



THE INSTITUTION OF ELECTRONICS AND TELECOMMUNICATION ENGINEERS

Newsletter

40
years

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FROM PRESIDENT'S DESK

In these four decades since its establishment, IETE has truly emerged as a national institution. With its 30 Local Centres/Sub-Centres including Imphal now added to the network, IETE has its presence virtually all over the Country. But, the IETE map of India has still some gaps. We are keen to fill these gaps by opening new Sub-Centres to meet the professional needs of our growing membership in these areas. We would be happy to receive ideas, suggestions and support for this purpose from our members, so that many new Sub-Centres can be set up in the Country during the year, in a time-bound manner.

Another initiative of IETE towards nationwide presence is through IETE Students' Forums (ISFs), being set up at Engineering Colleges/Universities all over the Country. We visualize that the ISFs, which will work under the guidance of faculty members in these institutions and in close cooperation with our Local Centres/Sub Centres, will actively participate in the professional development of our young members, viz, students of electronics, telecommunications, computers and related areas. A few ISFs are already operational; and, we have made plans to set up many more this year, so as to extend our reach throughout the Country. We believe that this will help us in widening our membership base and also strengthening engineering education in the Country. We look forward to the active involvement of our senior members from the academic community in making this programme successful in a short time.

Members would have noticed in the last issue of Newsletter that IETE HQ and a few of our Local Centres are now connected to the NICNET. We are most grateful to Dr N Seshagiri, DG/NIC for his excellent support to our programmes and also extending the NICNET connectivity to IETE. We hope that we will be able to connect all our Local Centres/Sub-Centres on this electronic network in the foreseeable future. We envisage that this network will enable IETE to march rapidly towards its long cherished dream of providing well needed technical information on-line to our industry and embarking on an ambitious nationwide distance education programme for the benefit of our members. I am sure our members would welcome these new activities.

I and my colleagues in the Council wish you a very **Happy New Year.**

Bangalore

B S Sonde
President

NEWS FROM HEADQUARTERS

The World Educational Services, Old Chelsea Station, New York, USA has declared the Associate Membership of the IETE to be equivalent to a Bachelor's Degree in Electronics from an accredited institution in the USA. This report was forwarded to the IETE by Shrikanth Venkat Baliga (AMIETE) based on an assessment he received from the World Education Services. This report will be an impetus to students aspiring to pursue a Master's degree in majority of Universities of USA.

New Sub-Centre

A Sub-Centre of the IETE at Imphal was inaugurated by Hon'ble Shri R K Dorendra Singh, Chief Minister of Manipur on 17 Dec '93. Besides the Chief Guest Hon'ble Shri R K Dorendra Singh, this occasion was also graced by Hon'ble Shri S Iqbal Singh, Minister (STE & YAS) of Manipur as Guest of Honour. Shri O Nillababu Singh, Chairman of the IETE Sub-Centre at Imphal presided over the function. A keynote address was delivered by Shri A K Srivastava, Telecom Dist Manager, Manipur.

IETE Book Series

The first volume in the series on "Power Electronics & Drives", Vol 1, Ed by G K Dubey & C Rao Kasarabada

is available with leading book stores and the publishers M/s Tata McGraw Hill, New Delhi. The price is Rs.330/- per book.(495 pages)

The following books are available at IETE HQ, Local centres, Sub centres (only limited copies) for sale.

i) The First four Decades of IETE (Ed. Dr R P Shenoy) Rs.40/- per copy

ii) 40th Commemoration Volume of IETE Rs.60/- per copy

PERSONALIA



Tokyo, Japan.

Leo Esaki received the M S degree in 1947, and the Ph D degree, awarded for his study of tunneling, in 1959, both in Physics from the University of

He worked for the Sony Corporation where his research on heavily doped Ge and Si resulted in the discovery of the tunnel diode. Since 1960, in his capacity as an IBM Fellow, he has been engaged in research at the IBM Thomas J Watson Research Center, Yorktown Heights, N Y. His major field has been nonlinear transport and optical properties on semiconductors, junctions, thin films, etc. His current interest includes a man-made semiconductor superlattice in search of a predicted quantum mechanical effect.

