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IEEE Region 8 newsletter



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THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
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No. 52

NOVEMBER 1980

REPORT OF THE REGIONAL DIRECTOR



D. C. J. Poortvliet
Director Region 8 1979-80

Just before the summer vacation I attended the opening sessions of the Conference on Precision Electromagnetic Measurements (CPEM '80) held in Braunschweig, F. R. Germany. During the opening sessions the chairman of the CPEM '80, Andrew F. Dunn, presented on behalf of the IEEE the 1979 Morris E. Leeds Award to Robert D. Cutkosky for his internationally significant contributions to the field of precision impedance measurements and standards. Due to very limited time I could, however, not attend more sessions of this interesting conference.

In August I attended meetings in Palo Alto, California, of the Regional Activities Board (RAB), the Technical Activities

Board, Transnational Relations Committee (TAB-TRC) and the Board of Directors. In the RAB meeting the final drafts of the agreements between IEEE, AEAI (Association of Engineers and Architects in Israel) and SEE (Société des Electriciens des Electroniciens et des Radio-electriciens) were discussed and the motion made to recommend to the Executive Committee the adoption of the agreement. Past Region 10 Director Prof. S. Y. King and I presented the proposal to change the boundaries of Region 8 and Region 10 such that all of the territory of the continent of Africa would be assigned to Region 8. The motion made to recommend to the Board of Directors adoption of the proposal and the corresponding revision of Bylaw 401.2 passed with one in opposition. The RAB approved in addition the establishment of an IEEE Student Branch at the University of Kuwait.

The proposed 1981 Field Services Budget was introduced by the RAB Finance Committee chairman W. E. Cory. There was a long discussion on the proposed allocation for Regional support, which is used by the

Regions to fund their activities. From the budget it was obvious that the allocation to Region 10 was too low, which was the reason why the Directors of Regions 4, 8 and 10 opposed the budget.

In the TAB-TRC the problems in Region 9 (South and Middle America) were discussed extensively. It was felt that improving the technical activities within Region 9 by presenting tutorials/lectures to the sections was important. I pointed out that the same kind of activities would be welcome in Region 8 as well.

The recommendations of the RAB to the BOD earlier mentioned were all adopted by the Board but the main discussion item was of course the 1981 operating budget. Treasurer Brereton presented the budget to the BOD after which the BOD resolved into a committee of the whole as subcommittee to consider the budget for each major functional area of the Institute. One afternoon was devoted to consideration of the budget in several separate workshops. The next day Treasurer Brereton outlined the consensus of the Budget workshops. The BOD reached the following decisions:

- increase in membership dues of \$8.00
- increase in Regions 1-6 assessment of \$2.00
- increase in Student/Student Grade membership dues of \$2.00

While this may seem an unreasonable move of the BOD, I can assure members that this increase is necessary and indeed hardly enough to solve the IEEE problems. Although I realise that a dues increase in some sections in Region 8 is difficult to accept I felt I had to vote in favour of these proposals because the new dues are justified by the services offered by the IEEE.

As Chairman of the BOD ad hoc committee for transnational affairs I introduced the problem of inhomogeneity of the non-US Regions. This problem needs further consideration and I hope to forward some suggestions to the BOD during the December meetings.

October 1980

DICK C. J. POORTVLIET
The Hague, The Netherlands.

INSTITUTE NEWS

Publications

The IEEE Publications Board has approved the Power Engineering Society's plan to establish a new publication carrying summaries of full Transactions papers plus other articles of technical interest to replace their present Transactions as the PES member publication. The Review, except for its title, will follow magazine guidelines and will be so sub-titled. The Transactions will be enlarged to carry all PES conference papers and will be available by subscription.

The PUB also approved the Computer Society's plan to establish a new publication on computer graphics. The publication, which will follow magazine guidelines, will carry advertising and will be published by the staff at the California office of the Computer Society.

