

सह वीर्य करवावहे

IETE

NEWSLETTER

Vol 8, No 1

Jan-Feb 1999

FROM PRESIDENT'S DESK

broadcasting, Information Technology, Telecommunication, Infrastructure and now the Manpower. As the year rolls on, the Government is also moving ahead with newer and newer policies and guidelines for taking India into the new millennium with great pride and achievements.



Quite some time, everyone in the educational area has been witnessing the growth of new colleges and universities, giving affiliations with foreign universities to impart education and certificates in India. This has been a cause of celebrations to some and concern to others.

While setting up of new institutions is good for the growth of educated and trained manpower in the country, it is heartening to note that Government has noted the concern of those worried about adverse effects of this growth and is coming out with a policy to regulate and monitor the quality of education.

IETE has always given first preference to quality. All our centres/sub-centres ensure this aspect. However, keeping the challenge posed by foreign and private institutions in view, there is a need to demonstrate our stress on quality by highlighting this in new programmes so that all electronics, telecommunications and information technology engineers feel encouraged and attracted to become part of IETE.

I would, therefore, request all our members of all classes of the institution, to highlight the benefits of joining IETE and invite all their friends and acquaintance to join IETE so that IETE can take pride in having all electronics, telecommunication and IT professionals in the country.

I take this opportunity to personally invite every qualified professional working in electronics, telecommunication, information technology and related areas as our Corporate Members and add to the growth of IETE and once again also request all our corporate members to do the same.

Cdr (Dr) H S Sharma, IN (Retd)

NEWS FROM HEADQUARTERS

IETE Apex Forum

A round table conference under the aegis of IETE Apex Forum was held on 22 Feb '99 at the IETE headquarters New Delhi. The subject for discussions was 'Consultancy & Manpower Development : Role of IETE and Similar Institutions in a Liberalised Era'. The objective of the conference was to identify new opportunities, challenges as well as weaknesses, and work out a strategy to continue effectively in the concerned fields. The conference was chaired by Shri Ravindra Gupta, Secretary DoE, Govt. of India. Delegates from the government departments, academia and industries participated in the conference. The recommendations have been drafted for submission to the concerned government departments and industries, and are also being circulated among the council members of the institution for information.

Major issues like manpower for IT, formal degrees and their equivalence, deemed university status, new opportunities, charter for engineering and consultancy services, etc were discussed.

IETE Web Site

Members are welcome to visit the IETE site on the world-wide web at the address iete.org. The site contains brief information on all IETE activities. Comments for modification and amendments can be sent to: ietend@iasdl01.vsnl.net.in with subject line as : IETE WEBSITE.

NEWS FROM LOCAL CENTRES

Ahmedabad

The centre organised a zonal seminar on Digital Broadcasting at Vikram Hall, SAC, Ahmedabad on February 6-7 1999. It was co-sponsored by Space Application Centre (SAC) of ISRO; Development & Educational Communication Unit (DECU) of ISRO; Broadcasting Engineering Society (BES), Ahmedabad chapter and MCBS, Gandhinagar.

Cdr(Dr) H S Sharma presided over the inaugural session. Shri N Mohanty, Deputy Director, SAC and Shri B S Bhatia, Director, DECU were the chief guests. Shri D S Kushwah, centre Chairman, welcomed the audience and Shri R N Mutagi, Convener presented theme of the seminar. Shri Sudhir Agarwal, Hony Secretary proposed the vote of thanks. A valedictory session was organised at the end of the seminar, where Shri A K S Gopalan, Director SAC, was the chief guest. The programme was well covered by the press.

Aligarh

A national symposium & exposition on 'Modern Instrumentation-Challenges & Vision' was held at Z H College of Engineering & Technology, Aligarh Muslim University, from February 27-28, 1999. This was organised by the centre in collaboration with Department of Electronics Engineering, AMU, Aligarh and sponsored by CSIR, New Delhi and Technology Mission on Oilseeds, Pulses & Maize, (TMOP & M), New Delhi.

