

THE INSTITUTION OF ELECTRONICS AND TELECOMMUNICATION ENGINEERS

FROM PRESIDENT'S DESK



Advances in science, engineering and technology are driving the economic development and social changes, today world-over. The well-known prime movers of innovations in scientific, technological and humanities fields are education, research, and infrastructure for access to information, information & communication technologies (ICT) and specialist manpower resources in the concerned area. These factors together help in building knowledge economy. To make India developed nation by 2020, investments in education, research, ICT and infrastructure for access are essential. However, what is important is to keep in mind the global scenario of fast changes that are taking place in technologies. Timely incorporation of the changes in our implementation programmes is necessary to keep pace with the developed countries.

It is a coincidence that our Institution deals with ICT — an area of technology, which is changing faster than any other. ICT, which in most generic sense is wired and wireless communication alongwith high performance computing, assumes special significance in development of a nation because it accelerates innovations not only in education but also in research. ICT has created paradigm shift in interdisciplinary research in physical sciences, life sciences, medicine, metrology, sensor systems etc. It is progressively adopting usage of devices based on MEMS, which are helping in ushering into the field of nano-technology. Nano-technology and genomics, perhaps will be the front-end state-of-the-art technologies in use 25 to 30 years hence.

The foregoing developments propound a paradigm shift in the approach to human resource development and research work in the field of ICT. I am concerned with the preparedness issue of our scientific and engineering fraternity to adopt the technologies of future and would like Publications Committee to augment the awareness by bringing out a special issue on the subjects of nano-technology education, which could be exploited for research, business, industry and healthcare processes. I invite your views on the subject and will be looking forward to receiving them through our e-mail address ietend@bol.net.in



Lt Gen D P Sehgal



Seen in the picture inaugurating the Apex Forum at Chennai (L→R) are Er V Appakutty, Chairman IETE Chennai Centre, Dr N M Parthasarathy, Chairman, ICC, Shri R K Gupta, Co Chairman, ICC, Hon'ble Mr Justice, S Ashok Kumar, Justice High Court of Madras and Lt Gen D P Sehgal, President, IETE.



National Conference at Aligarh. Seen L→R are Prof Pervez Mustajab, Co-MTECS-2005, Prof Javed Husain, Dean Faculty of Engg & Tech, Lt Gen Sehgal, President IETE, Shri Naseem Ahmad, Vice Chancellor, AMU Aligarh, M T Ahmed, Chairman, IETE Aligarh Centre and Prof M J R Khan, Chairman Dept of Electronics Engg, AMU Aligarh & Immdt Past Chairman, IETE Aligarh Centre.



A view of dais during National seminar at Mumbai (L→R) Shri Vimal Wakhlu, Convener TPC, Shri G S Tuteja, Chairman, IETE Mumbai Centre, Shri K L Jain, Member Telecom Board, Shri K G Sharma, CGM, BSNL, Dr K T V Reddy, Hony Secretary and Shri G H Joshi, Hony Treasurer.



A view the dais during Technical seminar at IETE Nashik sub-centre.



A section of the audience during lecture at IETE Noida Centre. Seen in the front row are Brig Ramesh Chandra, Chairman Noida centre, Shri S N Singh, Chief Guest and Lt Col I M Chandra, Immdt Past Chairman, Noida Centre.

NEWS FROM HEADQUARTERS

MoU between IETE & C-DAC Noida

The IETE and C-DAC Noida entered into a memorandum of understanding on March 23, 2005. President IETE, Lt Gen D P Sehgal, PVSM, AVSM, VSM (Retd) and Shri R K Verma, Executive Director, C-DAC, Noida signed the MoU on behalf of their organizations. Speaking on the occasion President IETE said that C-DAC Noida is actively engaged in education, training and R&D programmes. It has successfully completed integration of computer education in the high tech areas. He said that IETE as a leading professional society in the field of Electronics, Telecommunication and IT would like to join hands with C-DAC Noida and add value to the technical activities in IT related R&D and human resource development programmes. Shri R K Verma Executive Director, C-DAC Noida said that IETE is an organization known for more than 50 years in the field of electronics, telecommunication and Computer Sciences and C-DAC Noida would like to collaborate and share its expertise in dispensing the educational contents to the masses all over India, specially in rural areas. IETE could utilize C-DAC, Noida Data Centre for e-learning through the ISRO EDUSAT. It was also decided that there would be joint conduct of workshops, seminars and conferences. IT related research programmes envisaged by IETE would be entrusted to C-DAC Noida as and when necessary. C-DAC Noida would extend the facility of its well-equipped labs to ALCCS students of IETE for their project work.

