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**CHAIRMAN'S MESSAGE**

Dear Fellow Members

On completion of his tenure as Chairman, IEEE India Council, Dr. A. K. Aggarwal has passed on the baton to me this month. I am thankful to the IC Nomination Committee for reposing faith in me for this responsibility and I hope, with the co-operation of all of you and particularly my colleagues in the India Council Committee, I will be able to keep the IC flag high.

IEEE can play a very important role in our professional career and in the present scenario of competitive environment and globalisation, we can certainly exploit its potential to our advantage. I would like to seek your suggestions and ideas so as to make India Council serve you in more useful and purposeful way. I will share my thoughts with you in subsequent issues of this newsletter.

With best wishes,

New Delhi                      **P. K. Srivastava**  
 01 March, 2001.              Chairman

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**ELECTED TO IEEE INDIA COUNCIL FOR  
2001**

The Slate proposed for the year 2001 by the Nomination Committee has been declared elected, as no additional nominations by petition has been received by the secretary before 28.02.2001. As per the Bye-laws the following candidates have been declared elected for the year 2001. In addition, the Ombudsman, the Webmaster, Chairman Special MDC for Power and Members of Ethics Committee, as nominated by the Chairman, are invited members of the India Council.

**Office****Name****Section**

Chairman	Shri P K Srivastava	Delhi
Immediate Past Chairman	Dr A K Aggarwal	Gujarat
Executive Vice Chairman	Prof V K Damodaran	Kerala
Secretary- Treasurer	Shri Rajendra K Asthana	Delhi
Vice Chairmen	Dr Shivaji Chakravorty	Calcutta
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Student Activities	Dr S C Gupta	UP
Membership Development	Shri C R Sasi	Madras
Educational Activities	Shri Amit M Johri	Gujarat
Special MDC- IT & Newsletter Editor	Shri N T Nair	Kerala
Member at Large	Shri R Murlidharan	Bombay
Member at Large	Shri Sandeep Todi	Calcutta

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### **SPECIAL MESSAGE**

A new team is taking over the reins in the first year of the twenty first century and the new Millennium. It seems, after years of slavery and destruction, after about fifty years of a slow regaining of self-confidence, successful efforts to build a new India may be within our reach. It is engineers, who have to shoulder the major responsibility for nation-building. IEEE India Council, as one of the major platforms of professionals in its fields of interest, has been trying to put in major efforts in this direction.

The new era is, first and foremost, the era of education. And it is the era of excellence in education. If we want to contribute in an equal measure to the world's development, we must try to build the world's best system of technical education by raising standards, by raising expectations, and by raising accountability. On its part, India Council feels that it should try to see that every engineering college in the country should have an active IEEE Student Branch. A branch allows the students to measure themselves on a common scale of excellence by participation in various world-wide technical paper contests, design competitions etc. It also makes them aware, on a month to month basis, of the development of new technologies in their field of interest.

We have started All India Student Congresses with the objective of making the student leadership aware of how a Branch is supposed to be run in a professional manner. While we are making efforts to increase the number of Branches beyond 162, it is important that there should not be a single delinquent Branch in the country.

Every Student Branch must also try to become the focus for the nearby industries by regularly inviting their engineers to its technical programs. It will be mutually beneficial. since on the one hand it would bring industries and working engineers to the campuses, and on the other hand it would provide a continuing re-education about new technologies to the working engineers.

If the increased inter-actions between the working engineers and the Student Branches are able to establish new Sub-sections in places, other than the headquarters of our 10 Sections, it is something which India Council and its Sections would like to encourage. In fact we have a target of as many as 50 Sub-sections in the country in the next few years.

We also want that our engineering colleges should start attracting a good number of students from all over the world. The enhanced fees from foreign students will make it possible for the engineering colleges to acquire better facilities and to be able to attract good teachers from all over the world. We cannot aim at the top-slot of education by only being a source of good faculty for universities all over the world. Till we start attracting teachers by advertising the serene ways of life at our campuses, by providing world class facilities for the families of the teachers, top-rated facilities for teaching and research and by giving them decent salaries, we cannot come back to the categories of Jagad Gurus. In our field, we have to admit that the western world, HongKong and some of the other East Asian Universities can put themselves in the category of world's teachers, we cannot.