Aurangabad

A conference on 'Information Technology for Youth and a seminar on 'Modern Trends in Telecommunications' were



Zonal seminar on Digital Broadcasting in progress at Ahmedabad

organised by the centre along with the Rotary Club, Aurangabad, Govt Engineering College, Aurangabad and the Computer Society of India, Aurangabad chapter, on Jan 2-3, 1999. Engineering college students in and around Aurangabad participated in the event. Shri Ram Bhogal, leading industrialist of Aurangabad and Dr D J Bhardwaj, Principal Govt Engg College were the chief guests. Speakers at the programme were: Shri K G Matapurkar, DD (TEC), Western Region, Mumbai, Shri Vishwanath, Director(Projects) DOT, Mumbai, Shri R N Padukone, GM(Telecom) Aurangabad, Shri S C Meharotra, Head, Computer Sciences Dept, Dr BAM University, Shri Santosh Ugale, NIC, Pune, Shri Arun Palkhiwale, Management Consultant, Mumbai, and Shri Srivatsav, MCESS Delhi.

- A panel discussion on 'Present Industrial Recession and Today's Engineering Youth' was held by the centre on 6 Feb 1999 at the JNEC Auditorium, Aurangabad.

Bangalore

- Dr D N Jayasimha of Intel Corporation, USA delivered a lecture on 'Technology Trends in High Performance Process Architectures' on 21 Dec 1998.
- Shri Deepak Sukh, Director, Product & Quality Realisation Management, Optical Networking Group, Lucent Technologies gave a talk on 'Development of Telecommunications with special reference to Fibre Optics' on 23 Jan 1999.
- Shri S A Ananda, GM, C-DOT delivered a lecture on 'Mobile Satcom' on 30 Jan 1999. The valedictory function for short term intensive course conducted by the centre was also held and the participants received the certificates from Prof R Arora, past President, IETE. Prof Arora had a word of praise for the centre for the technical activities it had been organising from time to time.



Seminar on Modern Instrumentation in progress at Aligarh



Dr D N Jayasimha giving a talk on High Performance Processor Architecture at Bangalore

Bhopal

A seminar on 'Local Area Networks for the next Millennium' organised by the centre on 26-27 Dec 1998 at Mulana Azad College of Technology, Bhopal. It was inaugurated by the state finance minister, Col A N Mushran. Dr R P Singh, chairman of the centre welcomed the participants. Prof A Jhunjhunwala, IIT, Chennai, Dr T K Bandopadhyay, (Principal, MACT), Prof M K Gupta, MACT and Shri A K Tiwari, convenor of the programme also spoke on the occasion. The programme was presided over by Cdr.(Dr) H S Sharma, IN (Retd).

Chandigarh

The centre organised a two-day seminar on 'Information Technology' on 11-12 Feb 1999 at the CSIO Auditorium, Chandigarh. Dr M J Zarabi, CMD of Semiconductor Complex Ltd, Mohali inaugurated the symposium. Cdr Dr H S Sharma (IN) Retd delivered the presidential speech.

IETE Cochin centre will be conducting a zonal seminar on

Modern Trends in Personal Communications

on 4-5 May 1999

For detailed information,

Contact: K Govindan,
6A, J.M Paradise, Palarivattom,
Cochin 682015,

e-mail : govindan-kankath@vsnl.com

Delhi

The centre arranged the following lectures:

- 'Technology Management and Acquisition' by Shri Vinay Kumar, Jt Advisor, DS&IR, Ministry of Science and Technology on 25 Feb 1999
- 'Technologies used in Iridium Network' by Brig T M Sridharan, VSM (Retd), Vice President Iridium India Telecom Ltd on 5 March 1999

Hyderabad

The following programmes were organised by the centre:

- Short-term course on Unix, C and C++, inaugurated by Prof P Subba Reddy, Director, Computer science and Engineering, Osmania University on 4 Jan 1999. He gave a talk on 'Fundamentals of IT'.
- Lecture by Prof K V S G Murali Krishna, founder Secretary, Environmental Protection Society and founder Director, National Institute of Ecology and Environment on 'Man and Nature' on 23 Jan 1999.

