressed education as the basic right of everyone and talked about three emerging trends in education.



Dr. D. Antony Louis Piriya Kumar
Professor at PES University
Bengaluru

Dr. D. Antony Louis Piriya Kumar is a Professor at PES University, Bengaluru. He served as a technical expert in Siemens, Munich, Germany. He has PhD from University of Stuttgart Germany in Computer vision, MS from IIT Madras and MSc from Madurai Kamaraj University(Gold Medalist) in Computer science.

Dr. D. Antony Louis Piriya Kumar addressed about the variations in blindness such as manifest, absolute, curable, avoidable etc. He also discussed how the concept of Snellen chart – a chart which is used to check the level of blindness, came into existence and the concept of visual activity.



Prof. Anish Arora
Professor, Computer Science
The Ohio State University

Prof. Anish Arora is Professor of Computer Science and Engineering at The Ohio State University, a faculty-in-residence in OSU's Translational Data Analytics Institute, and a co-founder of The Samraksh Company. Arora has engaged in research, development, and translation to practice.

The requirement for protecting the endangered species, first step is to detect the movement and second step is to analyze whether it is animal or human. Third step is sent to base station and alert the guard. He briefly discussed Low power IOT device for multi class classification.



Dr. Anuradha Agarwal
Principal Research Scientist
MIT, USA

Dr. Anuradha Agarwal is currently the Principal Research Scientist and Director of the Lab for Education and Application Prototypes at MIT, USA, where she is developing integrated Si-CMOS materials for photonic devices. She has over 100 publications, 6 awarded patents and 5 pending patents.

In her session titled "**Mid-Infrared Integrated Silicon Photonics for Sensing**", She introduced about the conceptual understanding of how integrated photonic sensor works and its applications such as in IOT, Industrial monitoring, Food and water monitoring, medical imaging, security and surveillance.



Shri. B. A. Hasanabba
Former Member of
Legislative Council

Shri. B. A. Hasanabba, Former Member of Legislative Council started his career as a teacher. He worked as District Gen. Secretary, State Gen. Secretary and Spokesperson for Congress Party. His passion towards teaching mathematics as fun has created interest in the math phobia students to learn effectively.

He spoke about the essence of mathematics in the academic field. He gave insight about perfect numbers, deficient numbers, abundant numbers etc., and their applications. He taught the techniques involved in solving magic square. He also spoke about tricks and many interesting facts of mathematics.



Dr. D. P. Agrawal
Former Chairman UPSC of India
He is the founder Director
IIIT & Management Gwalior

Dr. D. P. Agrawal, Former Chairman UPSC of India, He is the founder Director of the Indian Institute of Information Technology and Management, Gwalior. He has won various awards including Eminent Engineer 2003, Honorary Fellowship of ISTE, 2006, and the Honorary Fellowship of IETE in 2011.

Dr. D. P. Agrawal Enlightened the importance of solid waste and the technology to monitor the waste for recycling. He explained about Method of waste Management Systems like waste collection, waste segregation for usable, transferable and recyclable, waste transportation, dumping yards or landfills.



Dr. Bashir Ahmed Ganai
Professor, Director CORD &Head,
P.G. Department of Environmental
Science, Kashmir University,

Dr. Bashir Ahmed Ganai currently working as Professor, Director CORD &Head, P.G. Department of Environmental Science, Kashmir University, Srinagar. His area of specializations is Protein Biochemistry, Enzymology, Environmental Biochemistry, Toxicology/Medicinal Plant Research and Biotechnology.

In his session "**Disaster due to Brick Kiln Emissions**" he explained how its emission can affect human health and climatic changes with examples. In his session on "Diabetes and Environment" he explained in detail about Diabetes the glucose level increases beyond a limit along with its health effects.



Deva P. Seetharam
Co-founders & CEO, DataGlen

Deva P. Seetharam is one of the co-founders and the CEO of DataGlen, a company focused on collecting and curating IoT Data. He was co-founder several other organizations as well. He has been selected as one of the three IoT thought leaders by IoT India Congress in 2017..

He spoke about, **Lifelong kindergarten**: fun approach to engineering a career . Sharing his career experience as an employee, researcher and entrepreneur, explained about active learning by giving several analogies. He emphasized on importance of reading books and online courses in grooming career.



Mr. C.D. Balaji
Scientist and Chairman,
CEAD

Mr. C.D. Balaji, is a distinguished Scientist and Chairman, Centre of Excellence in Aerospace and Defense (CEAD) and Former Director, Aeronautical Development Agency. Commissioned into the Indian Navy in the Engineering Branch and has been specialized in the Naval Aviation Arm. Moved ADA in 2002.

His session titled with "**Aerospace Environment and Ecosystem**", future design and development challenges in the field of aerospace engineering which included important modules like unmanned helicopters, advanced medium combat aircraft, unmanned combat aerial vehicles, advanced aero engines.



Dr. Dipshikha Chakravorthy
Professor, Department of
Microbiology and Cell Biology
IISc, Bengaluru

Dr. Dipshikha Chakravorthy, currently a Professor, Department of Microbiology and Cell Biology, IISc, Bengaluru. Her research interests include infectious diseases and pathogen Salmonella. She has over 80 publications, honors, awards and patents related to Salmonella diagnosis and vaccines.

In her session titled "Biomedical application of shock waves", she emphasized on the needleless vaccine delivery system and its advantages over vaccine delivery through oral route and injection. She also explained the micro shock wave assisted apparatus and its advantages.



Dr. Gopalkrishna Hegde
Centre for Nano Science & Engineering, IISc, Bengaluru

Dr. Gopalkrishna Hegde, is currently with the Centre for Nano Science and Engineering, IISc, Bengaluru. He has over 140 publications and five patents. His current research interests areas are photonics, optical sensors, optical flow visualization, bio-photonics, nanofabrication and micro-fluidics.

In his session titled “**Nanotechnology Techniques and Challenges**”, he stated that nanotechnology has the potential to change every part of the world and affects all materials. He also emphasized on “**need for nanotechnology**” and “the application of nanotechnology” in the essential fields of life.



Prof. K. Byrappa
Vice Chancellor
Mangalore University

Prof. K. Byrappa, is currently the Vice Chancellor of Mangalore University. He holds a Ph.D. from Moscow State University, Russia. He is specialized in Materials Science, Nanoscience, Solid State and Crystals. He was honored with Sir CV Raman birth centenary Gold Medal by the Prime Minister of India.

Prof. K. Byrappa, took part in the panel discussion on the theme “Health”. He gave a brief introduction about his field of interest and his journey from crystallography to nanotechnology. He advised that one should dedicate at least 90 minutes per day towards exercise and meditation.



Dr. Hari Krishna Maram
Chairman, Imperial College of Business Studies, Bengaluru

Dr. Hari Krishna Maram is currently the Chairman, Imperial College of Business Studies, Bengaluru. He received PhD (Marketing) in “Small Sachet Innovation” in the year 2008. He has been a recipient of prestigious awards like the Knighthood from UK and Samaja Seva Bhushan.

In his session titled, “The management and Technology” Dr. Maram shared several experiences of his journey to many countries and told about the Indians contribution in various fields. He also discussed about the different emerging technologies such as analytics, robotics & artificial intelligence.



Dr. K. Chidananda Gowda
Former Vice-Chancellor
Kuvempu University

Dr. K. Chidananda Gowda is the former Vice-Chancellor of the Kuvempu University, Karnataka, India. He has received Doctoral degree in the field of Electrical Engineering from IISc, Bengaluru. His areas of interest are pattern recognition, artificial intelligence, fuzzy logic and genetic algorithms.

In his session “**Disruptive Technologies**”, Dr. Gowda said that disruptive technology displaces an established technology and shakes up the industry by a ground breaking product. He quoted an example of PCs that displaced typewriters which has resulted in both bankruptcy and some becoming rich bankers.



Prof. Jagadeesh Gopalan
Aerospace Engineering
IISc, Bengaluru

Prof. Jagadeesh Gopalan had his schooling in the prestigious Sri. Ramakrishna Vidyashala, Mysore. Later he obtained his Bachelor's degree in Mechanical Engineering from Bangalore University, Master of Engineering from Birla Institute of Technology, Mesra and Ph.D. in Aerospace Engineering from IISc in 1998.

Jagadeesh Gopalan stressed the need of asking the question “Why” in Science, “Why not” in Engineering, then discussed various topics related to Shock Waves at last concluded the session by build any model, one requires help from Panchaboothas “People, Leadership Quality, Vision, Networking & Money.



Dr. Kavi Mahesh
Director, IIIT-Dharwad

Dr. Kavi Mahesh is currently the director at IIIT-Dharwad. He pursued his MS and PhD in Computer Science from Georgia Institute of Technology. He has worked in numerous positions including faculty at Indian Statistical Institute, principal consultant at Infosys, Director at CKAOE, PESIT, Bangalore.

In his session titled “Understanding Rainfall in India through Data Analytics” Dr. Mahesh explained how the data mining techniques are used in efficient RTA of Weather and Climate data. He stressed on data science in the application of rainfall analysis and correlation against different calendars.



Mr. Yamasaki San
Director
OTC Daihen India Pvt. Ltd.

Mr. Yamasaki San is the Director of OTC Daihen India Pvt Ltd, Gurgaon, India. He has more than 20 years of expertise in the field of Robotic Automation and Welding, supporting world's one of the largest Automotive Company, TOYOTO Motors.

The session was on different welding technologies currently used and how it can be replaced by Robotics, application of sensors in real time monitoring of welding process with respect to its advantages. As conventional welding leads to increased scrap and rework, we require automation in welding.