IEEE Computer Society Chapter of India Council has taken up the responsibility of building up the web-site with URL = <http://www.ieeevidyarthi.org>. The site will showcase the activities of the Student Branches and the institutions, where the Branches are located. It will also have the CVs of the final year Student Members of IEEE and the GOLD Members. It will thus have many users. Branches will be able to learn from each other. Large technical companies will be able to locate good young engineers for their organizations. More over, candidates located at a large distance from the engineering colleges, will be able to know about the facilities at the engineering colleges and the possibilities of admission for them. Thus it may help the educational institutions get better students.

Many of the IEEE Societies are organizing distinguished lectures programs. We want to work as closely with the regional or Indian representatives of the Societies as possible so that such programs are able to benefit a large number of members as well as student members.

We are also trying to co-sponsor conferences and seminars organized by various IEEE societies in India so that more Indian members may be able to participate.

During the last two years, we have tried to make a progress in all these areas. At the end of my term, I must thank all the active members and office-bearers, without whose co-operation I would not have been able to achieve as much as we were able to do. The efforts, I am sure, will be continued in the new year by the new team of office-bearers of India Council, led by Mr. P. K. Srivastava. The more all of us get involved by donating our time, better will they be able to serve our cause.

Ahmedabad  
01 March, 2001.

**Dr. A. K. Aggarwal**  
Chairman



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PS: The All India Students Congress - March 6-9, 2001 is being hosted by IEEE VESIT Student Branch, Bombay. Please refer to [www.ieeevesit.org](http://www.ieeevesit.org) for the detailed program and for online registration.

"Start by doing what is necessary, then what is possible, and suddenly you are doing the impossible"

- St. Francis  
of Assisi

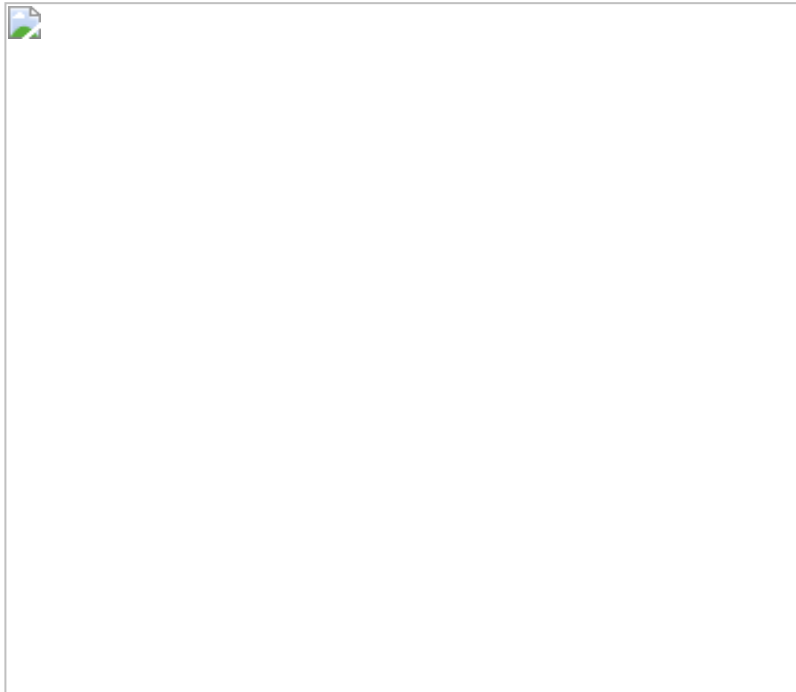
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An one-day tutorial on Electro Magnetic Interference - Problems and Remedies, was conducted by the Joint Chapter on Industry Application and Industrial Electronics of IEEE Kerala Section at the Amphitheatre of ER&DCI Trivandrum on 27th January 2001. The main speaker was Prof. Paolo Tenti of University of Padova, Italy who is also Distinguished Lecturer of IEEE Industry Application Society. The lectures were shared by Prof. Tenti and Prof. Giorgio Spiazzi, also of University of Padova.