Apex Forum on 'Reaching the Unreached'

Hon'ble Mr Justice, S Ashok Kumar, Justice, High Court of Madras inaugurated IETE Apex Forum held on March 19, 2005 at Southern Crown Hall, Hotel GRT Grand, T Nagar, Chennai and emphasized that the process of "Reaching the Unreached" is not to be implemented by Govt only but

also by private agencies as well as in collaboration. President IETE, Lt Gen Sehgal presided over the function. Welcome address was delivered by Dr N M Parthasarathy. Shri R K Gupta, Co-Chairman, Industrial Co-Ordination Committee introduced the theme. Dr S V Raghavan, Dean, Planning IIT, Madras, Shri K B Brahmadathan, CGM, BSNL Chennai Telephones, Shri A S Guin, Chief Engineer Doordarshan, New Delhi and Shri K S Lakshminarayanan, GM, ELCOT, Chennai were the panelists. The presentations were succeeded by an interactive session between the participants. Chairman, IETE Chennai Centre Shri V Appakutty proposed vote of thanks.

News From Local Centres

Ahmedabad

- IETE Ahmedabad Centre organized one day workshop on "Mobile phone technology & Desktop PC hardware and Assembling" on 25th March, 2005. Smt Smriti Dagur, immediate Past Chairman of Ahmedabad Centre, made the opening speech of the workshop. Shri P M Udani, Convenor of the workshop, gave brief introduction of speakers and also provided details about planning and contents of the workshop. Shri V K Arya presided over the function and presented mementos to guest faculties. The vote of thanks was given by Hony Treasurer Shri R A Dholaria.

The morning session was devoted to Desktop PC hardware and Assembling. Shri Kaushik Patel of Metro Computers explained hardware architecture, assembling procedure and practically demonstrated fault finding and servicing of Pentium-III and Pentium-IV desktop PCs. The post lunch session was on Mobile Phone Technology. Shri Rajendra Patel and Shri Jigar Shah of Soortel Mobiles explained the diagram, signal

processing, Software installation pertaining to popular models of mobile phones and also explained about voltage/frequency measurements, faultfinding and servicing procedure during laboratory session.

- IETE Ahmedabad Centre and Computer Society of India Ahmedabad chapter jointly organized a popular lecture on "Nanotechnology" on 23rd October 2004 at GLS Auditorium which was attended by more than 150 professionals.

Aligarh

The two day conference on "Modern Trends in Electronics and Communication Systems (MTECS-2005)" was jointly organized by the Department of Electronics Engineering, AMU, and IETE Aligarh Center on March 5th and 6th 2005. A grand inaugural function was held in the Assembly Hall of the Z H College of Engineering & Technology. Shri Nasir Ahmed, IAS and Vice Chancellor of AMU Aligarh was the Chief Guest and Gen D P Sehgal, President IETE, presided over the function. Out of 95 papers received 65 papers in the following areas were selected for presentation; Device modeling, Digital Signal Processing, Optoelectronics and Fiberoptic communication, Electronic Instrumentation, Active filters, Mixed signal circuits, Blue tooth Technology, Secure communications, Wireless communications, Multimedia Communications, satellite Communication and wide area networks, Microelectronics, Biomedical Engineering, Networking, Computer architecture, Neural Networks & Fuzzy Logic and Power Electronics. The invited talks were delivered by Prof H M Gupta, professor, IIT Delhi, Prof Y P Singh, Director C-DAC, Noida and Dr S S Rajput, Scientist, NPL Delhi in Communication Computers and Microelectronics Circuits respectively. A valedictory function was held. The participants appreciated the quality of the presentation made in the conference.

Bangalore

During the month of March 2005 the lectures held under short term courses were on the topics of Embedded Software System Design and Vx Works: TASK, Semaphores, MSGQ, NSGQ, Example Programme by Shri Mukesh Chadha and RISC Processor Architecture and Super Scalar & VLIW Architecture by Prof R Prakash.