Mr. M.V. Subramanian
Co-Founder & Managing Director
Future Focus Infotech Pvt. Ltd.

Mr. M.V. Subramanian is the Co-Founder & Managing Director of Future Focus Infotech Pvt. Ltd. MVS is often consulted to ideate, incubate and model different start-up ideas in association with TiE (The Indus Entrepreneurs) & IAN (Indian Angel Network).

Mr. M.V. Subramanian delivered a talk about BOT concept to convey information about coding, programming, and several engineering fields in today's scenario. He concludes the session by saying the quote as **"watch around and what happening approach?"** which helps students to achieve their goals.



Mr. Kiran Thamankar
OTC DAIHEN INDIA PVT LTD

.Mr. Kiran Thamankar presently working with Japanese Welding & Robotic Multinational M/s OTC DAIHEN INDIA PVT LTD. He has 27 years of experience in the field of sales, service, and marketing of welding machines and Automation.

The session was on different welding technologies currently used and how it can be replaced by Robotics, application of sensors in real time monitoring of welding process with respect to its advantages. As conventional welding leads to increased scrap and rework, we require automation in welding.



Mr. Sundaram Moorthy
CEO of Caliper Engineering & Lab Pvt. Ltd., Mangaluru

Mr. Sundaram Moorthy is the CEO of Caliper Engineering & Lab Pvt. Ltd., Sahyadri Campus, Adyar, Mangalore. Earlier, He was the director of Yoke Engineering Outsourcing Pvt. Ltd. He has 30 years experience in manufacturing and has worked in various MNCs like Dresser Valves, Cameron, Mokveld Valves.

The complete manufacturing ecosystem is undergoing a phenomenal shift with technological advancements happening at a fast pace. In current times, Industry 4.0 is talked about at various levels. He concluded by automotive sector being the key driver for many technological advances.



Mr. Kapil Dev Sharma
Manager, Technical Support
OTC Daihen India Pvt. Ltd.
Gurgaon

Mr. Kapil Dev Sharma is the Manager, technical support department of OTC Daihen India Pvt Ltd, Gurgaon, India. He has eleven years of work experience in the field of Robotics and Welding. He is also member of Institute of Engineers India and he has published papers in various research journals.

The session was on different welding technologies currently used and how it can be replaced by Robotics, application of sensors in real time monitoring of welding process with respect to its advantages. As conventional welding leads to increased scrap and rework, we require automation in welding.



Prof. M. N. Vidyashankar, IAS
Former Additional Chief Secretary

Prof. M. N. Vidyashankar, IAS Former Additional Chief Secretary has his Masters in Economics from Delhi School of Economics and M.Phil from University of Delhi. He is Post-Graduate in Business Administration from Harvard University, USA. Presently, he is the President of IESA.

Prof. M N Vidyashankar discussed the problem and effective solutions for water shortage. Water problem doesn't exist if there is efficiency in supply and demand system. Adoption of best practices and better technologies are very useful in reducing water wastage. He discussed waste water recycling, rain water harvesting and desalinization of sea water



Vice Admiral N N Kumar
Executive Director in BrahMos Aerospace Private Ltd

Vice Admiral N N Kumar is currently the Executive Director in BrahMos Aerospace Private Ltd. He pursued his Post Graduation from IIT-D in Radar & Communication and trained in Italy for CAIO. He has held various reputed positions in Indian defense and has been awarded Vishisht Seva Medal, AVSM and PVSM.

Vice Adm. N N Kumar started his talk titled "BRAHMOS A Journey of Excellence by highlighting the contribution of Dr. A. P. J. Abdul Kalam in the field of Nuclear Science. He spoke about India's First launched vehicle- SLV-3 and also narrated the stories of the five missile projects including the features of Brahmos.



Mr. Prakash Bettadapur
Team Director- Cisco

Mr. Prakash Bettadapur, graduated from Stanford University with Innovation and Entrepreneurship. He studied CS from University of Alberta, Canada and EC from NITK. He worked as Program Leader - Cisco Cloud Analytics Group from April 2015 - March 2017 and Team Director Role - at Cisco.

He spoke on the topic "Successful Agile Transformation Ingredients", in his session he explained how agile model is dominating by overcoming the disadvantages of all other software engineering models. He also discussed on the term "Scrum" which is a framework for managing the process.



Prof. Nataraja Karaba N
Professor, Department of Crop Physiology, University of Agricultural Science, GKVK

Prof. Nataraja Karaba N, currently is a Professor, Department of Crop Physiology, University of Agricultural Science, GKVK. He is the recipient of NAMASTE award. His areas of research are Plant stress physiology, Photosynthesis and Molecular basis of drought stress tolerance.

In his session titled "Food security in India", he explained about the origin of agriculture and the history of technological advancements that took place in agricultural industry. He stressed that, water scarcity is the major crisis in a warming world.



Mr. Rajshekhar Hiremath
Founder & CEO- FLEXITRON

Mr. Rajshekhar Hiremath is the founder and CEO of FLEXITRON, a frugal product design and development company. He has also served at IISc for a long time. He has developed around 630+ innovations, 18 patent pending/granted products and has been awarded four national awards for his innovation.

In his session titled "Future of Human Transportation", Mr. Hiremath spoke about the innovative hardware that leveraged new intelligent transport systems(ITS) such as driverless cars, AI in vehicles, electric bikes and hyperloop concepts. He spoke about how companies such as BMW are working towards ITS.



Dr. Prahlada Ramarao
Pro- Chancellor in S-VYASA University in Bengaluru

Dr. Prahlada Ramarao is currently the Pro- Chancellor in S-VYASA University in Bengaluru and also Director of Centre for Energy. He is popularly known for his role as the Project Director for the mobile surface to air area defence missile system, AKASH.

Panel Discussion was held on the theme "Environment". He was a moderator in the panel discussion. In the closing remarks he gave solutions to environmental pollution, such as Smoke filters for cleaning air, zero industrial waste, More electric vehicles, Enhancing nuclear powers.



Ramakrishna Y B
Chairman of Working Group Bio fuels, Ministry of Petroleum & Natural Gas, Government of India

Ramakrishna Y B is the Chairman of Working Group on Bio fuels, Ministry of Petroleum & Natural Gas, Government of India, Task force on Methanol/DME production from Bio mass/MSW/ other than coal, Bio mass Study Steering committee, TIFAC/DST, MoS&T and member of Steering Committee on Bio fuels, MoP&NG.

He has given the talk on "Climate change challenges-Importance of western Ghats" and Bio Energy initiative of india Cutting Edge Technology and policy frame work. He spoke about importance of told high level of awareness program for younger generation to protect western ghats for future generation.



Prof. Robert C Richardson
Professor of Robotics
University of Leeds

Prof. Robert C Richardson is a Professor of Robotics in the School of Mechanical Engineering, University of Leeds. He is the chief of the Multi-Disciplinary Institute of Design, Robotics and Optimization. He is a Fellow of the IMechE. He is an elected member of the EPSRC UK RAS executive committee.

Prof. Robert C Richardson is researching into a robotics platforms including drone based technologies, novel ground robots, and robots designed to enter bore holes in mines and other confined spaces. He is developing novel advanced robotic structures using hybrid 3D printing technology.



Mr. Sanjay Sahay
ADGP in Grievances &
Human Rights Wing
Govt. of Karnataka

Mr. Sanjay Sahay is well known as Pro Public Speaker, Cyber Security Guru, Senior Police Officer, Management Expert, Technology Evangelist, Thought Leader & Writer. . He is currently working as ADGP in Grievances and Human Rights Wing, Govt. of Karnataka.

Sanjay Sahay emphasized on issues related to Cyber Security. He shared his experiences in the field of security and emphasized the fact how security plays a key role in every individuals life, right from a hand held smart phone to giant computer systems.



Dr. S N Omkar
Chief Research Scientist
IISc, Bangalore

Dr. S N Omkar is currently a Chief Research Scientist at IISc, Bangalore. He obtained his Ph.D. in Aerospace Engineering from IISc, Bangalore and current research interests include Helicopter dynamics, Satellite image processing, Bio-mechanics, UAVs, Composites & Structural health monitoring.

In his session titled "Yoga for Holistic Health", Dr. S N Omkar explained about the essence of Yoga, Bhagavad Gita, principles and practices of Swami Vivekananda and A.P.J Abdul Kalam. He enlightened that Health process needs to be cultivated as 4D culture.



Dr. Satish K. Tripathi
President of the University
Buffalo (UB)

Dr. Satish K. Tripathi is currently the president of the University at Buffalo (UB). He graduated at the top of his class from IIT-BHU and holds a Ph.D and MS from the University of Toronto, two masters in statistics from the University of Alberta and Banaras Hindu University, honorary degrees from IIIT Allahabad.

In his first session "**Change, Risk and success- A personal story**", Dr. Tripathi spoke about the challenges he faced to accomplish this goal. In his second session "**The New World of Thinking Machines**", he spoke about advances in AI and Robotics. His third session was "**Research challenges of 21st century: UB Perspective**".



Prof. S S Murthy
Adjunct professor
IISc, Bangalore.

Prof. S S Murthy did B.E in E & E from BMS College. M.Tech. and Ph.D. respectively from IIT Bombay, and IIT Delhi. He was Vice Chancellor of the Central University of Karnataka, Visiting Professor at the Univ. of Newcastle, Univ. of Calgary & adjunct professor at IISc Bangalore.

Prof. S S Murthy spoke about Non-renewable energies that are very expensive and destroying the environment. He focused on elements known as "**Pancha Bhootas**", and global warming. He emphasized about wind power potential in India, Solar production statistics, world hydro capacity.