Mr. K. G. Satheeshkumar, Chairman, IEEE Kerala Section welcomed the speakers and the delegates. Dr. Madhu Mangal, Chairman, Joint Chapter on IA&IE, IEEE Kerala Section introduced the speakers. The program was sponsored by ER&DCI, Trivandrum and Technopark, Trivandrum. 70 delegates attended the tutorial. Majority of the delegates were from VSSC, ER&DCI, and Toroid India (P) Ltd. There were 15 IEEE members and 4 IEEE student members among the attendees.

This tutorial was oriented to the discussion of the European Directive 89/336 and Harmonized standards series IEC 1000/CENELEC 61000. This directive specifies the emission and immunity requirements of every electric/electronic equipment sold in the European market and involves a comprehensive EMC regulation environment, from low frequency harmonics and flicker to conducted EMI and radiated noises and several immunity standards, either generic or product specific. As a part of the tutorial, the main problems occurring in industrial equipment (drives, refrigerators, air conditioners, UPS systems, welding machines, PCs, etc.) when subjected to certification tests were discussed together with some corrective provisions. Criteria to minimize low frequency and high frequency emission in the case of power electronic equipment (switching power supply with power factor control) were also discussed. The tutorial was designed mainly for engineers working in the industrial environment and experiencing the pressure to make their equipment comply with European standards or equivalent.

Mementos were presented to the speakers on behalf of IEEE Kerala Section by representatives of the delegates.



*Report by Dr. Madhu Mangal  
Prof. Paolo Tenti delivering the tutorial on EMI-Problems and Remedies at Trivandrum*

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**Technology in brief**

## Portable fuel cells

Laptops, hand-held CD players, and other portable devices may one day be powered not by batteries but by portable fuel cells.

A Portable Fuel Cell (PFC) model brought out by DCH technology of CA, USA, is about the size of a cola can, measuring 6 inches long by 2.75 inches in diameter and weighing just 1.4 pounds. It can supply 12 watts of electric power. However, the PFC must be attached to an external source of hydrogen, such as a small gas canister. The company is looking into lighter, less bulky sources of hydrogen such as solid metal hydride powder, which releases the gas.

The company can provide larger fuel cells that supply upto 200 Watts of power. Commercial production is expected to begin this year itself.

Fuel cells combine aspects of a battery and an engine: Like a battery, fuel cells produce electricity by electrochemical reactions - in this case reactions between hydrogen and oxygen from the air, with water as a byproduct. Like an engine, fuel cells will keep running as long as hydrogen fuel is powered.

*(Courtesy: Futurist, Jan-Feb '01)*

## Phone and park

Motorists in Denmark may soon be able to pay for parking via their mobile phones - using a micro payment system. The system, under trials now, lets motorists activate parking time by calling a number displayed on a street sign via their mobile phones. The parking is cancelled by calling a different number, when the fee levied is also informed. An SMS message service can alert the motorist when the parking period is running out, allowing them to prolong the period further via the phone. The parking charge is added to the individual telephone bill.

Unfortunately, the technology benefits are not all on the motorist's side. Traffic wardens can use a Wireless Application Protocol (WAP) service to access the central database of cars registered with the service and check whether a car's parking is being paid for. The WAP telephone shows the parking status for the car in question or it can display a list of all cars parked legally in that area.

*(Courtesy: ROAM, Nov-Dec '00)*

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## Learner's Column

### Digital Subscriber Line (DSL)

Ordinary telephone lines can do much more than what we are making it to do today - of just carrying voice, in the frequency range of 300 to 4000 Hz. This simple copper pair reaching our homes, has a bandwidth of 1 MHz, a major portion of which is lying unutilized today.

The new technology, DSL, transforms these ordinary phone lines into super-fast conductors of digital data for Internet use, while allowing regular conversation simultaneously. Specifically, DSL is designed to take advantage of the portion of the bandwidth not used for voice calls. DSL technology in effect splits the 1 MHz bandwidth that the twisted pair is capable of carrying, into three information channels. The data channel from the telephone exchange to the user is said to be downstream, and it travels at very high speed. There is another data channel from the customer's location back to the exchange, known as upstream connection. And of course, the same line still delivers Plain Old Telephone Service (POTS).