In recognition of his discovery of negative-resistance tunneling and invention of the tunnel diode, Dr Esaki has received the Nishina Memorial Award (1959), the Asahi Press Award (1960), an achievement award from the Tokyo Chapter, U S Armed Forces Communications and Electronics Association (1960), the Toyo Rayon Foundation Award for the Promotion of Science and Technology (1961), the

Morris N Liebmann Memorial Prize of the Institute of Radio Engineers (1961), and the Japan Academy Award (1965). In 1971, he was elected Councillor-at-Large of the American Physical Society and in 1972, he was elected a Director of the American Vacuum Society. Dr Esaki was awarded the Nobel Prize for Physics (1973) shared with Dr I Giaever and Dr B D Josephson. Prof Esaki is now President, Tsukuba University, Japan.

NEWS FROM LOCAL CENTRES

Bangalore

An Indo-Israeli Electronic Cooperative meet jointly sponsored by the IETE centre and Technova, New Delhi, was held in Bangalore in October. The electronic components manufacturers of Israel were introduced to their counterparts in Bangalore. Shri S Desikamani, Chairman IETE Centre, welcomed the gathering. Mr Moshe Ostrasse, Chairman of Electronic Industry of Israel and Shri U D N Rao, Ex-Chairman ITI also addressed the gathering.

Guwahati

The Chairman, Guwahati centre has introduced the concept of seminars on every 1st and third Saturdays of the month from Oct '93. The following are details of activities in this connection. All the seminars were well attended and received.

Seminar 1. Use of natural gas in Assam and measurement by computerised gas flow meters on 10th Oct '93. The main speaker was Col T B B Lahkar (Retd) of Piped Gas Engineers and Consultants Pvt Ltd of Guwahati.

Seminar 2. A presentation of ORG Computer Systems on 19th Oct. The chief speakers were Shri M K Baratee, Resident Manager, ORG Systems and

Shri Soumitra Dev, ORG Systems, Guwahati.

Seminar 3. This was devoted to observations of 100 years of Prof Meghnad Saha. A talk on Radio Astronomy - The Indian Scenario was followed by a film of Prof Meghnad Saha. The key-note address was delivered by Prof A K Sen, Head, Dept of Radio Physics, Calcutta University. Prof M K Sengupta of Institute of Radio Physics & Electronics, Calcutta, also spoke on the occasion. The speeches and the film were well received by an appreciative audience.

Chandigarh

A National Seminar on Emerging overlay Network Technologies (NSENT) was held on 13-14 Dec '93. It was inaugurated by His Excellency Shri Surender Nath, Governor of Punjab and Himachal Pradesh, and Administrator, Union Territory, Chandigarh. The keynote address of Shri N Vittal Chairman, Telecom Commission, Govt of India was delivered in absentia by Brig S S Sawhney. Prof B S Sonde, President, IETE presided over the Inaugural Session.

Jabalpur

New Office bearers

Shri P K Bhatnagar	Chairman
Shri B K Agarwal	Hony Secretary
Shri P K Jain	Hony Treasurer

Kanpur

New Office bearers

Prof P K Chatterjee	Chairman
Dr A Ghosh	Hony Secretary

Vadodara

As a part of the fortieth anniversary celebrations of IETE a seminar on Information Technology &

Personal Communication Systems' held on 9-12-1993 at Vadodra Sub-Centre of IETE.