Dr. Satya Prakash
Professor, MC Grill University
Montreal, Quebec Canada

Dr. Satya Prakash ,Professor of Biomedical Engineering, cell therapy laboratory at MC Grill University, Montreal, Quebec Canada. He holds PhD degree in Bioengineering and Biomedical Engineering from MC Grill University. His research has contributed to the Advancement of many biomedical technologies.

In his session on "**Microbiomes next generation therapeutics**", he said microbiome is a community of microorganism living in the human body. He said Cholesterol increases due to genetic disorder and can be lowered using microbiome by targeted gene delivery method by reducing the complications.



Dr. Suresh Nagesh
Managing Director
Voith Engineering Services

Dr. Suresh Nagesh is the Managing Director at Voith Engineering Services. He was a part of global R&D teams of GE, GM and Daimler Chrysler in USA and also in India. He is the key person for all functions of the organization (technology, S&M, Business Development, HR, Finance, Quality etc.).

He spoke about needs, opportunities and challenges in the field of alternative energy resources, how increase in the demand of global energy affects the economic growth, lifestyle of people and vice versa. He also focused on the main problem of transporting and storing the source of energy.



Dr. Krishna Venkataram
Professor & Chairman
Dept. of Mechanical Engineering

Dr. Krishna Venkataram is currently working as Professor and Chairperson of the Department of Mechanical Engineering, Post Graduate Studies and Convenor for Cultural Activities at PES University, Bangalore. He is also the Executive Director, Percussive Arts Centre, Bangalore.

In his session titled "**Mathematics in South Indian Classical Music with Special Emphasis on Percussion Instruments**", he briefed about the thala, where thala is the musical time, i.e., physical act. He explained about LAYAGNANA, adithala with 3 to 9 bits, Avadhana, Ashtavadhana and Shathavadhana.



Dr. T. G. Sitharam
Registrar, PES University
Bengaluru

Dr. T. G. Sitharam is currently the Chairman of AICTE, South West Regional Office. Dr. Sitharam is also the former founder Chairman of a Center for Infrastructure, Sustainable Transport and Urban Planning (CiSTUP) at IISc and Vice President for Indian Society for Earthquake Technology (ISET).

Dr. T. G. Sitharam explained about replenishing ground water, river renewal and coastal reservoir in his session titled "Sustainable Strategies for Water Resource Development Using Rainwater". He also led a Panel discussion with "Water" as theme where he stressed that water as "core for sustainability".



Veerbhadra Yadwad
Product Manager
Environmental Analytical
Business Unit
Yokogawa India Limited.

Professor Veerbhadra Yadwad is Product Manager, Environmental & Analytical Business Unit, Yokogawa India Limited, Japanese Company. Having 17 years of industrial experience as Product Expert in Environmental & Analytical Solutions for Process Industries. Conducted Knowledge Integration Programs.

Briefed about the role of engineers in the industry and how to identify the solutions for the challenges in the industries. The problems are shooting in the process industries and also in aquatic industries by maintaining the pH level of the water by using the sensors and types of the sensors.



Dr. U. Chandrashekar
Pro Vice Chancellor
VelTech University

Dr. U. Chandrashekar is currently the Pro Vice Chancellor of VelTech University. He graduated with BE from NITK, MS from IIT-M and PhD from VTU for his research in additive manufacturing carried out at DRDO. He received a Gold Medal from the former President of India Dr. APJ Abdul Kalam for his academics.

In his session "Fostering creativity and innovation among engineering students through exponential teaching learning model", Dr. U. Chandrashekar elaborated about the 12 potentially economically disruptive technologies. He stressed that there is no need of perfect lab or a place for an invention, creativity and passion is what is actually needed.



Ms. Yugaratna Srivatsava
Youth (YOUNGO) Focal Point
UNFCCC

Ms. Yugaratna Srivatsava, Youth (YOUNGO) Focal Point to UNFCCC, Final year undergraduate at IIIT-Allahabad, Programme coordinator, Plant for Planet initiative and one of the leading figures in educating and campaigning about climate change & environmental issues, working closely with the UN systems.

Ms Yugaratna delivered a talk on Renewable Energy Technologies. She discussed about the reasons for the climatic changes in the environment due to industrial revolutions. She spoke about the history of the climate negotiations, UNFCCC, a document ratified by 191 countries by secretariat Germany.



Mr. Rajendran Dandapani is the Business Solutions Evangelist at Zoho Corporation. His Area of expertise are - Web Development, E-business, Portal Management, Online Marketing, and Software Programming. He has held many important positions in various Corporations.

Mr. Rajendran Dandapani
Business Solutions Evangelist
Zoho Corporation

In his session on “**start up journey**” he spoke about startup thinking, start up rules and ideas of startup. He gave some tips to young engineers about what to start and how to start using some quotes. He said Startups are the lifeblood of our economy and they create jobs, new products, and dreams.



Dr. Anand Venugopal is the Medical Superintendent and Unit Head at KMC Hospitals, Mangalore, He is Professor in the Department of Radiodiagnosis & Imaging at KMC Hospitals, Mangalore. He has also served as Resident doctor in NIMS, Hyderabad and at JJMMC, Davangere.

Dr. Anand Venugopal
Medical Superintendent &
Unit Head at KMC Hospitals
Mangalore

Dr. Venugopal took part in the panel discussion held on the theme ‘**Health**’. He spoke about preventive health and raised his concerns about primary healthcare not reaching the community. He urged students to quit junk food to overcome obesity and depression and said that western lifestyle destroys health.

Panel Discussion



Panel discussion on the theme “Water”



Panel discussion on the theme “Energy”



Panel discussion on the theme “Environment”



Panel discussion on the theme “Health”



Mr. Dileep Chandra
Country HRGS Manager
HP India

Mr. Dileep Chandra has pursued MSW from School of Social Work, Roshni Nilaya, Mangalore. He is Country HRGS Manager at HP India & manages WW L & D Service delivery. He has more than 15 years of experience in HR Operations, HR Systems, HR Business Partner, HR Process re-engineering & transitions.

Mr. Dileep addressed the gathering on “**HR shared service model**”. He shared his life experiences and spoke about his struggle and hardships. He explained the model of HR shared services, activities and challenges of HR shared service domain. He touched upon the HR tools widely used in HR field.



Mr. Ananth Ravi
Senior VP and Sponsor
Reliance Industries limited

Mr. Ananth Ravi is a chemical engineer from the Indian Institute of science, Bangalore. He is the Senior VP and Sponsor, Reliance Industries limited. He is also the Director Of SCSceNMeD Diagnostics Private Limited.

Mr Ananth Ravi spoke on the topic- Paradigm Shift in Indian Entrepreneurship over last 4 decades. Citing the examples of great entrepreneurs like Dhirubai Ambani and Adi Godrej , he took the audience through the entrepreneurial journey and advised students to come up with Start ups.



Dr. B. K. Ravindra
Vice chancellor
Alliance University, Bangalore.

Dr. B. K. Ravindra is the Vice chancellor of Alliance University, Bangalore. He was the Former Dean at Alliance School of Law, Alliance University, Bangalore and was the Principal of SDM Law college. He was Dean and Chairman of Karnataka state Law University, Hubli.

Dr. B K Ravindra enlightened the students on “**Utility and Scope of Intellectual Property Rights**”. He said that every inhabitant should know his rights and duties as per the constitution of India. He described the evolution of IPR and emphasized that one must protect their intellectual ideas.



Mr. Kamlesh Manuja
Head of Business Operations
Edelweiss Tokio Life Insurance
Mumbai

Mr. Kamlesh Manuja is the Head of Business Operations at Edelweiss Tokio Life Insurance, Mumbai. He was also the Head of Service Delivery Cigna TTK Health Insurance Company Limited. He served as the Senior VP- Financial Crime and Operational Risk Management and Vice President- Claims.

Mr. Kamlesh Manuja delivered his session on “Operational efficiency through digitization”. He took the audience through the journey of digitization of insurance segment . He put across the challenges and opportunities in insurance and focused on customer-centric solutions and innovations .



Ms. Anita Pai
Senior General Manager &
Head- Customer care
ICICI Bank, Mumbai

Ms. Anita Pai, is an MBA from Symbiosis Institute of management and is currently the Senior General Manager and Head- Customer care at ICICI Bank, Mumbai. Her area of expertise is customer Service, Improvement and Innovation, control functions of Treasury and Corporate Loans at ICICI Bank.

Ms. Anita Pai spoke on the topic “Technology in Banking - New Frontiers”. She started with the Innovation Journey of ICICI bank from 2001-2018. She emphasized on technology for the growth of banks along with Artificial Intelligence and highlighted the relevance of API Integration & NLP.



Mr. Prashanth Prakash
Partner and the key
member of Accel's

Mr. Prashanth Prakash holds a master's degree in computer science from the University of Delaware & started his career as co-founder of Erasmic. Currently he is the Partner and the key member of Accel's India team, he focuses on consumer Internet services, online marketplaces and SaaS.

Mr. Prashanth Prakash enlightened the audience on “**How to start a Start-Up and Digital Economy.**” He focused on the industry transformation and its significant impact over revenues & costs. He also emphasized on the elements that drive digitization.



Mr. Sandeep S.P
HR
Rolls Royce, Bangalore

Mr. Sandeep S.P is the Human Resource Lead for Engineering, Technology, and SCM centre in India for Rolls Royce, Bangalore. He is responsible for scaling up engineering capability in India to support Rolls Royce vision.