Chennai

The lectures held under short-term courses were on Introduction to Embedded Systems, Thermal, EMI/EMC and Design for Testability, VxWorks: Introduction to Real Time Software Architectures by Shri Mukesh Chadha of Tata Elxsi.

Hyderabad

Under the professional development programmes the centre conducted the following events:-

- A lecture on "Broadband Services" by Shri K M Dorai Swamy, GM, Transmission Projects, BSNL, Hyderabad was organized on Feb 26, 2005.
- 6th Prof K K Nair Memorial lecture on "Computers in Modelling & Decision Making" by Prof Alladi Prabhakar, former Principal, College of Engineering, Osmania University and Director, Manipal Institute of Technology, Hyderabad was organized on March 19, 2005. Shri C Govardhan, Chairman, IETE Hyderabad Centre presided over both the programmes.
- A 3-day course on "Electromagnetic Waves & Transmission Lines" for students and young engineers was organized during March 25-27, 2005.

Mumbai

A National seminar on "Broadband Communications – The Road Ahead" was organized by the Centre on 25th & 26th

February'05 at World Trade Centre, Mumbai.

Chairman, IETE Mumbai Centre welcomed the honorable guests, eminent speakers, panelists and delegates to the seminar and explained the current scenario in broad band and the relevance of the seminar topic. Convener, TPC Shri Vimal Wakhlu gave a global view of seminar. It was followed by a keynote address by Shri K G Sharma, Chief General Manager, BSNL. Shri Sharma covered the current scenario and the future of broadband in India. He was followed by Shri K L Jain, Member Telecom Board, who spoke about various developments in the field of broadband communications and how it is shaping the future technology and the way we do our business and live our lives. Dr K T V Reddy, Hony Secretary proposed vote of thanks.

The seminar was conducted in six sessions.

1st Session on "Core Networks" dealt with MPLS, Service Platforms and Network Architecture, Optical Networks and Switched SDH: 3rd Generation of SDH Networks. MPLS allows service providers to converge into a single infrastructure while offering existing services. It supports rapid growth in IP applications and services & integration of packet technologies with Optical cores. The Next Generation Networks (NGN) combine the present day Internet, wireless and telephone system; a architecture of the NGN was suggested. The changes during 25 years of existence of commercial optical networks was brought out predicting that the future is going to be Optical Networks. Continuing the theme, the 3rd generation of SDH network was addressed, which can deploy data, services over PDH, SDH and MPLS in a seamless fashion.

The 2nd session on "Access Networks – Wire line based" dealt with the topics of Next Generation DSL Networks, Broadband on Power lines,

Fibre to the Home and Broadband on cable, TV. Various variants of DSL, such as ADSL, HDSL, SHDSL and VDSL were discussed and their applications highlighted. The exciting concept of communication using power lines enabling last mile Broadband access with its strengths and weaknesses, regulatory issues and niche areas of applications were discussed. In view of burgeoning demand for broadband at home, the relevance and subsequent rapid deployment of FTTH worldwide and its future in India were briefly discussed. How Cable TV can be re-structured to provide broadband internet at affordable cost was also discussed.

The 3rd session on "Access Networks – Wireless based" dealt with the topics of Broadband on satellite links, DTH, Broadband on Wireless-CDMA, Mobile Technologies- 3G & beyond, Wi Fi/Wi Max Services. Superior transmission quality, uniform service across a wide geographical area and ease of installation almost anywhere within the satellite footprint makes Satellite multicast a major player fuelling the broadband revolution across the country. Broadband Wireless Service in CDMA Technology and Growth of wireless systems to 3G and beyond along with future trends to 4G were discussed. This session also discussed about broadband technology advances and the positioning of WiMax and Wi-Fi on how they support each other in the LAN and Broadband channels, to deliver the reliable connectivity.

The 4th Session on "Business Opportunities and Social Impacts" dealt with the topics of Indigenous Broadband Access Products, Business Opportunities and Threats to the existing business. Array of state-of-the-art Broadband Access Products designed & developed indigenously such as cable based Broadband access system - a cable managed network based solution, Broadband Direct Internet Access System (BB-DIAS) - a copper loop based x DSL solution, cordect 2.5G wireless system - a standard based high speed wireless.

system, Satellite based Sparse Area Communication System (SACS) etc. threats from bad corporate governance such as WorldCom; threats from competition; threats from government policies (Telecom Service Industry lays the golden eggs!); threats from technology changes; threats from customers disregarding & ignoring existing customers & negligence of QOS); threats from health hazards: from excessive use of cell phones & living near Mobile masts were brought out.