Shri A K Gupta, Regional Director, ONGC was the Chief Guest and delivered the Key-note address. Brig S K Gupta, Dy Commandant, EME School, presided. He highlighted the activities of IETE and the significance of the theme of the seminar- INFORMATION TECHNOLOGY & PERSONAL COMMUNICATION SYSTEMS. The Chief Guest Shri Gupta congratulated the organisers for the seminar on such an important and vital topic. He gave details of the ONGC organisation vis-a-vis operations and the role played by the information management systems in efficient utilisation and optimum management of resources. Shri T K Chowdhuri of ORG Systems, Vadodra shared his experiences in the field of applications of information technology, giving examples of Indian railways, banking systems, private manufacturing units etc. Shri A I Trivedi, Reader, Dept of Elect Eng, Faculty of Tech & Engineering, M S University of Baroda dwelt at length on the basics of cellular phones for mobile vehicles and other personal communication systems such as payphones, FAX, E-Mail, Video phones using IRIDIUM satellites consortium for personal communication networks.

TECHNICAL NEWS

Personal Mobile Satellite Communication by INMARSAT

INMARSAT has targeted introduction of Inmarsat-P, a personal Mobile Satellite Communications System, for 1998-2000. It will be a hand-held satellite telephone which will enable to communicate instantly to and from any place on Earth. Being developed under Project-21, it will deliver its services by utilising a new generation of advanced satellite. A

model developed by Ericsson, claimed to be smaller than any of today's cellular phones, was presented by Kurt Hellstrom, President of Ericsson to Olof Lundberg, DG of Inmarsat on 14 Oct '93. It works both as a normal cellular phone and a satellite phone depending on the range of communication. Three options were evaluated during 1992-93 :-

- * a high powered Geostationary Orbit (GSO) satellite system orbiting at 36,000 kms above the earth.

- * a novel Intermediate Circular Orbit (ICO) satellite system overlay (9 to 15 satellites) orbiting 10,000-15,000 kms above the earth.

- * a Low Earth Orbit (LEO) satellite overlay (upto 54 small satellites) orbiting 1,800 kms above the earth.

Finally, the focus on INMARSAT-P is on GSO and ICO options.

Some of the features that Inmarsat-P promises are :-

- * Integrated digital cellular (GSM, DAMPS, JDC)

- * Medium penetration call announcement.

- * Internal buffer for data, paging and fax.

- * Smart card.

- * Digital port for PC and printer

- * Expansion port for peripheral devices and cradle.

The services expected are :-

- * Voice with quality similar to digital cellular

- * Duplex data compatible with asynchronous V22.BIS.

- * Group 3 fax compatible (quasi real time).

- * Position determination (with a GPS/GNSS chipset).

- * High penetration paging.

ISRO (India) is one of the collaborators of Project-21 development for services through Antrix Corporation.

The Decameter Wave Radio Observatory Gauribidanur

The Indian Institute of Astrophysics and the Raman Research Institute are jointly operating a decameter wave radio observatory at Gauribidanur, Karnataka (Longitude $77^{\circ} 26' 07''$ E and Latitude $13^{\circ} 36' 12''$ N).

The main facility at the observatory is a "T" shaped array with a 1.38 km east-west arm and a 0.45 km south arm. The total number of dipoles in these arrays is one thousand and they accept east-west polarization. A reflecting screen of area 60,000 m² is mounted below the dipoles. The entire structure is supported by a grid of 3500 wooden poles of varying lengths and heights up to 10 meters to compensate for the terrain.

The dipoles of the south array are phased in the field by remotely controlled phase shifters and are combined using binary branching feeder network. The outputs of the east, west and south arrays are carried separately by coaxial cables to the main observatory building. The signals are amplified and the sum of the east and west signals is correlated with that of the south arm. This produces a single beam of 26 arc min. X 38 arc min at the zenith at a frequency of 34.5 MHz. The response of the telescope can be steered rapidly in the north-south direction by a special purpose digital control system which supplies switching voltages to the phase shifters. The number of positions through which the

beam can be cycled can be varied from one to sixteen and the time required to change the beam from one position to another is about 10 milliseconds.

It is also possible to measure the complex correlation coefficients between the east-west array and each one of the 90 rows of dipoles in the south arm. This is accomplished using a 128 channel digital correlation receiver. As is well known each correlation coefficient measures one spatial Fourier components of the brightness distribution in the sky. Multiple beams can be formed by Fourier synthesis of the measured correlations. In the present case the number of independent beams is 90 in the north-south direction and a

region of the sky 50° of zenith angle can be mapped at any given time. The earth's rotation is used to cover the sky in the east-west direction.