In the session on Fortifying HR for future, focus was on trends in Business and its implications on HR. Emphasis was laid on Global Perspectives and government policies. He apprised the audience on application of the three pillar model, HRP and on strategic workforce planning and its relevance.



Mr. Rahul Kini
Senior Manager in Finance
Operations Target Corporation
Bangaluru.

Mr. Rahul Kini, is Senior Manager in Finance Operations Target Corporation, Bengaluru. Mr. Kini is a MBA graduate from Symbiosis Institute of Management, Pune. His current responsibilities are related to Global Accounts Payable Operations, Business Process Transition & Transformation.

Mr. Rahul Kini, apprised the audience on "Operations Management in ITES". He deliberated on the evolution of IT and ITES and the opportunities in this sector in the future. He pointed at few critical success factors for the future managers namely Knowledge, Skill and Attitude.



Mr. H.V. Dinesh Prasad
Founder Chairman & Principal
Noble School of Business
Bengaluru

Mr. H.V. Dinesh Prasad, is the Founder Chairman & Principal of Noble School of Business, Bengaluru. Mr. H.V. Dinesh Prasad has done his Post graduation in Statistics from Bangalore University and MBA from G G University, Bislapur.

During his deliberation on Business Analytics, he emphasized on the relevance of data driven decision making process. He discussed the uses and application of data analytics in day to day life. He showed the application of SPSS software with live examples.



Mr. Chethan Shenoy
Associate Director & Head of
Investment Products
Anand Rathi Securities, Mumbai

Mr. Chethan Shenoy is an MBA from Manipal Academy of Higher education. He is the Associate Director & Head of Investment Products at Anand Rathi Securities, Mumbai. He has also served as the Senior VP, VP-Product, AVP development and strategy. His area of expertise is Private Wealth Management.

Mr Chethan Shenoy spoke on the topic "Application of financial planning and wealth management". During his session he explained various strategies an individual must formulate for wealth management. He explained various scenarios of investment and emphasized on the keys to a wealthier future.



Mr Amar Kumar Pandey
Additional Director
General of Police - ADGP
Government of Karnataka

Mr Amar Kumar Pandey, is Additional Director General of Police, Government of Karnataka, Bengaluru. He has held several responsibilities ranging from Head of Internal Security, Counter Terror Operation and Investigation, Coastal Security, Head of Railway Police & Prevention and Detection of Crime.

Dr. Amar Kumar Pandey, spoke on -Managing enterprise complexities with specific reference to Refugees right to return and reintegration. He explained about the structure of solving complex problems by formulating strategies, perspective planning and the ontology of architecture of return.



Mr. Bharath Shivappa
Leads the Business
Development at Deloitte, India

Mr. Bharath Shivappa is a PGDBA from SCMS Cochin. He leads the Business Development at Deloitte, India. He is responsible for Business Orientation, strategy and Account Management to Firm's Strategic Clients, Industry Programs, Marketing Events and Pursuit Management.

Mr. Bharath Shivappa spoke on the topic "Marketing a consulting services firm". He emphasized on 4 P's and 7P's of Service Marketing. He touched upon Marketing Professional Service Firms and sales approach used to win clients.

Sunday, January 7, 2018
Theme: Water

| Time Slot | Speaker Name | Topic | Venue |
|---------------------|---|---|-----------------------|
| 9.00 AM - 9.50 AM | Serge Haroche (NL) | Controlling and manipulating single photons in a box: the scientific adventure of a life time | Main Stage |
| 9.50 AM - 10.40 AM | Satish K. Tripathi | Change, Risk and Success- A Personal Story | Main Stage |
| 11.00 AM - 11.50 AM | N N Kumar | BrahMos - A Journey of Excellence | Main Stage |
| 11.50 AM - 1.00 PM | T G Sitharam Amar Kumar Pandey, M N Vidhyashankar, K Chidananda Gowda | Panel Discussion: WATER | Main Stage |
| 2.00 PM - 3.15 PM | Ada Yonath (NL) | From Eco-Problems to Eco-Friendly Antibiotics | Netravathi Auditorium |
| | Serge Haroche (NL) | Walk the Talk | Netravathi Auditorium |
| | T G Sitharam | Sustainable Strategies for water resource development using rainwater | LH-105 |
| | Y B Ramakrishna | Climate change challenges - Importance of Western Ghats | Ground Floor SH |
| | K Chidananda Gowda | Disruptive Technology | Second Floor SH |
| | Hisashi Yanasaki , Kiran Thamankar , Kapil Dev Sharma | Trends on Welding Automation and Future for Welding automation in India | Mechanical SH |
| | H V Dinesh Prasad | Business Analytics and Data Sciences for Management students | First Floor SH |
| | 3:45 PM - 5:00 PM | M N Vidhyashankar | Water revolution 2.0 |
| | Robert Richardson | Robotic inspection, maintenance and repair of urban water systems | Second Floor SH |
| | M V Subramanian S M Sunder | Industry 4.0 w.r.t. Mechanical Engineering | Mechanical SH |
| | Amar Kumar Pandey | Managing enterprise complexities | First Floor SH |

Technical Sessions

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|--------------------|--------------------|---|-----------------|
| 9:30 AM - 11:00 AM | Joseph Sifakis | The ICT revolution-IOT | Ground Floor SH |
| | Kavi Mahesh | Understanding Rainfall in India through Data Analytics | Second Floor SH |
| | Amar Kumar Pandey | Smart Cities | Mechanical SH |
| | Sandeep S P | Fortifying HR for future | First Floor SH |
| 11:30 AM - 1:00 PM | Satish K. Tripathi | The new world of Thinking Machines | Ground Floor SH |
| | Anish Arora | Social Sensing Services for Smart Communities | Second Floor SH |
| | Robert Richardson | Exploration Robotics | Mechanical SH |
| | Sandeep S P | Strategic HR business partnering - Insights from a practitioner | First Floor SH |

Monday, January 8, 2018
Theme: Energy

| Time Slot | Speaker Name | Topic | Venue | |
|---------------------|--|---|--|-----------------|
| 9.00 AM - 9.50 AM | Joseph Sifakis | On the Nature of computing | Main Stage | |
| 9.50 AM - 10.40 AM | Anant Agarwal | Digital Education Transformation | Main Stage | |
| 11.00 AM - 11.50 AM | Y B Ramakrishna | Bio Energy Initiatives in India - Cutting edge technologies and Policy frame work | Main Stage | |
| 11.50 AM - 1.00 PM | Rajashekhar Hiremath Sanjay Sahay Anant Agarwal Yugratna Srivastava | Panel Discussion: ENERGY | Main Stage | |
| 2.00 PM - 3.15 PM | Serge Haroche (NL) | A story about the interaction of light with matter in which water plays an important role | Netravathi Auditorium | |
| | Ada Yonath (NL) | Walk the talk | Netravathi Auditorium | |
| | Anish Arora | Cybersecurity of the Internet of Things | Ground Floor SH | |
| | Prakash Bettadapur | Agile Management | Second Floor SH | |
| | Suresh Nagesh | Alternate Energy and Opportunities in terms of R&D for the future | Mechanical SH | |
| | Bharat Shivappa | Marketing a consulting services firm | First Floor SH | |
| | 3:45 PM - 5:00 PM | Robert Richardson | Robotic maintenance and decommissioning of nuclear power stations | LH - 105 |
| | | Satish K. Tripathi | Research challenges of 21st century: A University at Buffalo Perspective | Ground Floor SH |
| | Anuradha Agarwal | Mid-Infrared integrated silicon photonics for sensing | Second Floor SH | |
| | Rajendran D | Startup Journey | Mechanical SH | |
| | Dileep Chandra | HR Shared Service Model | First Floor SH | |

Technical Sessions

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|--------------------|----------------------|---|-----------------|
| 9:30 AM - 11:00 AM | Sanjay Sahay | Cyber Security | Ground Floor SH |
| | Rajashekhar Hiremath | Future of Human transportation | Second Floor SH |
| | A K Sharma | Mathematics in South Indian Classical Music with Special Emphasis on Percussion Instruments | Mechanical SH |
| | Rahul Kini | Operations management in ITES | First Floor SH |
| 11:30 AM - 1:00 PM | Serge Haroche (NL) | How the laser has revolutionized physics during the last fifty years | Ground Floor SH |
| | Deva P Seetharam | Lifelong kindergarten: a fun approach to engineering a career | Second Floor SH |
| | V Krishna | Mathematics in South Indian Classical Music with Special Emphasis on Percussion Instruments | Mechanical SH |
| | Chethan Shenoy | Application of Financial planning & wealth management | First Floor SH |

Tuesday, January 9, 2018
Theme: Environment

| Time Slot | Speaker Name | Topic | Venue |
|---------------------|---|--|-----------------------|
| 9.00 AM - 9.50 AM | Ada Yonath (NL) | The Fruits of Curiosity | Main Stage |
| 9.50 AM - 10.40 AM | D P Agrawal | Waste Disposal | Main Stage |
| 11.00 AM - 11.50 AM | Manoj Rajan | Eco Tourism | Main Stage |
| 11.50 AM - 1.00 PM | Prahalad RamaRao Jagadeesh Gopalan Rajah Vijaykumar S S Murthy B K Ravindra | Panel Discussion: ENVIRONMENT | Main Stage |
| 2.00 PM - 3.15 PM | Joseph Sifakis | Smart Grids and IOT | Netravathi Auditorium |
| | Serge Haroche (NL) | Walk the talk | Netravathi Auditorium |
| | Bashir Ahmad | Disaster due to Brick kiln Emissions | Ground Floor SH |
| | C D Balaji | Aerospace Environment & Eco-System | Second Floor SH |
| | V Krishnamurthy | Pollutants in our Environment | Mechanical SH |
| 3:45 PM - 5:00 PM | Ananth Ravi | Paradigm shift in Indian Entrepreneurship over the last for decades | First Floor SH |
| | Nataraja Karaba | Food Security in India | LH - 105 |
| | D P Agrawal | Environment Friendly Technology | Ground Floor SH |
| | U Chandrashekar | Fostering creativity and innovation among engineering students through experiential teaching-learning models | Second Floor SH |
| | B A Hasanabba | Math Magic | Mechanical SH |
| | Manoj Rajan | E-Commerce in agricultural markets- Karnataka model | First Floor SH |