Jabalpur

Dr Rajeev Saxena, Reader, Electronics and CSE Dept, Gwalior, delivered a lecture on 'Symbol Shaping for Efficient Modulation Techniques' on 31 Jan 1999.

Kanpur

A seminar on 'Role of Professional Institutions in Higher Education in the areas of Electronics, Telecommunications and Information Technology' was organised by the centre at IIT Kanpur on 17 Jan 1999. Nearly 400 delegates participated in the seminar. The minister of state for higher education, Shri Narendra Kumar Singh Gaur who inaugurated the seminar, called for greater private sector investment in technical education, and also the professional institutions, whose role in boosting the pace HRD is significant. While the government was all for setting up of additional engineering and technically-oriented institutions, he said that the quality of standards is one area which requires greater monitoring, along with provisions for proper allocation of teaching faculty. Prof K A Padmanabhan, Director, IIT Kanpur, in his key-note address 'Communication and Information Technology for Higher Technical Education' stressed on the need for modification in the curriculum followed by engineering colleges for keeping in tune with times, and also easing the bureaucratisation of such institutions for greater effectiveness. Drawing attention to the engineering potential that India has, he said that the focus of learning should be directed as much towards doing, realising and implementing the knowledge gained as in understanding the theoretical concepts. Assessment of technology and its impact is another area he emphasised.



Maj Gen K B Jhaldiyal, Shri B K Karmakar, Shri N S Gaur, Prof Padmanabhan at the Kanpur symposium on role of professional institutions in higher education

Maj Gen K B Jhaldiyal AVSM (Retd), Secretary General of IETE brought to focus the role of IETE in the field of higher education. Other prominent speakers at the symposium included Ms Neeta Lal, vice President of Computer Society of India who highlighted the role of CSI in higher education, Shri Rajiv Rastogi, Addl. Director, DoE, Shri N C Vaish, former President, Institution of Engineers and Shri B K Karmakar, Chairman IETE Kanpur centre.

Lucknow

A 2-day seminar and exhibition on 'ATM based Communications' was organised by the centre on 28-29 Nov 1998 at Taj Mahal Hotel, Lucknow. Raja Mahendra Aridaman Singh, state minister for IT and National Integration inaugurated the seminar. Shri Shabbir Ahmad, CGM Telecom UP Circle, Maj Gen B K Kataria, VSM, Signal-Officer-in-Chief, Shri R L L Dixit, Chairman IETE Lucknow centre, and Prof S K Sharma, IIM Lucknow were the other speakers.

Mumbai

A seminar on 'National Information Infrastructure - Implementation' was held in Mumbai on 28 - 29 January, 1999. Maj Gen Yashwant Deva AVSM (Retd) was one of the key speakers. The major recommendations that emerged were:

- The spare capacity bandwidth of private/public sector utility services viz. power, gas and oil etc, should be fully utilised for augmentation of the national information infrastructure.
- Effective steps need to be taken for cyber security and secrecy.

Acreditation for DOE ACC Examinations

The Ministry of HRD, Govt. of India has recognised the "O" and "A" level examinations conducted by the DOE ACC Society as Foundation and Advanced Diploma level courses, respectively for the purpose of employment to posts under the Central Government.

Nagpur

A seminar on 'Medical Instrumentation' was organised by the centre jointly with Rainbow Medinova Diagnostic Centre with the objective of reviewing the latest development in the field of medical instrumentation on 10 Jan 1999. Dr Shrikant Jichkar, former member of the parliament, inaugurated the seminar. Cdr (Dr) H S Sharma IN,(Retd), was the chief guest. Presenting a paper "Bio-radiation and Instrumentation: An Alternate Perspective", Dr Sharma expressed the view that some bodily radiation unknown to medical sciences, need to be studied to get holistic view of bio-radiation. These relate to the understanding of the *kundalini*, *nadis* and *chakras* and associated radiation in human beings, as substantiated by the writings in the ancient Indian philosophy and science.