This telescope is used for observations of radio sources like supernova remnants; ionised hydrogen regions, pulsars and external galaxies.

PARTICIPATION IN CONFERENCE/ SEMINAR

● A paper entitled "Curriculum Based Distance Education Through Satellite : A Case Study" authored by M L Bala, Course Coordinator and Vinod Krishna, Secretary IETE was accepted

at the International Conference on Recent Trends in Educational and Training Technology jointly hosted by Indira Gandhi National Open University, National Open School and All India Association for Educational Technology, held at Indian Institute of Foreign Trade, New Delhi from Oct 26-30, 1993.

● IETE presented a paper at the seminar on Management of Technical Education, organised by the Department of Training and Technical Education, Government of National Capital Territory of Delhi on 16-17 Dec '93 at Federation House, Tansen Marg New Delhi.

FORUM

Change is the essence of growth. The winds of liberalisation and market economy are sweeping the corridors of World Economic System. Electronics and Telecommunication, being the mainstay of scientific growth and development, are also being swept by the new economic order. This speaks well for those who like change and bad for those in favour of status quo.

However, change for the sake of change is one thing. Whereas change for obtaining clearly defined objective is another. Indian mind, though cautious and slow to accept change, has always been guided by wisdom and hence whatever we do is always meant for the good and betterment.

Change also has different meaning to different people. Those with progressive mind search for opportunities and new venues of growth in change. Others want somebody else to experiment before they adopt new methods. But history is witness that time does not wait and moves ruthlessly.

It is in this scenario that professionals, with scientific basis and approach can help decision makers by providing professional analysis and direction based on study of world trends and success stories.

In the world, there are three types of people. One,

who create history, second who read history and third who write. Professionals generally are contented by reading and writing. But, information age has provided professionals with new tools of Information Technology to help in creating history. Successes like C-DOT, C-DAC and many others testimony of this reality.

IETEians have time and again proved that they are part of history makers. IETE was first to start M Tech and Diploma programmes. IETE was also in the forefront of those sending well considered papers to decision and policy makers on topics of current interest.

Now, when Electronics and Telecommunication are engaged in charting the new course, it will be in the fitness of things that IETEians take a lead in helping the decision makers with their well considered views and approaches.

Towards this, holding of seminars, workshops and group discussion as well as writing in Forum will be of great help. We once again invite all IETEians to join in the march towards making of Brave New India.

CDR(DR) H S Sharma (RETD)
Hony Editor

ANNOUNCEMENT

25th Mid Term Symposium

at

Bidyut Bhavan Auditorium, Saltlake City, Calcutta

on

9-10 April 1994

HIGHLIGHTS

1. Theme **Electronic Access & Security Systems**
2. 21st Vikram Sarabhai Memorial Lecture **Dr A P Mitra, FRS**
3. 9th Lal C Verman Award Lecture **Shri A K Srivastav, Executive Director, ITI**
4. Eminent experts in the field of Electronics & Telecommunications will chair the Technical Sessions and present papers at the Symposia. The Technical sessions will be as follows : Session I - Multi-access Telecommunication, Session II - Service Information Systems, Session III - Security Systems, Session IV - Special Applications.

5. Panel Discussions & Validictory function

6. Registration

Delegate Fee

1. Sponsored Delegates	Rs.800/-
2. Sustaining Donor Member	Rs.500/-
3. Individual Corporate Member	Rs.200/-
4. Student Members	Rs. 75/-
5. Council Members/Dist Fellow and Corporate Members above 65 years of age	As Honoured Guest
6. Non-Member	Rs.300/-

7. Advertisement in souvenir

Advertisement Rates

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1. Back Cover	Rs.6000/-
2. 2nd & 3rd Cover	Rs.4000/-
3. Full Page	Rs.3000/-
4. Half Page	Rs.1500/-
5. Quarter page	Rs. 800/-

* For Colour Advertisement Rs.1000/- per colour in addition.