Creating a DSL begins by placing DSL modems (Different from conventional modems used now) at both ends of the telephone line, one at customer's end and the other at the telephone exchange. A splitter divides the available bandwidth between the voice and data channels, assigning different frequencies to each. Most PCs now use 33 kbps or 56 kbps analogue modems. 100 pages of text takes 2 minutes to download using a 56 kbps modem while a DSL modem with 1500 kbps speed takes only 5.3 seconds.

There are several versions of DSL like ADSL, HDSL, SDSL, VDSL, RADSL etc. However, ADSL(Asymmetric Digital Subscriber Line) is the most popular one. In this, the data flow into the PC is at higher speed compared to the other direction. This would suffice, as we mostly download more data and upload only our requests to the Internet Service Provider. The DSL speeds are in the range of 1500 kbps to 6mbps.

The main limitation of DSL is in its cable distance from the exchange to the user, which is 3 miles, approximately.

### **Failures of successful people**

- Thomas Edison failed approximately 10,000 times while he was working on the light bulb.
- Henry Ford was broke at the age of 40.
- Lee Iacocca was fired by Henry Ford II at the age of 54.
- Young Beethoven was told that he had no talent for music, but he gave some of the best music to the world

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### **EMI COMPATIBILITY WORKSHOP IN CHENNAI**

Workshop on Electromagnetic Compatibility in Electrical Industry was conducted at Image Auditorium, Chennai. The function was inaugurated on 29.01.2001 by Er N S Ganesan, Chief Engineer, AIR & Doordarshan, and presided over by Thiru. M V Muthuramalingam, Chairman, Vellammal Educational Trust. The tutorials were conducted by Dr Paolo Tenti & Dr Giorgio Spiazzi from University of Padova, Italy. 60 students and 25 members attended the Workshop. The interaction between the participants and speakers was noteworthy.



Dr. Paolo Tenti & Dr Giorgio Spiazzi visited Vellammal Engineering College on 30th January and delivered a lecture at the College premises. Later they visited Sameer Electronics in Chennai.

*Report by: Er. S. A. Soundara Rajan  
Chairman, IEEE Madras Section*

Er. S. A. Soundara Rajan, Chairman IEEE Madras Section presenting a memento to Dr. Paolo Tenti. They are flanked by Dr. N.M. Parthasarathy and Dr. Giorgio Spiazzi

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## **News - Scan**

### **NTT DoCoMo**

NTT DoCoMo is one of the world's largest operators of communications services, with principal operations in Japan. As of October 2000, it served more than 33 million subscribers and generated revenues above US\$ 34 billion. The services rendered are mobile cellular, paging, mobile satellite services and specialist maritime and aeronautical services. i-mode, the world renowned Internet access service for mobile cellular users, is to DoCoMo's credit. 3G (Third Generation) mobile is the hottest item now in the development agenda of DoCoMo, who hopes to launch 3G in Japan in May 2001.

*(Courtesy: ROAM, Nov/Dec 2000)*

### **Global R&D Trends - A Study**

Among the top R&D spenders of the world in the year 1998, the automobile Cos took the first 3 slots, led by General Motors with an R&D spend of US\$ 7.9 billion, which works out to 5 % of its sales. Ford Motor in position 2, spent US\$ 6.3 billion (4.4 %), followed by Daimler Chrysler with US\$ 5.83 billion (3.8%). Siemens, Lucent Technology, Hitachi, IBM, Matsushita Electric, Northern Telecom and Toyota fill the remaining 7 positions of the top 10 R&D spenders, as per a study conducted by Administrative Staff College of India (ASCI), Hyderabad under the leadership of Dr. B.

Bowonder. Total R&D spending of the top 500 firms was US\$ 257 billion, showing an average of US\$ 514 million per year per company.