Speaking on the same occasion, Dr Jichkar was very critical of the elaborate medical tests supported by highly sophisticated instruments which are used indiscriminately by the practitioners to derive maximum advantage for themselves. He substantiated his observations by quoting several studies conducted worldwide. Also present on the occasion were AVM U Deshpande (Retd), Secretary IETE centre, Dr D A Deshpande, Director Rainbow Medinova, Dr R B Dakhne, Dr V Dashputre, Dr Shekhar Bhagwat, and Dr N N Nikhare.



Cdr Dr H S Sharma delivering a speech at Nagpur

Noida

A one-day seminar on 'Internet' was held on 24 Jan 1999. Prof V N Shukla of ER&DCI and Shri Tarun Bhargava of Aptech Consultancy conducted the sessions. Cdr.(Dr) H S Sharma inaugurated the seminar. Brig Ramesh Chandra, chairman of the technical programmes committee of the centre and Shri R K Verma, chairman, Noida centre spoke of the need to enhance the awareness of internet among the members and their families in Noida. Brig S V S Chowdhry, past President IETE and Cdr (Dr) H S Sharma also encouraged the fledgling centre in its efforts at organising technical programmes.

Thiruvananthapuram

- A 3-day executive course on EMI/EMC was organised at Hotel Horizon, Thiruvananthapuram on 7-9 Feb '99 with the help of IETE-CASET, Hyderabad and Society of EMC Engineers (India). The course was formally inaugurated on 7th morning by G Madhavan Nair, Director, LPSC, ISRO, Thiruvananthapuram. The faculty members included of Dr S R Ramaswamy, Dr D C Pandey, Dr N K Agarwal & Shri N S Chandrashekar. Shri G R Pal, OSD, IETE-CASET was the course co-ordinator.
- As part of the Flower Show 99, organised by the State Horticultural Department at Thiruvananthapuram, an I T Show was organized in the state from 23rd to 31st of Jan, 1999. The technical liaison and arrangements were provided by the four professional institutions, viz; I E, IEEE, CSI & IETE. The IETE centre put up a stall for exhibition on the occasion.
- The centre organised a one day seminar on Integrated Services and Digital Network (ISDN) on 20th December, 1998 at Amphi Theatre, ER&DC, Thiruvananthapuram. The seminar was co-sponsored by IEEE, Kerala section, IE (India), Kerala chapter and Computer Society of India, Kerala chapter. The inaugural session was presided over by Shri Sathish Kumar, Managing Director, KELTRON, and Chairman, Trivandrum centre. Shri S Viswanathan, General Manager, Telecommunications, Kerala Circle, inaugurated the seminar.

Obituary

It is with regret that we inform the passing away of the following members of IETE Fraternity.

Prof A N Daw, FIETE, IETE Council member and Chairman IETE Calcutta centre
 Prof K S Hegde, FIETE, Chennai
 Col S P Khetrapal, FIETE New Delhi
 Col N S Mathur FIETE, New Delhi
 Shri Ananda Mohan, MIETE, Bangalore
 Shri A C Ramchandani, (DFIETE), Mumbai

DISTINCTIONS

Dr S Pal, Gp Director, Communications Systems, ISRO Satellite Centre, Bangalore and Council Member IETE, has been conferred the Dr Biren Roy Space Science Award 1998 by the Aeronautical Society of India, New Delhi on 15th January 1999. The Minister for Civil Aviation Shri Ananth Kumar conferred the Award on him.