For further details, please write to Secretary IETE, HQ and/or to

Prof J Das, Chairman Organising Committee
25th Mid-Term Symposium
Calcutta Centre
3-A Chowringhee Place,
Raneegunge Coal House
53-58, 2nd Floor, Calcutta-700013

Prof H Saha, Organising Secretary
25th Mid-Term Symposium
A3 & A4, Nilachal Apartment, Sreebhumi
118, Canal Street,
Calcutta - 700048
Tel : 347466 (R), 4732853 (O) Fax : 99-33-4732853

Announcement and Call for Papers
Conference on Emerging Optoelectronic Technologies
(CEOT-94)

18-22 July 1994
Indian Institute of Science
Bangalore - 560 012, India

Sponsored by
IETE-Institution of Electronics and Telecommunication Engineers, India
IISc - Indian Institute of Science, Bangalore, India
JNCASR - Jawaharlal Nehru Centre for Advanced Scientific Research
SPIE - The International Society for Optical Engineering

In cooperation with
IEEE Electron Devices Society

Endorsed by
Materials Research Society

The objectives of this conference is to focus on recent developments in materials of relevance to optoelectronics, devices/ICs, fabrication technologies, interconnections, novel circuit and system architecture and control, and packaging that are contributing to the development of next generation advanced optoelectronic systems.

Papers are solicited on a wide variety of topics including the following :

- Materials, Devices, and Fabrication Technologies
- Novel Phenomena and Linear and Nonlinear Optical Waveguides
- Optoelectronics and Lightwave Communication Systems

General Chairs

Prof C N R Rao, IISc,
Bangalore, India

Dr C K N Patel, UCLA,
Los Angeles, CA, USA

Conference Organizers

Prof B S Sonde, IISc
Bangalore, India

Prof V K Tripathi, OSU,
Corvallis, OR, USA

Technical Program Chairs

Prof A Selvarajan, IISc
Bangalore, India

Prof K Shenai, UW
Madison, WI, USA

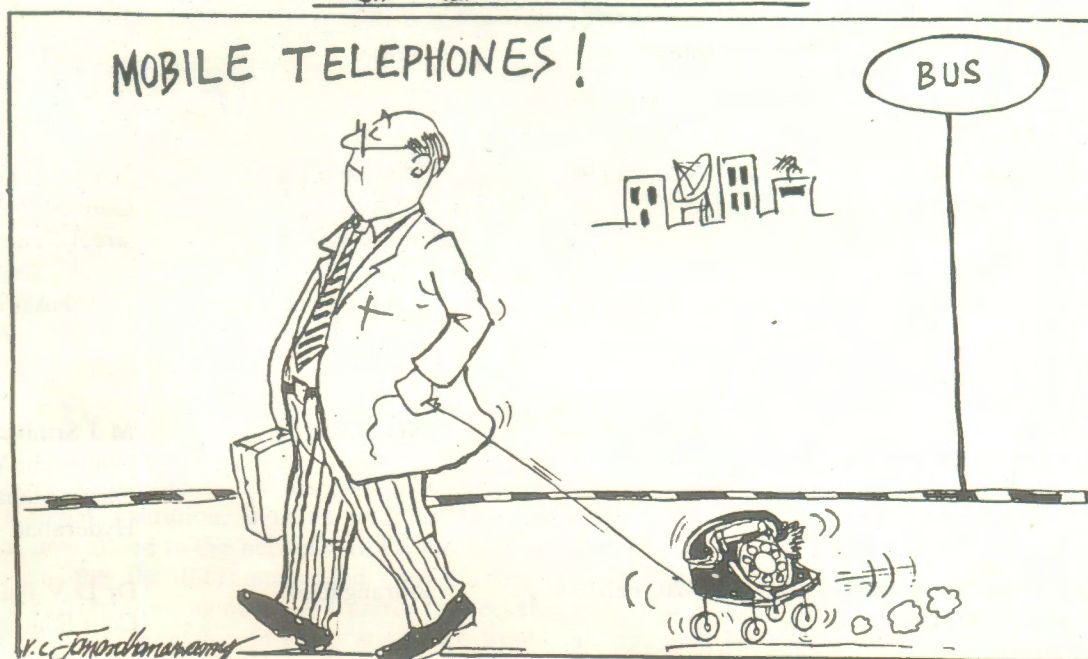
Prospective authors must submit four copies of a 300-word abstract in English on 8.5" x 11" paper, using Pica or Elite 12 font type. Leave a one-inch margin on all four sides of the paper, with up to two pages of supporting figures and tables. The heading should include (in capital letters or bold type) : title of paper and names of authors and affiliations. Please include the phone and fax numbers of the main authors. The deadline for abstract submission is **January 7, 1994**. Late papers may be submitted up to the date of the conference, but acceptance criteria will become more stringent as the conference approaches. Submit abstracts and send inquiries to :