Technical Sessions

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|--------------------|--------------------|---|-----------------|
| 9:30 AM - 11:00 AM | Jagadeesh Gopalan | Enchanting waves | Ground Floor SH |
| | S S Murthy | Renewable Energy | Second Floor SH |
| | Veerabadra Yadwad | IOT application | Mechanical SH |
| | B K Ravindra | Intellectual property rights | First Floor SH |
| 11:30 AM - 1:00 PM | .Harikrishna Maram | Management and Technology | Ground Floor SH |
| | Sathya Prakash | Microbiome next generation therapeutics | Second Floor SH |
| | Robert Richardson | Exploration Robotics | Mechanical SH |
| | Anita Pai | Technology in Banking- New Frontiers | First Floor SH |

Wednesday, January 10, 2018
Theme: Health

| Time Slot | Speaker Name | Topic | Venue |
|---------------------|--|--|------------|
| 9.00 AM - 9.50 AM | Serge Haroche (NL) | The Future of Quantum Science and Technology | Main Stage |
| 9.50 AM - 10.40 AM | S N Omkar | Yoga for Holistic Health | Main Stage |
| 11.00 AM - 11.50 AM | Ada Yonath (NL) | From Basic Science to Advance Medicine | Main Stage |
| 11.50 AM - 1.00 PM | S N Omkar Dipshikha Chakravorty K Byrappa Kamlesh Manuja Anand Venugopal | Panel Discussion: HEALTH | Main Stage |

Technical Sessions

| | | | |
|--------------------|-----------------------|---|-----------------|
| 9:30 AM - 11:00 AM | Bashir Ahmad | Diabetes & Environment | Ground Floor SH |
| | Dipshikha Chakravorty | Biomedical Application of shock waves | Second Floor SH |
| | D P Agrawal | IT and Health Delivery Systems in India | Mechanical SH |
| | Kamlesh Manuja | Operational Efficiency through Digitization | First Floor SH |
| 11:30 AM - 1:00 PM | Antony Piriya Kumar | Bionic Eye | Ground Floor SH |
| | Gopal Hegde, | Nanofabrication Techniques and Challenges | Second Floor SH |
| | Yugratna Srivastava | Renewable Energy Technologies | Mechanical SH |
| | Prashanth Prakash | How to Start a Start-up and Digital Economy | First Floor SH |





SAHYADRI CONCLAVE

SCIENCE • TECHNOLOGY • MANAGEMENT



**VALEDICTORY
SAHYADRI
CONCLAVE**
10TH JANUARY 2018



Valedictory Ceremony of Sahyadri Conclave

During the Valedictory Ceremony, Mr. Manjunath Bhandary, Chairman, Bhandary Foundation while addressing the gathering shared the journey of the best last five days of Sahyadri Conclave. He proclaimed that at the closure of Sahyadri Conclave, the end goal has been achieved which was to inspire students in the field of Science, Technology and Management. As evidence to the outcome being met, he was fascinated to see students approaching the Nobel Laureates and the scientists & discuss their ideas & projects. He appreciated Sahyadri Staff and Students for managing such a great event and proudly acclaimed that the entire five-day event was organized and managed by the in-house team. He expressed his willingness to hold Sahyadri Conclave next year as well to reach greater number of students with the support of the Government and other stakeholders.



TAARE ZAMEEN PAR - "THE MOVING PLANETARIUM"

Moving Planetariums offer very important Astronomical and Science exhibits. These are latest state of the art related to Astronomical and Science exhibits which are developed by very well-known Research and Development organization such as NOAA Earth Research Organization, Boulder CO, USA and Space Telescope Science Institute of NASA. Students can experience the mesmerizing mysteries of the space at the planetarium held at the conclave.

Defence Research and Development Organization (DRDO)

The Defence Research and Development Organization (DRDO) will have a major presence at the conclave. DRDO will display a range of defence technologies and equipment. The exhibition includes exhibits which will provide a close look of the achievements of the DRDO in cutting-edge technologies. BRAHMOS will be the main eye-catcher.



BRAHMOS Missile is a supersonic cruise missile and can be used against ship and land targets. It has a range of upto 300 kms. The missile is uniquely configured for installing in ships, submarines & aircraft and on ground vehicles. It has been flight tested twice during June 2001 and April 2002 meeting all mission objectives.

WORLD OF INSECTS Insects are those animals with a segmented body, that have body divisions namely head, thorax and abdomen, a pair of antennae, two pairs of wings and three pairs of legs. The big question is - Do these crawling, jumping, flying creatures merit our attention? Their varied life forms, life styles, attractive colours, and an ability to impact the environment in myriad ways make them the most studied groups of organisms in the world. The exhibit is a glimpse into the world of Insects



'Laya Lavanya' The percussions are played individually & collectively and blend seamlessly with flute, violin and the keyboard, to provide an effect that is exhilarating as well as aesthetically appealing. 'Laya Lavanya' is directed by versatile percussionist Vidwan Anoor Ananthakrishna Sharma and presented by renowned Mridangam artist Dr. V. Krishna.

Kudroli Ganesh is the winner of 10 prestigious national magic awards such as 'Indrajala Pratibha Mega Magic Award', India's First prestigious 'Illusion Magic Award', Twin Gold Medal Magic Award etc. Kudroli Ganesh was conferred with District Rajyotsava Award – 2011 by the Dakshina Kannada District Administration.

'Nrityaangan' It is a young and dynamic cultural organisation set up in 2012 by Smt. Radhika Shetty, an upcoming Bharatanatyam professional from Mangaluru, also runs an academy where she imparts training in Bharatanatyam to young students, who dream about becoming performers.



Tejaswi Ananth a 19-year young Variety Entertainer from Bengaluru performs 16 different acts. He is known as one of the India's Youngest Juggler and Unicyclist and he is also one of the World's youngest Hand Shadow Artist. He is the winner of "All India Magic Competition" in Junior's category. He has performed more than 800 shows in India and abroad for corporate and other events. He has also performed in 9 different TV channels mainly "Entertainment Ke Liye Kuch Bhi Karega" in Sony TV, "Hindustan Ke Hunarbaaz" in "OK" channel.

Performance by Sahyadrians

Varun Rao, an alumnus of Sahyadri College currently working as a Software Developer in DevAppSys IT Solutions, Mangaluru. He has learnt flute under Vidwan Muralidhar, Udipi.

Abhishek M. B, a Second Year B.E, Mech student has been awarded with Kalashree Award - 2013 for creative performing arts in flute conducted by Bala Bhavana, Bengaluru.



ACKNOWLEDGEMENTS

A Novel and Innovative venture Sahyadri Conclave to rejuvenate science education and research contributing to the enhancement of science education, has been envisaged by support of renowned personalities and various government support. It is time to acknowledge their mentoring and support.

Mr. Basavaraj Rayareddy, Minister for Higher Education Government of Karnataka extended his whole hearted support to conduct this event. We sincerely thank him for his help.



Mr. Priyank M. Kharge, Minister of state for Information Technology and Tourism Government of Karnataka has provided his full-fledged support and encouragement to host this Sahyadri Conclave event. We express our gratitude for his kind support.

M R Seetharam, Minister for Planning, Statistics, Science and Technology in the Government of Karnataka has guided and provided moral support to host this Sahyadri Conclave event. We express our in debt gratitude for his kind support and for inaugurating this event.



Prof. M. D. Tiwari: The chief architect of Science Conclave at IIIT Allahabad and instrumental in fostering the same at Sahyadri as a Science Conclave. He is the mentor of Sahyadri and seeds for professional growth was sown by the MoU established between IIIT Allahabad and Sahyadri. Genesis of Science Conclave as a concept to Sahyadri was his brain child to give a renewed look in this part of the state. We owe our respects in nurturing this concept.



Prof. M. R. Radhakrishna: He is the back bone and guiding force of Science Conclave at IIIT Allahabad. He envisaged plan for conclave and fostered the Scientific execution from planning covering the holistic perspective. He was instrumentals in apt connect with the Noble Laureates and Scientists to meet the basic premise of conclave leading to professional execution.



Gopalan Jagadeesh - Aerospace Engineering – IISc Bangalore: He is instrumental in the entire planning right from identifying the guests, exhibitions and technical session plans, we are greatly indebted to his services for our professional growth.

Prof. Byrappa, Vice chancellor of Mangaluru University, provided his support and encouragement for conducting the Sahyadri Conclave. We whole heartedly thank him for his time in the Panel discussions and Valedictory ceremony.



Ministry of External Affairs: Sahyadri being a private and young institute, it was the support of The Ministry of External Affairs of India, the government agency responsible for encouraging our venture for giving the green signal to surge ahead, we are grateful to the government for the timely support and encouragement.

The Department of Science & Technology: Ministry of science and technology plays a pivotal role in promotion of science & technology in the country. It has supported our venture through funding and recognizing the initiative.