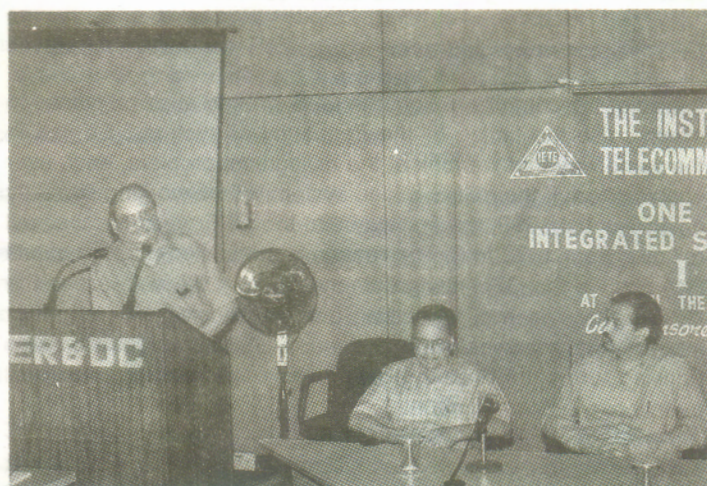
The DRDO has selected **Prof Bharathi Bhat, Prof S K Koul** (Centre for Advanced Research in Electronics, IIT Delhi) and **their research team** for the Academic Excellence Award of Rs 5 lakhs. The award is for the key role played by them in the indigeneous development and production of phase control modules which has lead to self-reliance in the critical component required for electronic scanning of phased array multifunction radars.

Vijayawada

A lecture on 'Information Technology Policies and Programmes in India and Andhra Pradesh' by Shri T H Chowdary was organised by the centre on 7 Feb 1999.

Aligarh Students Forum

A techno-quiz competition open to all branches of engineering students of the IETE Students Forum at the Z H Engineering College was inaugurated by Shri Md Tariq Abbasi, Director, Al-Falah group of companies. There was enthusiastic participation for the contest.



Seminar on ISDN in progress at Thiruvananthapuram

From the Honary Editor

It is interesting to note that today the potential for electronic telecommunication and computer engineers is possibly the best amongst all engineering disciplines. Out of total posts in the class-I engineering services of the Govt of India, 50% posts need electronics, telecommunication and computer engineers. Similarly, the industry in India today has got maximum openings for this field. However, due to technology improvements in Information Technology, ISDN, Mobile Communications, Global Communications, Instrumentation and other areas, there is a need to be continually updated with latest developments.

The IETE in its technical publications will focus on emerging issues so as to assist our members in improving their overall knowledge in telecommunications and information technology. The focus will be on technology review papers, practical applications of technologies in the Indian context, success stories, technology trend reports and general interest papers in science & technology.

Maj Gen Vinod Krishna, AVSM (Retd)
Chairman, IETE Publications Committee

NEWS FROM ITU

World Telecommunication Day

The theme of next world telecommunication day, which will be celebrated on May 17, 1999, is **Electronic Commerce**.

Members can contact their local centres to participate in the special events being organised on the occasion.

GPS week number roll-over problem

In (radio)-telecommunication, the GPS is used at some places to synchronise the timing or the frequency of systems. So just in the same way that we look at the millennium problem, each user should check if their GPS-based system will be working correctly on 15 August 1999, the first day that the GPS week number will roll over from 1023 to 0. The reason is the limited number of bits (10) used in the GPS navigation message. If the software in the GPS receiver is not corrected, then the receiver will internally interpret the new week 0 as 6 January 1980, it might then stop tracking any satellite and the systems might perform worse or even lose synchronization.

Just like in the case of the millennium bug, you should ask manufacturers if the GPS equipment you use is GPS week roll over proof, if not, an appropriate software revision should be installed.