The 5th Session on "Applications" dealt with content provisioning, video conferencing, video on demand and home networking. The exciting concept of addressing requirement of entertainment, communication, computing/information, safety/ security and home control/ automation by home networking was discussed.

The last session on "Security, Policy and Regulatory Issues" dealt with Content Security related issues and the Regulatory issues. Vulnerabilities in the distribution of video over IP based network and the protection technologies were dwelt upon in detail. Speaker from TRAI Shri S N Gupta brought to focus various policy issues pertaining to licensing and regulation of Broadband services.

The seminar concluded with a lively interactive session in which delegates actively participated.

Nashik

Nashik sub-centre conducted one-day seminar on March 5, 2005. The topics covered were on e-Governance-NIC's experience by Shri D P Bobde, Dy Director General, NIC Pune, Broadband Services by Shri Prashant Pandey, Deputy General Manager (Broadband), MTNL Mumbai and DDdirect plus DTH TV & Radio by Shri D S L Prasad, Station Engineer, Doordarshan Kendra, Mumbai. The seminar was inaugurated by Dr Vasant Pawar, MLC Nashik. It was attended by students and

professionals. The local dailies too covered the deliberations in their news.

Navi Mumbai

A seminar on "Emerging Trends in Wireless Technology" was organized by the centre in collaboration with Smt. Indira Gandhi College of Engineering, Koperkhairane, Navi Mumbai on 04 and 05 March 2005. Around 60 faculty members and students from various Engineering colleges and persons from several industries participated in this seminar. Hon'ble Chairman of Smt Indira Gandhi College of Engineering inaugurated the seminar. Principal of the college and Chairman, IETE Navi Mumbai sub-centre, Dr M K Sinha, highlighted the need of this workshop in his speech. Prof V P Patil proposed vote of thanks to the Management, faculty, students, invited speakers and other participants.

Prof U B Desai, IIT Bombay, introduced the basic wireless technology along with its importance in the different fields like stock records, library, medicine etc. Shri K M Jagdeesh of Reliance Infocom talked on "Emerging trends in GIS" and explained the applications of GIS. Shri Dhananjay Saheba, Tata Infocom spoke on the wireless technology in Tata Indicom.

One of the main attraction of this seminar / workshop was the Industrial visit to Reliance Infocom. The training officers of Reliance Infocom in Dhirubhai Ambani Knowledge City, Koperkhairane, Navi Mumbai, showed and explained the technology used, its advantages, current and future applications in different fields etc.

On the second day of the seminar, Prof Ramgopal Rao, IIT Bombay, spoke on "Nano-Technology in wireless networks". Shri Vinod Bhatia, Reliance Infocom, in his speech, explained the wireless technology used in Reliance Infocom. Shri L U Rao of MTNL Mumbai, spoke on "Wireless Networks in MTNL".

As a part of this seminar, there was a paper presentation from faculty members and students of various engineering colleges, including neighboring engineering colleges such as Fr Agnells, Vashi, LT College of Engineering, Koperkhairane etc. More than 25 persons presented their papers in the workshop. Recent and future wireless technology and advancements in Electronics in the different fields formed the theme of the workshop. The contributions of Program coordinator Dr Santosh Narayan Khedkar and Prof K T Patil resulted in the successful conduct of the seminar. At the concluding ceremony, awards were given for the best papers presented.

Noida

A technical lecture was arranged by Noida Centre on "Language Technology & Its Usage" by Shri N Shukla, Director (Specialized Applications), C-DAC, Noida on Feb 26, 2005. Shri S N Zindal, Director General, Software Technology Parks of India (STPI) was the Chief Guest. The lecture covered interesting topics like Multi-Lingual Parallel Corpus, Translation Support System, Optical Character Recognition, Speech Technology and Digital Library. The lecture evoked positive response from the audience.