Karnataka State Council for Higher Education - KSCHE: Higher Education through Councils took a step forward to support this initiative in a Private institute for fostering education development to schools and colleges of D K District.

Information Development, Biotechnology and Science & Technology Department: Karnataka Science and Technology Promotion Society - KSTePS which coordinate programs of the Department across the State too supported our venture

Visvesvaraya Technological University - VTU, Belgaum has always been backing technical initiatives. We are grateful to them for supporting the initiative facilitating the event in association with them.

M. S. Ramaiah Institute of Technology - MSRIT, Bangalore has been Mentoring Sahyadri under Margadarshan scheme of AICTE. They too have accorded their support and facilitating the conclave in association with them.

The entire conclave needs the support to make learning through projects and diverse exhibitions creating the interest and curiosity alive. In this endeavor

The BrahMos : The Aerospace of Defence Research and Development Organisation of India will bring forth their innovation through exhibiting their technology to students and participants.

Bhabha Atomic Research Centre – BARC: A premier multi-disciplinary Nuclear Research Centre of India having excellent infrastructure for advanced Research and Development with expertise covering the entire spectrum of Nuclear Science and Engineering and related areas will also exhibit to focus on Environment, Health care for Societal awareness.

Mobile Planetariums “Taare Zameen Par”: Government initiative first of its kind in India to educate and entertain young minds about the science behind the stars and space as an outreach programs across India.

We thank the Principals of Navodaya, Morarji Desai, Ambedkar and other Private Management schools for encouraging their students to participate in the conclave.

There are many supporting hands from Industry, Government sectors, Educationists, Research Scientists who are all the well wishers of education we salute them....



FEEDBACK

Dear wonderful academicians and scientists many thanks for inviting me and for your care and concern. I hope that by now you love even the ribosome
Best wishes

Prof. Ada Yonath, Nobel Laureate



FEEDBACK

I am extremely happy that arrangements for the conclave have been wonderful. I hope that next event would be far better than this one. I am always available to be with you.
Best wishes

Dr M.D Tiwari



”

Keep education connected to practice and real economy.

**Prof. Joseph Sifakis
Turing Awardee**



”

Beautiful campus and amazing hospitality

Prof. Robert Richardson, Scientific Researcher in Robotics, Leeds University, UK



”

The Sahyadri Conclave is an excellent idea of getting a galaxy of eminent personality to participate and motivate the young minds. Congratulations to the management and the entire organization team for a job well done.

All the best

Vice Admiral N N Kumar



”

Congratulation to Sahyadri College Leadership for the vision of the 21st century college Sahyadri is entirely unique in India. Keep up the great work

Padma shri Dr. Anant Aggarwal, CEO eDX - MIT, USA



”

Best innovative driver installed in the country, perhaps in Asia. Excellent academic environment and faculty for the excellence in educating future engineer and scientist. Great efforts in nation building by team Sahyadri. Best wishes.

Dr Sudhir Mishra, CEO & MD, BrahMos Aerospace, Ministry of Defence



”

Terrific decade so far looking forward to see where Sahyadri reaches over the next decade.

Dr. Anu Aggarwal, Principal Research Scientist, MIT, USA



”

Very impressive environment for learning and entrepreneurship. I witnessed close link of faculties, students and industries for undertaking new projects of relevance.

Prof D.P Agarwal, Former Chairman, UPSC of India



”

Had a wonderful visit. All people involved including students that got some chances were extremely wonderful. Certainly, with such a nice leadership and visionary approach this place will be one of the premier institution in the world and produce the very best mind in the spirit and service of humanity.

Prof. Sathya Prakash, Professor, Mcgill University, Canada

FEEDBACK



The culture of this organization is Awesome and keep me with highest regard. People, events and inventions on knowledge sharing will be resonantly helping both
Best wishes
Anita Pai, Senior GM, ICICI Bank, Mumbai



Congratulation to Dr. Manjunath Bhandary for excellent event. Also, I'm impressed with innovative ideas in education introduced at Sahyadri

All the best
VeerabhadraYadwad



The best part of the Sahyadri Conclave was to listen and interact with the experts across the globe under one roof. It has been definitely beneficial to increase my knowledge and share it with my colleagues and students back at my home university. I would like to thank the organizers of this Sahyadri Conclave for organizing such a mega knowledge event.
Swetha, Asst. Prof. Akkamahadevi Womens University Vijayapura.



Excellent platform for all of us to interact with the masters of the subject. Thank you Sahyadri for providing us with this once in a lifetime opportunity to gather knowledge from Nobel Laureates. I appreciate the efforts of our college.
K Abhishek Nayak, Student



I am grateful to this institution for providing awesome opportunity to interact with Nobel laureates. It was the golden moment when we shared our thoughts and we learnt so many things from them. It is my luck and pride to share about Conclave and I wish it happens every year. I am proud to be Sahyadrian.
Dhanush Adoor, Student



Thank you Letter from Prof. Serge Haroche
Nobel Laureate

Thank you and comments after my visit to Sahyadri

Dear Mr Bhandary,

Claudine and I have come back safely to Paris after a very exciting visit to Sahyadri College and to Mangalore. I would like to thank you again very much for your kind hospitality and the warm welcome we have received from you and your team, in particular from Mrs Probid and Johnson. The festive events and the delicious dinner in the fish restaurant on Tuesday night have been quite memorable.

These four days at Sahyadri Conclave have been a great experience for me and my wife. I have been glad to talk and exchange with students of this college as well as with pupils from high schools, all sharing the same enthusiasm for knowledge and for science, all curious to learn and to use their knowledge to perform useful tasks for themselves and for society.

Institutions like Sahyadri are at the top of the education pyramid in India, preparing for a fruitful and successful life the generation of young people who will be in charge of your country tomorrow. **I have witnessed the vibrant atmosphere of Sahyadri College, seen how this institution acts as a magnet attracting pupils from many high schools in the vicinity, teaching them how to build projects based on individual dreams and how to realize these projects in a realistic way.** At the same time that the students are encouraged to develop their own initiatives, they also follow a precise curriculum giving them a solid background in various fields in maths, science, technology and management. The balance between attending courses and developing personal projects seems to me quite original and should be an example followed by other institutions in India and abroad.

If I have an advice to give, I would recommend that Sahyadri add some teaching in humanities, for instance in history (involving the history of sciences) as well as some sociology and anthropology. This could be done through lectures, but also through recommended readings followed by presentations by the students. Since the goal of Sahyadri is to train students to be sensitive to societal issues and to induce them to do things useful to the Indian society, such courses and readings would broaden their perspective and help them chose their way. And they will instill in the students minds the fact that science is part of a broader culture.

Organizing regularly conclaves like the one of this year is a very demanding and expensive endeavor. But it might be very good to encourage the students and give them role models. May be such a conclave could be gathered every two or three years, with different speakers. I could advise you to chose among Nobel laureates whom I know the ones who would be willing to come to Mangalore. Inviting Nobel laureates in literature, economics and peace would also contribute to broaden the minds of your students, opening them more to humanities and other important aspects of life.

I wish Sahyadri College full success in its mission of education and training of the young scientists and managers of tomorrow.

With my best regards,
Serge Haroche

I wish Sahyadri College full success in its mission of education and training of the young scientists and managers of tomorrow.

Message from the Conclave Committee



From the Principal Desk

Dear Friends,

It is time to rejuvenate the science amidst the young masses to rekindle their curiosity. It is time to introspect holistic integration of Science, Technology and Management and overcome working in silos. The basic premise of this Sahyadri conclave is systemic view to all the three through the blend of wisdom from Noble Laureates, Turing Awardee, renowned International Scientists across the globe, across the disciplines, Entrepreneurs, Industrialists, Social Scientists, Economists, Policy makers on a common platform to enhance the quality of life. Be part of the conclave, participate in deliberations, share your view point to contribute your little to better the human mankind.

Prof. Umesh M. Bhushi

Principal

“
Conclave did a big brainstorming to students from High school to Research scholars around 4000 and faculties from various districts.
”



From the Administrator Desk

Sahyadri Conclave - Science, Technology, Management gave a beautiful insight of conducting an international event. Starting from making of the call letter/ invitation letter to NL-Nobel laureate/TA-Turing Awardee to all other renowned scientists to conduct of the valedictory we(Conclave team) faced challenges. Most of the dynamics were uncertain still we took it and show was put up. Setting of the technical session and selection of speaker was the biggest challenge matching the themes such as water, Energy, Environment and Health. Few speakers withdrew at last minute we had problems arranging for the same. Once the show began all problems turned into joy. A festive mood came into campus from 6th to 10th January 2018. Press and media had given a good coverage of the conclave. Our faculty team and students have worked like machines. Few student volunteers have worked even as substitute drivers. I acknowledge everyone's hard work. In my view, Conclave did a big brainstorming to students from High school to Research scholars around 4000 and faculties from various districts. I personally thank chairman and Principal for shouldering me the responsibility. I thank all the teams for helping and making the event grand success.

Dr. C. K. Manjunath

Convener - Science Conclave

◀ Prof. Satish K Tripathi
President, University at Buffalo, USA



From Coordinator

Organizing the Five day Science conclave was one of the biggest challenges for us. Being the coordinator, it was a great opportunity to work for an event which involved renowned Nobel laureates, scientists, technocrats, industrialist and young talents. This event served as a platform to motivate science among young minds especially high-school students, PU students, UG/PG students and scholars, management students, etc. I am personally delighted to have interacted with NL, scientist and others and gaining knowledge from them on one side and on the other side gaining experience interacting with young enthusiastic students who showed excellent response. I personally thank the whole Sahyadri family for cooperating whole heartedly, due to which the event was a great success. I thank the management especially the chairman for having faith in me and shouldering this responsibility.