INTERNATIONAL SYMPOSIUM AND EXPOSITION

on

Automotive Electronics and Alternate Energy Vehicles

19-21 Nov. 1999
IIT, Kanpur

The symposium (20-21 Nov) focus areas :

- Growing importance and increasing complexity in the electrical and electronics content of modern day vehicles and its contribution towards safety, convenience, fuel optimization and pollution control.
- Various alternatives highlighting the current state-of-the-art in emerging vehicle technologies of 21 century

The exposition (19-21 Nov) focus:

- Alternative energy vehicles, hybrid vehicles, electric vehicles
- Auto-electronic & electric products, components, devices and related systems

Last date for submission of abstracts (limited to 700 words) 30 April 1999

Registration fees:

Delegates: Rs 3000/- (till 30 September)
Rs 4000/- thereafter

IETE Corporate Members : Rs 2000/- (till 30 Sept)
Rs 3000/- thereafter

For more details please contact/ write to :

Secretariat International Symposium on

Automotive Electronics and Alternate Energy Vehicle

Room No. 401, Electrical Engineering Department
Indian Institute of Technology, Kanpur-208 016
Tel : +91-512-597070

Fax : +91-512-590063/590260

E-mail : isae@iitk.ernet.in

Website <http://www.iitk.ernet.in/announce/conference/isae.html>

FORUM

Policies for New Millennium : The end of this millennium has also become the occasion to lay down new policies for new millennium. While IT policy has caused maximum excitement and rise in the level of awareness on the subject, broadcasting and telecom policies had generated equally large concerns and criticism. There seems to be a reason for it.

Let us take the case of Telecom Policy 1994 and examine the imperatives of making a good policy for the country.

Elements of a Policy : In any policy making, the fundamental reason for making a policy is enshrined in the aim. At the next level, it gets translated into realisable objectives and achievable goals. But for the success of the policy it also needs to keep the requirements of implementation in view. The aim, objectives, goals and needs of implementation are the basic elements on which ultimately ensure the success of a policy.

Aim : At national level the basic goal of a policy in any field of activity is to bring prosperity and happiness to the people and respect to the nation. This gets further translated into domestic and foreign policies which can get further translated into economic and other policies. It is expected that every policy serves the basic aim of national growth. However, created to serve the national goal, a policy should address the issues relating to its own area and be precise in all its elements, and should not lose the focus by adopting too general an approach. Therefore, to serve the main aim of national growth or economic growth, the Telecom Policy should define the basic aim as ensuring good telecom service at affordable price which will make telecom an instrument of national growth. The objectives of the policy should serve this aim and should have goals, which make the policy an instrument of providing good telecom service to the people.

Policy 1994 : A look at the aims defined in Telecom Policy 1994 (Aim was enshrined in the introduction) brings out that the basic aim, as defined in the introduction to policy was to serve the economy and assist in in-flow of foreign exchange. It only made telecom services a necessity to Economic Policy and not the primary goal. Result, the policy failed to serve as an instrument and needed a revision in less than five years. The situation in broadcasting was even more serious as the country needed a policy to serve the nation in new age.

Policy 1999: It is heartening to note that the draft paper on Telecom Policy 1999 and even the up-gradation to Broadcasting Policy have addressed these concerns. The Draft Paper on Telecom Policy 1999 specifically has addressed the issue of Telecom Service and made it a Primary Aim, which will serve as key to the growth of the country.

Pitfall in Policy 1999: The objectives in a policy are supposed to flow from the aim. The Telecom Policy 1994 had desired to achieve objectives like telephone on demand and universal service

to every village. This resulted in targets like telephone on demand by 1997 and covering of all villages by 1997. For a country of nearly 100 crore people, and 5,74,490 villages, this would amount laying down of infrastructure of atleast 200 million lines. For a country which had less than 6 million lines at the end of eighth Five Year Plan and less than 10 million lines at the time of formulating the Policy 1994, this was unachievable even by the end of the millennium and hence the result. Similar situation also prevailed on the liberalisation front. While the private operators were vying with each other in promising higher and higher license fee, DOT who was the only organisation with experience in telecom operation in this country did not raise alarm or warn the policy makers of its pitfalls and unrealistic assessments. The result, the Nation has to pay the price for delay in improvement of the telecom infrastructure and service in the country.