Palakkad

The sub-centre conducted one day seminar on Communication and Information Technology at NSS College of training, Palakkad during the week long Technical Festival- Dhruva-2005. Shri K R Chandra Sekara Pillai Principal of the college presided over and Shri C K Haridas, Chairman IETE Sub-Centre inaugurated the function. Shri V Raghunandan, Dy GM, BSNL delivered the keynote address. Dr M R Vikraman, HOD, ECE Department and Dr K Geetha, Asst Professor were felicitated. IETE Students' Forum Chairman, Shri Sanu Sam welcomed the audience and Sunil M Pai, Convenor spoke about the Dhruva- 2005. Shri V Raghunandan made a presentation on

Broadband services, CDMA and GSM technologies including new trends in Internet. Dr P C Raguraj, HOD, Govt. Engg College, Sreekrishnapuram presented a paper on Modern Trends in Information Retrieval. Shri K K Shanmugasundaram, Chief Manager (Smart Card Project) ITI Ltd, Palakkad spoke on Radio Frequency Identification. Guests were introduced by Shri Shantini Rajagopal, Vice Chairman, IETE Students' Forum. Mementoes were presented to the guests. After the concluding speech by Shri Siddarth N staff representative of ISF, Shri K Vijesh, Hony Secretary, ISF proposed vote of thanks.

Pilani

IETE Pilani Centre in collaboration with IFTA, Pilani Chapter organized "Tech-Utsav 2005" at BTTI, Pilani from Feb 13- 18, 2005. The program was for the benefit of Engineering students and IETE members. There were various competitions on technical subjects in the form of cartoon, poster, quiz, seminar, debate, etc. Shri IR Trivedi, Director, DTE, Jodhpur inaugurated the function on Feb 13, 2005. Technical lectures were delivered by IETE members of the center on popular topics like Microwave Applications, Nano-Technology, Opto- Electronics, VLSI Technology, etc. Shri SN Joshi, Chairman, IETE Pilani Centre distributed the prizes during the concluding session on Feb 18, 2005.

Vijayawada

The centre organized a National Level Student Technical Paper Contest-Intelligent-2005 for IETE student members and under graduate engineering students on Feb 27, 2005 at Hotel Mamata, Vijayawada. The papers were presented

in the field of Digital Signal Processing, Speech/Image Processing, Wavelet Transforms, Embedded Systems, Micro Controllers, Wireless Digital Communications, Neural Networks & Fuzzy Logic, VLSI, EMI/EMC. The Chief Guest Shri L Satnarayana, Vice Chairman & Managing Director, ECIL, Rapisan Ltd., Hyderabad inaugurated the program. Dr K M Prasad, Chairman IETE Vijayawada Centre delivered the welcome address. Memento was presented to the Chief Guest Shri L Satnarayana by Dr M C Chandra Mouly, past chairman of the IETE centre. 24 papers were presented in two sessions. The team of Shri V Divakar and Shri N L K Chaitanya from V R Siddhartha Engineering College, Vijayawada won the first cash prize of Rs 2000/- and Shri V Bhanu Hanuman Prasad & Shri E B Someswara Rao from Sir C R Reddy College of Engineering, Eluru won the second prize of Rs 1,000/-. Dr K M Prasad Chairman IETE Vijayawada local centre presided over the function.

ISF Activities

- A workshop on Advanced Modeling and Simulation Program and CMOS Layout Design by using Microwind III was held on Feb 14, 2005 for Electronics Engg Department and ISF of ACCE and ESSA and inaugurated by Dr Sasi Kumar, Director C-DAC, Kharghar, Navi Mumbai. Shri Bhupesh Purohit, Regional Manager in Simpro Microwind-III (Backend T001) conducted power point presentation. There were 40 students and 15 faculty members in the workshop.
- To expand IETE activities towards South Gujarat, an IETE Students' Forum (ISF) was opened at SVM Institute of Technology, Bharuch on

Feb 16, 2005. Prof R C Joshi, C.D. Director welcomed the dignitaries. Shri Naresh Kumar Garg, Hony Secretary IETE Vadodara Sub-Centre briefed the audience about the Centre and its activities besides giving an overview of ISF. Shri O P Nair, Chairman, IETE Vadodara Sub-Centre formally declared the ISF open. Dr K M Prasad delivered a motivating talk for the students. It was followed by introductory talks by Shri C K Meena Suptd. (E&T) ONGC Ankleshwar on "Info Activities in ONGC" and Shri Khubalkar, Chief Engg (E&T) ONGC Baroda on "Education in 21st Century Mindset and its impact on Higher Education Effectiveness-Emerging Challenges". Ms Ami Suthar, lecturer in ECIL proposed vote of thanks.