Mr. Anush Bekal

Coordinator, Science Conclave

“
Conclave served as a platform to motivate science among young minds especially high-school students, PU students, UG / PG students and scholars, management students.
”

▶ Padmashri Ananth Agarwal
CEO of edX, USA

Dr. Anish Arora
Professor, Ohio State University, USA



| | |
|---|---|
| Convener | Dr. C. K. Manjunath |
| Coordinator | Mr. Anush Bekal |
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| Transportation & Parking | Mr. Prasadchandran, Mr. Akshay NH |
| VIP & Logistics | Dr. Shamanth Rai, Ms. Deepti, Mr. Ravichandra K, Dr. Molly S. Chaudhuri, Ms. Joyline, Ms. Rashmi Bhandary, Mr. Sourabh Prakash, Ms. Sweekrithi, Ms. Ramya BS, Ms. Madhu, Ms. Ronnie, Ms. Swathi Rai, Mr. Balaji, Mr. Praveen Kumar, Mr. Harisha, Mr. Prakhayath Rai, Mr. Janardhan DR, Mr. Bharath Bhushan, Dr. Naveen Bappalige, Mr. Praahas Amin, Mr. Rithesh Pakkala, Mr. Sunil. B.N. |

**“Alone we can do so little;
together we can do so much.”**



Need to revive interest in basic science subjects, says Nobel laureate

TIMES NEWS NETWORK

Mangaluru: There is a need to revive interest in basic science as demand for the subject is diminishing, rued 2012 Nobel laureate and physicist Serge Haroche.

Serge was in the city to inaugurate Sahyadri Conclave on Science, Technology and Management at Sahyadri Col-



THOUGHTFUL: Ada E Yonath, Nobel laureate in chemistry speaks at the Sahyadri Conclave in Mangaluru on Saturday

SAHYADRI CONCLAVE

lege of Engineering and Management on Saturday. The conclave will conclude on January 10. Serge, who was sharing the dais with another Nobel laureate in Chemistry Ada E Yonath, said the number of aspirants taking up basic sciences has decreased signifi-

cantly. "While some of them go for applied sciences, others prefer to become entrepreneurs," he said, adding that there is pleasure in discovering a new thing than receiving a Nobel prize.

"People who become scientists and get involved in research activities are neglected as it is not a lucrative career. So it is the duty of politi-

cians and policy makers to give due importance to such talents (scientists). I think it's a serious issue in India as well as the rest of the world," he added.

'Have high regards for India' Nobel laureate Ada E Yonath recalled her association with G N Ramachandran, an Indian physicist. "When I was a

learner, he (Ramachandran) despite being the biggest scientist of that time had recognized my work in the field of Collagen. So I love India, Indian scientists and as well science here," she said.

Opportunity for students

The conclave provides an opportunity to the young generation to meet and interact with Noble laureates, internationally renowned scientists and industrialists. The primary purpose of the conclave is to instill in the student participants the spirit of scientific inquiry via motivational interactions with Nobel laureates and scientists. It will also help them in career guidance towards science and technology. About 1,200 students taking part in the conclave.

'GLOBAL WARMING IS THE BIGGEST CHALLENGE'

EXPRESS NEWS SERVICE
@Mangaluru

STUDENTS pursuing basic science should try to find solutions to global warming, health and other problems, stressed Prof Serge Haroche a Nobel prize winner in Physics.

"Global warming is the biggest challenge and scientists along with representatives of government should redress this problem at the earliest," Prof Haroche stressed while addressing the gathering at Sahyadri conclave organised by Sahyadri college of Engineering and Management at Sahyadri campus on Saturday.

The youth in particular are drawn to entrepreneurship. The youth should be motivated to pursue basic sciences, he stressed. Prof Ada E Yonath, Noble prize winner in Chemistry, recollected that how the Indian Physicist G N Ramachandran had appreciated her research on 'Ribosome' and had further motivated her.

"Thus I have special respect for India and Indian scientists. I visited India for the first time in 1970 and since then I am a regular visitor to India," she said. India in past five decades had made tremendous progress in science and technology. The government too is implementing schemes to motivate students to focus on science.

She lauded Sahyadri college of Engineering and Management for organising Sahyadri conclave and igniting a passion for research in science, technology and management. In facilitating an interaction between Nobel laureates, international scientists and industrialists, students will be benefitted, she added.

Mobile Planetarium

State government in order to make basic sciences attractive to high school students is all set to introduce mobile Planetarium.

This mobile Planetarium will

visit all schools spread across state and in days to come would make a significant contribution to science and technology, Minister for Planning, Statistics, science and technology M R Seetharam said.

Swami Jitakamanandaji of Mangaluru Ramakrishna Math inaugurating the conclave said Sahyadri college of Engineering and Management is one among the top technical institutions in state. Bhandary Foundation Chairman Manjunath Bhandary said the five-day conclave was organised in order to ignite a passion for science among students.

"More than 1,200 students of high schools, PU college and PG institutions from this and other districts have been encouraged to participate in the conclave," he said and added that this is a memorable day for the institution. Sahyadri college of Engineering and Management Director D L Prabhakara presided over the programme. Former Director of IIT, Allahabad, M

D Tiwari, Allcargo Logistics Founder and Chairman Shashikiran Shetty among others were also present. From Saturday onwards upto Wednesday (January 10), Nobel laureates, scientists, management experts will engage in meaningful dialogue to create innovative products, bridge the gap between prototypes and world class products.

A science exhibition, demonstration of drones among others can be seen at the conclave to end on January 10.

More than 1,200 students of high schools, PU college and PG institutions from this and other districts have been encouraged to participate in the conclave

Manjunath Bhandary, Bhandary Foundation Chairman

SAHYADRI CONCLAVE

Nobel Laureates interact with students; Science exhibition showcases innovations

EXPRESS NEWS SERVICE
@ Mangaluru

DAY two of Sahyadri Conclave on Sunday started with an open session by Nobel Laureate Prof Serge Haroche, on 'Controlling and manipulating single photon in a box - The scientific adventure of a lifetime', at Sahyadri College of Engineering & Management.

Passionate about his profession, Serge does not consider being 'a scientist' a job. His love for science dates back to his school days. He recounted his journey in the field - his fascination for astronomers by the age of 12, and keen interest to discover the laws in the field of astronomy a

He further spoke about how classical physics did not solve the puzzle of the spectrum of light emitting from heated bodies, and the concept of the photoelectric effect.

In an interaction with students during sessions later, Serge answered questions posed to him, including the origins of the study on speed of light, that he traced back to Galileo and his method of lamp.

Another interactive session was the panel discussion on



Prof Serge Haroche

'Water', where Vidyashankar, IAS, stressed on a multi-pronged approach to water shortage by suggesting the government incentivise water harvesting and disincentivise wastage. "Tapping of groundwater is not the solution," he added.

"A 60x40 dimension house in Bengaluru needs to mandatorily have a water harvesting structure," said Vidyashankar. He drew on the example of Israel, that is a "desert" but is a nation with high cultivation,

and ranks high in water conservation.

Besides the technical and plenary sessions, the college hosted quite a few working models by students and alumni and students from other institutes.

Alumnus Sachin Ganesh and his team displayed a fun and interactive side to science with an augmented-reality based learning app - an application compatible with IOS and Android which turns images scanned into 3D models on the phone or tab. "The interaction with the model creates a fuller learning experience, as opposed to the image and explanation in a textbook," said Divya, a developer. 'Gamification of education' is the motto, she added.

Research Design Lab displayed kits and modules for budding innovators in engineering and electronics. Students exhibited LiFi (wifi using lights) where light from the bulb was used, instead of radio waves, to transfer data.

Many interactive models including a prototype of Hydraulic System used by JCBs and Brahmos exhibition by Defence Research and Development Organisation were on display.

Sahyadri Conclave begins

SPECIAL CORRESPONDENT
MANGALURU

The five-day Sahyadri Conclave - science, technology and management, began at the Sahyadri Institute of Technology and Management here on Saturday.

Mangaluru Ramakrishna Mutt president Swami Jitakamanandaji inaugurated the conclave in the presence of Nobel laureates Ada E-Yonath and Serge Haroche, Higher Education Minister Basavaraja Rayaraddi, Science and Technology Minister M.R. Seetharam and others.

Inaugurating Project Exhibition, Mr. Seetharam shared the success story of Karnataka for its innovative measures to reach the students of both urban as well rural areas. He mentioned of the first initiative, "Mobile Planetarium", which travels to schools and colleges in remote areas allowing students get an opportunity to view the Galaxy and Planets, which used to be a challenge years ago. He also highlighted the second initiative of the State, the latest 3D Digitalised Stationary Planetarium to be set up in Pilikula, Mangaluru, in February. This will be the first in India and notably, also in Asia.

Serge Haroche in his talk, said that to be a scientist is a passion and not a profession. For scientists, pleasure of science is pleasure of discovering things. He urged young talented students to opt for science as the challenge is to retain youngsters in science since they are attracted to other streams easily.

Bhandary Foundation Chairman Manjunatha Bhandary and others were present.

Motivating students to take up Science as a career and make them understand the role of Research in nation building.

Being a scientist my passion: Haroche

TIMES NEWS NETWORK

Mangaluru: The second day of the Sahyadri Conclave-2018 on science, technology and management, started with the plenary session of Nobel Laureate Serge Haroche, who delivered a technical talk on 'Controlling and manipulating single photon in a box—The scientific adventure of a lifetime'.