The IEEE Transactions on Microwave Theory and Techniques is planning to publish a Special Issue on Open Guided Wave Structures in September 1981. Papers are solicited which describe original work concerned with theoretical and experimental investigations in the following (but not limited to) areas: Fibre and integrated optics; Dielectric millimetre waveguide and components; Quasi-optical techniques; Radiation and surface wave phenomena in printed transmission lines; and Open waveguides for far infra-red lasers.

DEADLINES	PUBLISHED QUARTERLY	FEB	MAY	AUG	NOV
	News to Editor	Jan 7	April 7	July 7	Oct 7
	Advertisements to County Secretarial Services	Jan 15	April 15	July 15	Oct 15
	Delivery inserts to County Secretarial Services	Jan 22	April 22	July 22	Oct 22

Authors are requested to submit five copies of the manuscript by 30th November 1980 to Professor T. Itoh, Department of Electrical Engineering, University of Texas at Austin, Post Office Box 7728, Austin, TX 78712, USA. (512) 471-1072.

The IEEE Transactions on Pattern Analysis and Machine Intelligence will publish a Special Issue on "Computer Intelligence: Three Decades" to mark the thirtieth anniversary of the publication of Turing's paper "Computing Machinery and Intelligence," with Judith M. S. Prewitt as Guest Editor. Papers on all aspects of machine/artificial intelligence are encouraged. Contributed papers are due on 1 January 1981. Revisions will be due 1 May 1981 and the Special Issue will be published in November 1981. However, notification of intent to submit a paper with tentative title should be communicated as soon as possible to Dr. Judith M. S. Prewitt, Division of Computer Research and Technology, National Institutes of Health, Bethesda, MD 20205, USA.

New Standards on Electrical and Electromagnetic Noise.

Guide for Installation of Electrical Equipment to Minimize Electrical Noise Inputs to Controller from External Sources. IEEE Std 518-1977, \$9.00.

The rapidly expanding use of solid-state controllers requires consideration of many factors not previously important in the design, installation, and operation of other forms of controllers. The IEEE Guide on Electrical Noise is a basic handbook on the installation of industrial controls involving low-energy level equipment to assure minimal noise inputs from external sources.

Many portions of the control circuits of solid-state controllers designed for operation at low-energy low-voltage signal levels are susceptible to disturbances by excessive electrical noise. Erratic controller operation

can result unless suitable precautions are taken. IEEE Std 518-1977 delineates the techniques for installation of controllers and control systems so that proper operation can be achieved in the presence of electrical noise.

Technological advances have been fundamentally aimed at making equipment smaller, faster, or more sensitive and this effort makes the concern for electrical noise even greater. The IEEE Guide on Electrical Noise provides criteria for reducing electrical noise by attacking the three basic elements of the electrical noise problem: Source of electrical noise; Coupling of noise from source to control circuit; Susceptibility of the control circuit to electrical noise.

Definitions of Terms for Radio Wave Propagation. IEEE Std 211-1977, \$4.50.

IEEE Std 211-1977, a revision of IEEE Std 211-1969, defines terms pertaining to the propagation of optical, gravity and plasma waves. Many terms have been added, including those for: radio astronomy, hydromagnetic, acoustic, and electrostatic waves, magnetosphere, and plasma. New definitions relating to dispersion, Doppler frequency, time-harmonic fields and waves, phasor notation, and Poynting vectors are also included.

Recommended Practice for Voice-Frequency Electrical-Noise Tests of Distribution Transformers. IEEE Std 469-1977, \$4.50.

The magnitudes of harmonic currents at voice frequencies flowing in supply circuits to transformer, and of interference that may result, vary according to design of the transformer as well as excitation voltage.

IEEE Std 469-1977 provides guidance on the testing of distribution transformers as voice-frequency noise generators, to measure the degree to which they may contribute to electrical noise in communication circuits that are in parallel with the power-supply circuits serving the transformers.

The tests described in this recommended practice provide a standard method for use by transformer manufacturers, users, and others in industry for the purpose of better evaluation of the design choices available.