In comparison to these global trends, the R&D spends by Indian corporates are abysmally low. For eg, total R&D expenditure of Telco was Rs 112.80 crores, during 1999-'00. Reliance spent Rs 49.65 crores, IOC Rs 77.40 crores, BHEL Rs 65.88 crores, and Ranbaxy Rs 59.39 crores.

The study which covered a wide range of areas from electronics to pharmaceuticals, beverages to biotechnology, automobiles to paper, also showed that in all the major segments, more than 50% the patents granted by the US patents and Trademark office are held by the top 10 R&D spenders, indicating that innovation is a major instrument of technological dominance.

*(Courtesy: Business Line)*

**PROF. K. SANKAR MEMORIAL AWARD** of Rs. 25,000 for the best paper presented in the Bombay Section Paper contest of March 2000 for details visit [www.ieee.org/Bombay](http://www.ieee.org/Bombay)

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**This issue is sponsored by**

**IEEE Kerala Section**

**THINK IT OVER**

Minds are like parachutes - they only function when open.  
- *Thomas Dewan*

The problem is not that there are problems. The problem is expecting otherwise and thinking that having problems is a problem.  
- *Theodore Rubin*

### **IEEE DISTINGUISHED LECTURERS PROGRAM GOES ELECTRONIC**

An electronic delivery format for the Society Distinguished Lecturers Program is being offered as a pilot to all members. This project resulted from the need expressed for lecturers and technical content in IEEE Society Chapter meetings and the fact that it is not always feasible for lecturers to provide on-site lectures, due to cost and travel constraints to some of the chapter locations.

These electronic lectures are currently available on the Web for the next few months and also in CD-ROM for those Chapters with limited Web access (the CD-ROM lending library is managed by IEEE Technical Activities staff). The lectures are offered as PowerPoint presentations with accompanying audio and run approximately 45 minutes each.

For this pilot, three lecture topics have been selected: Communications (David Goodman), Engineering Management (Cinda Voegtli), and Power Engineering (Jack Casazza). The lectures are provided in English and Spanish. Multi-lingual delivery is also being explored at the request of several Chapters.

To participate in this pilot, visit the IEEE Electronic Distinguished Lecturers web site at <http://www.ieee.org/electronic-dl>. For more information about this program, send an email message to [electronic-dl@ieee.org](mailto:electronic-dl@ieee.org)



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## Editorial Board

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## EDITOR'S DESK

### Together let us make it better

After a long gap of 7 years, I am once again taking over the reins of this august publication, from Prof. V.K.Damodaran, the outgoing Editor. During his tenure as Editor, Prof. VKD - that is how he is known in professional circles - did an excellent job of weaving this medium well into the fabric of IEEE fraternity in India. Today, this newsletter links the entire members, creating the feeling of a single family, even though we are scattered along the length and breadth of India. Congratulations to Prof. VKD.

As you would notice, we, the new Editorial Team consisting of Er. J. Muraleemohan Lal, Prof. VKD and the Editor, have made certain changes in the set up of the publication by introducing some new columns, with the idea of having more knowledge content. The column 'News- Scan' will contain news items about the activities of world renowned companies, study reports and the like. 'Learner's Column' is expected to act as a mini class room for de-mystifying a technical topic currently in lime light. We know, it would be too elementary for a section of our readers, but we hope they would be able to appreciate the spirit behind this exercise. We solicit feedback from our learned readers about all the columns, so that we can continuously strive to make this medium more beneficial to our members.

The new office bearers of IEEE India Council are in their saddles now. Let us wish them all success and also pledge our support through active participation in IEEE affairs.

Before concluding, I consider it a must to put on record our deep appreciation of the excellent leadership given by our outgoing Chairman, Dr A.K. Aggarwal in the past. Also, let us welcome the new Chairman, Sri. P K Srivatsava, under whom the IEEE movement in India is sure to scale still greater heights.

Trivandrum  
01 March 2001

### N. T. Nair

Trivandrum Editor  
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This electronic version of the IEEE India Bulletin is an adaptation of the official, printed newsletter. This adaptation has required some minor modifications and restructuring of the original text, to suit its viewing as a webpage.

**Thank you for visiting this webpage.**

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**Administrivia:**

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