On Sunday, he discussed stories of his scientific life. He said being a scien-

SAHYADRI CONCLAVE-2018

tist was not a profession but his passion. Between the age of 9 and 12, he was fascinated by various astronomers. He had immense interest in the field of astronomy, and was keen to learn more and discover the laws beholding the same. He also spoke about mutual relationship between atoms and light. He spoke about how classical physics could not solve the puzzle of spectrum of light being emitted from heated bodies, and the concept of

photoelectric effect. The second plenary session was facilitated by Satish K Tripathi, president, University at Buffalo, USA. He spoke on 'Change, risk and success—A personal story'. According to him there are three principles, an individual must inculcate: Set long term ambition and be ready for change; be self-reliant and always be ready to learn from others; plan strategically and carefully, but always be ready to take risk. He was influenced by great faculty who instilled the idea of learning in him. He stressed on fundamental education and humanity. He emphasised on analytical and mathematical understanding of data using decision making.

Plenary session three was facilitated by Vice Admiral N N Kumar, executive director (production) at BrahMos Aerospace Private Ltd. He delivered a talk on 'BrahMos—A journey of excellence'.

He spoke about India's first launch vehicle SLV-3 and how successfully it was launched under the leadership of former president Dr A P J Abdul Kalam.

Nobel Laureate Haroche interacts with students at Sahyadri Conclave in city

ENS @ Mangaluru

Serge Haroche, a French physicist who won the Nobel in Physics in 2012, interacted with students at Sahyadri Conclave on Monday on how laser has revolutionised physics during the last fifty years.

Prof Serge Haroche, with David Wineland, won the Nobel prize for ground-breaking 'Experimental Methods that Enable Measuring and Manipulation of Individual Quantum Systems'—a study of the particle of light, the photon.

Serge trapped photons and experimented on them by sending atoms through the trap, without destroying the photons. His experiments open the possibility of highly precise light-based clocks, more accurate than the atomic clocks.

He traced the brief history of

the measurement of time and the increase in its precision. He also spoke to students about the constant flow between basic science and technology. "Observation of nature leads to theoretical models. These models lead to the prediction of new effects. The effects eventually help in the formation of new technologies, like the laser interferometric clock," he said.

He further traced the relationship between atomic physics and other fields of science including astrophysics, with a simulation of the nuclear medium: Fermi gases; particle physics, with symmetry violation and variation of fundamental constants; chemistry and biology with attosecond physics; and information science with quantum information. He spoke on how domains in physics interact with each other.

bring together Nobel Laureates, Scientists, Management Experts and students under one conducive platform

Nobel laureate, scientists share ideas at conclave

MANGALURU, DHNS: An organism's vital functions are managed by large, complex protein molecules produced in cells ribosomes and their genetic information from 'messenger RNA' is translated into chains of amino acids that then build proteins, said Israeli Scientist and Nobel laureate in Chemistry Ada E Yonath.

She was delivering a talk on 'The Fruits of Curiosity' during the fourth day of Sahyadri Conclave organised by Sahyadri College and Engineering and Management at Adyar in Mangaluru on Wednesday.

Mentioning about 20 types of Amino Acids, Ada E Yonath explained the functions of proteins in the lives of all organisms. Stress induces periodical packing of ribosome

particles, she said. Stating that she was inspired by Madam Marie Sklodowska Curie, she added that curiosity and passion brought her to the position where she is now.

During the second plenary session, UPSC former chairman Dr D P Agrawal spoke on waste disposal and stressed upon the role of technology in managing the daily waste in home appliances. Industrial waste, building and agriculture waste should be treated scientifically.

Centre of Excellence in Aerospace and Defence (CEAD) former chairman and Aeronautical Development Agency former Director CD Balaji delivered a talk on 'Aerospace environment and ecosystem'. He spoke about various environmental challenges in



Nobel Laureate Ada E Yonath

aeronautics which included air quality and particulate emissions, aircraft noise, water pollution from airline ser-

vices and radiation exposure generally seen in the field of aeronautics. He also highlighted vari-

ous methods adopted in the current era to mitigate these issues. In a nutshell, he also spoke about light combat aircraft design and multiple threat scenarios involved in the design.

A panel discussion was held on the theme 'Environment', in which IISc, Bangalore, Aerospace Engineering professor Jagadeesh Gopalan, Central University of Karnataka vice chancellor Prof S S Murthy and Alliance University, Bengaluru vice chancellor Dr B K Ravindra took part.

S-VYASA University advisor Prahlad Rama Rao was the moderator.

Concerns about the environment, likely solutions, sustainability and prevention of the same were addressed in the panel discussion.

Matha-musical session entertains Sahyadri Conclave participants

EXPRESS NEWS SERVICE @ Mangaluru

SEVEN Carnatic musicians enthused students with a classical performance at the Sahyadri Conclave on Monday. However, unlike most performances, the music here was delivered with a mathematical touch.

Mridangists Dr Anoor Anantha Krishna Sharma, recipient of 'Best Mridangam Artist' award by Gayana Samaja, and V Krishna, professor and Head, Mechanical Engineering, People Education Society Institute of Technology, Bengaluru, delivered the session on 'Mathematics in South Indian Classical Music with Special Emphasis on Percussion Instruments'.

Along with their students, the two maestros showcased the mathematical science behind Carnatic music. "Each stroke of music is calculated, mainly through addition and subtraction," assured Dr Sharma.

Dr Sharma further spoke on the Taala (cycle of beats), "The three speeds of music are 8 bit, 16 bit (the rhythmic one) and 32 bit." He spoke about Yathi, which is the arrangement of syllables in a particular shape to get a beautiful combination. Yathi (Shape of music), just like geometry, may be symmet-

rical and asymmetrical.

Various shapes of music were discussed. "The uniform structure of beats is Samayathi," he added. Music that takes the shape of the of Mrudanga (oval) in Mrudangayathi. Structure of Damaru in Damarugayathi. Structure of Gopura (conical top of the temple) in Gopuchchayathi. Structure of V in Shrothuvahayathi, he further explained.

Explaining the basics of music, he said: "Playing music with a faster beat is called Urutu."

V Krishna Venkataram, said western art of music was simpler than the Indian music. He explained the relation between tempo and rhythm - "Layagana is the ability to maintain the time in Thala," he said.

He spoke in brief about Koruppu, a musical practice where the time is reduced and bits are increased during the performance. "Thala is the musical time - the physical act, he explained. "The time difference between each thala is kept constant," he added.

He spoke in brief about the other concepts in Carnatic music including the Avadhana, Ashtavadhana, Shathavadhana, and Atheetha edupu and Anagatha Edupu. He encouraged students to read literature on classical music.

SAHYADRI CONCLAVE | Final day of sessions for high school, UG/PG students with Nobel Laureates, panel discussions, parallel sessions, 9am-1pm; valedictory function, Priyank Kharge, minister for IT/BT and tourism, Gaurav Gupta, principal secretary, IT/BT and tourism, chief guests, Manjunath Bhandary, chairman, Bhandary Foundation, presides, Sahyadri campus, Adyar, at 1pm

Develop scientific temper, students told

MANGALURU, DHNS: Minister for Higher Education Basavaraj Rayareddy urged the youth to develop scientific temper for the future of the country.

He was speaking at the Sahyadri Conclave organised by the Sahyadri College of Engineering and Management here on Saturday. He said, "Science and technology play a vital role in the development of a country. Technology has brought in several revolution in the world. Science and technology should find solution to the problems faced in the society."

Planning and Statistics, Science and Technology Minister M R Seetharam said that educational institutions should impart quality education to the children. The 3D planetarium at Pilikula will start functioning by February-end. The state government has utilised a sum of Rs 45 crore for the purpose, he added.

Ramakrishna Mutt seer Jithakamananda Maharaj said students are losing interest in science. The Sahyadri College of Engineering and Management has provided an opportunity for the students to interact with Nobel laureates through

the conclave, he added. About 1,200 students from various streams - high school, pre-university, graduation and post graduation - in Basic Sciences, Engineering and Management will participate in the conclave. The event will span over five days and will include sessions such as interaction with Nobel laureates, panel discussions with scientists, technocrats and entrepreneurs, and sessions on technology and management. There will be technical sessions related to current technological advancements, which will be delivered by renowned professors and technocrats.

Nobel laureates Ada E Yonath (Nobel Prize in Chemistry, 2009) and Serge Haroche (Nobel Prize in Physics, 2012), international scientists including Joseph Sifakis (Turing Award in Computer Science, 2007) Leeds University, UK, Scientific Researcher in Robotics Robert C Richardson, University of Buffalo, US, president, Satish K Tripathi, Florida University, Professor, S S Iyengar and Ohio University, US professor Anish Arora are participating in the conclave.



Ramakrishna Mutt seer Jithakamananda Maharaj inaugurates the Sahyadri Conclave organised by the Sahyadri College of Engineering and Management.

INAUGURATION



DREAMERS BY SERGE HAROCHE



CHALLENGERS BY ADA E YONATH



DSI INNOVATION LAB BY ANANTH AGARWAL



EMBEDDED SYSTEM BY JOSEPH SIFAKIS



MECH-TECH GARAGE BY SERGE HAROCHE

530 First year students who brought Laurels to the Sahyadri College at National level Competitions



530 first year students participated in various technical competitions
9 IIT's, 10 NIT's and 8 premier institutions across the country
Sahyadri is proud of their achievement and congratulate them for bringing laurels to the institute.

SAHYADRI

COLLEGE OF ENGINEERING & MANAGEMENT
MANGALURU