Standard Definitions of Terms relating to Overhead-Power-Line Corona and Radio Noise. IEEE Std 539-1979, \$4.05.

IEEE Std 539-1979 has been developed to provide uniformity in the terms used in the field of corona and radio noise. It defines the most widely used terms specific to or associated with overhead-power-line corona and radio noise.

Provided in this document are definitions which describe the significant phenomena of ionization as they relate to the breakdown of air in the neighbourhood of overhead power lines and ancillary equipment because of existing voltage gradients; radio communication terms related to radio noise caused by power-line corona and similar phenomena which may affect reception in radio communication bands;

terms relating to the characteristics of radio noise and the equipment used in the measurement of radio noise; and the important parameters related to the propagation of radio noise and the induced electric field effects near power lines.

Recommended Practices for Measurement of Electric and Magnetic Field from AC Power Lines. IEEE Std 644-1979, \$4.50.

The recommendations in IEEE Std 644-1979 have been set forth to establish uniform procedures for the measurement of steady state electrical and magnetic fields from alternating current overhead power lines and for the calibration of the meters used in these measurements. A uniform procedure is a prerequisite to comparisons of electric and magnetic fields of various alternating current overhead power lines. The procedures in this document apply to the measurement of the near fields close to ground levels. However, they can also be tentatively applied to electric field measurements near an energized conductor or structure when the limitations outlined in the standard are taken into consideration.

Specifications for Electromagnetic Noise and Field Strength Instrumentation, 10 kHz to 1 GHz. ANSI C63.2-1980, \$5.40.

ANSI C63.2-1980 describes the requirements for electromagnetic noise instrumentation for the frequency range of 10 kHz to 1000 MHz incorporating quasi-peak, peak, rms, and average detectors.

Specifications covered in the document are for basic instrumentation, measurement, and calibration; frequency and amplitude ranges; input impedance; selectivity and bandwidth; detector circuits; overload characteristics; accuracy; output devices; sensors; shielding, filtering, and grounding; power supply; safety precautions; and environmental requirements.

The basic instrument is a frequency selective voltmeter. With appropriate coupling devices, such as antennas and current probes, the instrumentation will also measure other physical quantities such as field strength and current.

Recommended Practice on Procedures for Control of System Electromagnetic Compatibility. ANSI C63.12 \$5.40.

ANSI C63.12, a Draft American National Standard, discusses the general properties of environmental radio noise of both man-made and natural origin. It identifies several types of devices commonly used for measurement of radio noise and provides information on their properties to assist the practitioner in selecting such equipment and associated measurement techniques for application. Also discussed is the selection of a consistent set of limits for emission and susceptibility to various environmental constraints. It has been published for a limited time period to develop useful comments that may lead to a full-status standard.

MELECON '81

MELECON '81, the first Mediterranean Electrotechnical Conference, will be held in Tel Aviv, Israel, on 24-28 May 1981. The main theme is Electrotechnology for Development with particular reference to Mediterranean countries, and the Conference will be programmed under six main headings: telecommunication systems and services including computer networks and data communications; solar energy and wind power systems including domestic and industrial applications and energy conversion technology; microprocessor and computer applications including the evaluation of computer system performance; electronics and the environment including pollution control, ocean engineering, exploration of mining resources and electromagnetic compatibility and frequency management; medical applications of electronics and computers including medical care in remote areas; technology transfer and socio-economic impacts.

Associated with MELECON '81 is an extended version of Israel's Biennial Electronics and Electrical Exhibition, which in 1979 attracted more than 300 exhibitors and over 60,000 visitors. This is an industrial and scientific Exhibition which enables companies in the electronics and electrical industries to display and demonstrate their products and latest technological developments.

The Conference registration fees are \$160 for members of the Institute of Electrical and Electronics Engineers (\$145 if airmail postmarked before 15th April) and \$200 for non-members (\$180 if airmail postmarked before 15th April). Students can obtain accommodation and entrance to the Conference at the reduced combined rate of \$150. Additional information on the MELECON '81 Conference and Exhibition, including a preliminary registration form, is available from the Secretariat.