- The IETE Student Forum was inaugurated at Oriental Institute of Science & Technology (OIST) Bhilai on Feb 25, 2005. Dr Gadre (Retd.) Bhopal) delivered a lecture. Dr R. Trivedi was the Chief Guest on this occasion. Paper Contest for Electronics students was arranged during the occasion. Dignitaries present on the occasion were Shri K L Thakral, Chairman OIST, Shri H R Singh, Principal OIST, (Mrs) N R Trivedi, MANIT, Bhopal.
- Koneru Lakshmaiah College of Engineering, Vaddeswaram Guntur Dist conducted competitions in the form of discussions, Essay writing, Debate, Technical Quiz and technical speech extempore for the benefits of the students. Lectures on Satellite Communication by Shri J Naga Vardhan and on Black Hole Theory by Shri Mani Pradeep were organized.

CALENDAR OF EVENTS

Subject	Date	Venue	Contact
ELITEX-2005	25-26Apr 2005	New Delhi	Dr R G Gupta, Director Ministry of Communications & Information Technology Department of Information Technology, Electronics Niketan, 6 CGO Complex, New Delhi 110003 Tel: + 91(11) 2436-3095 (O) Fax: +91 (11) 2436-5404 e-mail: guptarg@mit.gov.in
36 th IETE Mid Term Symposium & Exhibition "Emerging & Futuristic Communication Systems" (EFCoS-05)	29-30 Apr 2005 & 01 May 2005	Bangalore	The Hony Secretary IETE Bangalore Centre Bellary Road, Ganganagar Extension Bangalore-560 032 Ph: 080-2333 1133/ 080-2333 7231 e-mail : iete@radarindia.com; ietebang@vsnl.com Website : www.ietebblr.org OR IETE HQ 2, Institutional Area Lodi Road New Delhi-110 003 Ph : 011-5150 4751/ 2463 1830 Extn 51 & 53, Fax : 2464949429 e-mail : membership@iete.org Website : www.iete.org / www.iete.info
National Conference on Recent Advances in Electronics & Communicatin Engineering (RACE-05)	24-25 June 2005	Bhimavaram AP	The Convener, RACE-05 Dept of ECE, SRKR Engg College Chinna-Amiram, Bhimavaram-534 204, A P
India's 7th International Infrabiz-Expo and Summit -Telecom India 2005	22-24 Nov 2005	Mumbai	Winmark Services Pvt Ltd Tel: 91 22 2660 5550 Direct: 91 22 5600 2988, Fax: 91 22 2660 3992/93 e-mail : Info@telecommindia.com
National Symposium on Ocean Electronics (SYMPOL-2005)	15-16 Dec 2005	Cochin	e-mail : prspillai@cusat.ac.in www.doe.cusat.edu/sympol
5 th Indian Conference on Microwaves, Antenna, Propogation and Remote Sensing-In CMARS-2005	20-22 Dec 2005	Jodhpur	Prof O P N Calla Chairman ICRS (Conference) "Om Nivas", A-23, Shastri Nagar Jodhpur 342003 Tel : 91 0291 2613123 Fax : 91 0291 2626166 E-mail : opncalla@yahoo.co.in Icrs2003@sancharnet.in



Shri C K Haridas, Chairman IETE Sub-Centre inaugurates one day (ISF) seminar on Communication and Information Technology at NSS College of training, Palakkad. Shri K R Chandra Sekara Pillai Principal and Shri V Raghunandan, Dy GM, BSNL are also seen in the picture.



Dr K M Prasad, Chairman, IETE Vijayawada Local Centre handing over the trophy to the winner Shri V Divakar from V R Siddhartha Engg College, Vijayawada.



Shri O P Nautiyal, Chairman, IETE Vadodara Sub-centre inaugurating the ISF at SVM Institute of Technology, Bharuch.



Inauguration of IETE Student forum at OIST, Bhopal, seen from (R→L) Dr Gadre, Shri H R Singh, Principal OIST, Dr Aditya Goel Hony Secretary, Centre Bhopal, Prof (Mrs) N R Trivedi, Dr D K Trivedi, Chairman, IETE Bhopal, Shri K L Thakral, Chairman OIST, Bhopal.

Note: The Institution of Electronics and Telecommunication Engineers assumes no responsibility for the statements and opinions expressed by individual author and speaker.

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