Scientific Methodology: Since the nation cannot afford to lose another opportunity, it is necessary that policy makers use the scientific means of formulating a good policy by obtaining authentic and realistic data & views. Some of these are:-

- Study the reasons for failure and pitfalls in old policy
- Conduct a survey to assess the effectiveness of steps already implemented and actual needs of the people in different areas of telecom service
- Make a study of resources needed and available
- Make a study of implementation requirements
- Lay down guidelines for planned growth
- Clearly define the role of planners, implementers and supervisors in achieving the aim, objectives and goals of the policy
- Monitor the progress

A Good Policy: The policy is a beacon that helps in growth. The quality and success of policy lies in its being a perfect instrument of growth and a good policy should continue to do so for long time. It is hoped that Telecom Policy 1999 will meet these requirements of a policy and become an instrument of world class telecom service in the country. A good telecom service will assist in economic growth and serve the cause of the nation.

It is also equally important that all policies become complimentary to each other and serve the national cause. Use of scientific methodologies in establishing aims, objectives and goals will go long way. There is a need to evolve equally good policies for growth of manpower and infrastructure. Let us hope planners will use correct means to assess the realistic requirements and come out with equally good policies in other areas.

IETE has already given the recommendations on IT & Telecom Policies. We will also be sending our views on manpower and other requirements soon. Let every IETEian contribute in making India achieve its due place in the world.

Cdr (Dr) H S Sharma, IN (Retd)

Radar Symposium India-99

Dec 14-17, 1999, Bangalore, India

IETE & IEEE Bangalore Chapter

First Call for Papers

An International Radar Symposium (IRSI 99) will be held during 14-17 December 1999 in Bangalore, India. This symposium being jointly organised by IETE and the IEEE Bangalore Chapter provides a forum for academicians, R&D scientists, production managers and users working in radar and related areas to project and share new challenges, concepts, designs, simulations and evaluation methodologies that are emerging in the evolution of contemporary and advanced techniques and technologies related to radar. The symposium will include regular sessions, special sessions and tutorials.

Symposium Topics

- * Radar Systems
- * Modern Radar Trends
- * Antennas and Antenna Arrays
- * Radar Sources and Receivers, MIC/MMIC
- * Radar Transmitters
- * Signal Processing
- * Data Processing & Data Fusion
- * Automatic Radar Controllers
- * Radar Displays
- * Target Recognition
- * SAR/ISAR
- * Radar ECM/ECCM
- * Radar Simulation and Modelling
- * Guidance & Navigational Aids
- * Weather Radar
- * Millimetric Radar
- * New Materials in Radar
- * Manufacturing Technologies
- * Management of Large Projects

Original contributions, based on theoretical/experimental work, are solicited from prospective authors in radar and related areas broadly listed above. The title of the paper, the names and affiliations of the authors (including complete mailing address, telephone, fax and email) and abstract must appear on the first page of the summary. It is preferable to have all the papers received in MSWord format. Fax/Email information is necessary since all the paper acceptance notifications will be done via one of these media. If the paper is accepted the authors will be requested to provide a camera ready version for publication in the IRSI 99 proceedings, early enough.

Schedule

Submission of 3 copies of extended summaries: June 15, 1999
(about 1000 words)

Acceptance notification to authors Aug 01, 1999

Submission of camera ready papers Oct 15, 1999

Symposium Dates Dec 15-17, 1999

Contact address:

Mr Ananda Babu K V S,
IRSI'99, Symposium Secretariat,
LDRE, C V Raman Nagar, Bangalore-560093, India.
Fax: +91-80-524 2916; Tel: +91-80-524 0586
Email: irsi@lrde.ernet.in

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

Hony Editor: Maj Gen Vinod Krishna AVSM (Retd). Edited and published by Ms T V Sreelatha, Deputy Managing Editor, for The Institution of Electronics and Telecommunication Engineers, 2, Institutional Area, Lodi Road, New Delhi-110 003 and printed at the Cambridge Press, Kashmere Gate, Delhi-110 006.