Within India

Prof A Selvarajan, ECE Dept.
Indian Institute of Science
Bangalore-560 012, India
Tel: (91)-080-344411 Ext:2276
Fax: (91)-080-341683

Outside India

SPIE/India'94
P.O.Box 10, Bellingham, WA 98227, USA
Tel : (206) 676-3290
Fax : (206) 647-1445



BIBLIO FILE

Books added in the IETE HQ Library during July-Oct 1993

Properties of Electrical Engg. Materials
Introduction to Theory of Random Signals and Noise
Elements of Electronic Navigation
Analysis and Design of Feedback Control Systems

Digital Communications

Communications Systems
Information Technology for Common man
Modern Communications & Spread Spectrums
Operational Amplifiers
Electronic Circuits
Digital Communications
Antennas and Radiowave propagation
Signal Analysis
Linear Systems
Theory of Communication
Introduction to Analog and Digital Communications
Satellite Communication
Switching Theory and Digital Electronics
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COMPUTERS

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Designing Efficient Algorithms for Parallel Computers
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CALENDAR OF EVENTS

Subjects	Dates	Venue	Contact
16th Annual Pacific Telecommunication Conference	16-20, Jan '94	Honolulu, Hawaii USA	Pacific Telecommunication Council, 2454, South Beretania street Suite 302, Honolulu,
National Seminar on Optical fibre	29-30, Jan '94	IETE , Pune Centre	NN Shukla, C/o IETE, Raghuraj 62, Indiranagar, Erandavana, Pune-411004
World Trade Fair International Exhibition & Seminar on Electronics & Telecommunication	13-22, Feb '94	New Delhi	M J Srinivasa Murthy Convenor, World Trade Fair Gagan Mahal, PO Box No-1065 Hyderabad - 500 029
National Symposium on Electronic Product Design (NSEPD-94)	18-20, Feb '94	Aurangabad	Dr D V Patil, Program Coordinator (NSEPD), Centre for Electronics & Design Technology, CEDT Complex, Marathwada University Campus, Aurangabad (MS) 431004
25th Mid Term Symposium on Electronics Access and Security System	9-10th, April '94	Calcutta	Prof J Das, Chairman, Organising Committee or Pro H Saha, Organising Secretary, IETE Calcutta Centre, 3A, Chowringhee Place, Raneegunge Coal House, Room No.53 & 58, 2nd Floor, Calcutta-700 013
International Conference on Computer System and Education	22-25, June '94	Bangalore	N Balakrishnan Supercomputer Education, & Research Centre, IISc, Bangalore 560012
International Conference on Emerging Optoelectronic Technologies (CEOT '94)	18-22, July '94	Bangalore	Prof A Selvarajan, ECE Dept, Indian Institute of Science, Bangalore - 560 012
Communication India '94 Exhibition & Conference (C1 '94)	25-28, Oct '94	New Delhi	Prem Bahal President Exhibitions India E-6, Defence Colony New Delhi-110 024

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