Additional special events associated with MELECON '81 are technical visits, a social programme, a sightseeing programme for those accompanying participants, and a three-day post-Conference tour in Israel.

MELECON '81 is sponsored by the IEEE Region 8, the IEEE Israel Section, and the Association of Engineers and Architects in Israel, and is organized in co-operation with National Associations of Electrical Engineers in Mediterranean Countries. The Conference is recognized as an International Technical Co-operation Centre event.

Enquiries to: Secretariat of MELECON '81, POB 3473, Tel Aviv, Israel.

The date for accepting abstracts to Melecon '81 has been extended to January 15 1981.

NEWS OF THE SECTIONS

UNITED KINGDOM AND REPUBLIC OF IRELAND SECTION

The Section Meeting at Imperial College on 13 November (speaker Mr. C. S. den Brinker) will be a joint meeting with the IEE (Professional Group E8) and the IERE. The IEEE sponsor's stand at the International Broadcasting Convention at Brighton, England, in September, 1980 attracted many visitors. The stand carried information on the forthcoming Mediterranean Electrotechnical Conference (Melecon '81) and on Eurocon '82 at Copenhagen, as well as a comprehensive display of membership leaflets, and copies of Journals and Transactions, made available by Field Services. Thanks to all those who assisted. Nominations for Fellowship and special awards: In order to assist the selection sub-committee, Senior Members who consider that the experience and leadership of their colleagues in a particular field of specialization may make them eligible for an Award, or nomination for Fellow grade, are invited to submit nominations to the Chairman of the Fellow and Awards Sub-Committee, Mr. R. Roff, Paston House,

165/167 Preston Road, Brighton, Sussex, BN1 6AF. It would greatly assist the Sub-Committee if a detailed list of the nominee's published works could be provided by the nominator. The Chairman of the Education Chapter, as from 1st October 1980, will be Professor J. J. Sparkes (The Open University) who takes over from Professor R. C. G. Williams. Mr. Mike Giddings (on 052-55-3332) continues as Chapter Secretary.

U.K.R.I. Section Members are reminded that the other active Chapters in the section area are Circuits and Systems (Chairman Dr. J. I. Sewell) University of Hull; Control Systems (Chairman Dr. M. J. Grimble (Sheffield City Polytechnic); and Professional Communication (Secretary, Dr. G. A. Hanley, Plymouth Polytechnic). The PC Chapter needs more support from members. Those interested, please contact Dr. Hanley on 0752-21312 (5259) Our section membership continues to grow - a stock of membership development literature is held by Prof. D. R. Wilson (Polytechnic of Central London, 01-486-5811).

EUROCON '82

The Fifth European Conference on Electrotechnics will be held in Copenhagen, 14-18 June 1982.

Previous EUROCONS: Lausanne 1971, Amsterdam 1974, Venice 1977, Stuttgart 1980.

The conference title will be "Reliability in Electrical and Electronic Components and Systems." Hardware, Software and Economics will be included with the following themes: Definition and theoretical basis of reliability; Reliability of components and assemblies; Hardware and system reliability; Software and system reliability; Reliability testing and measurement; Reliability as a marketing factor.

The sponsors are: EUREL (The Convention of National Societies of Electrical Engineers of Western Europe), IEEE (The Institute of Electrical and Electronic Engineers, Region 8), I-S (The Society of Engineers of Denmark), DIF (Danish Society of Chemical, Civil, Electrical and Mechanical Engineers), EF (Danish Electrotechnical Association).

Further information from: Conference Office, DIEU, Danish Engineers' Post-Graduate Institute, The Technical University of Denmark, Building 208, DK-2800 Lyngby, Denmark. Tel: 45-(0)2 88 23 00. Telegram: DIEUDTH. Secretary: Mrs Aase Sonne, ext. 37.

MEETINGS IN REGION 8

7th European Conference on Optical Communication

This conference, organized by the Electromagnetics Institute, Technical University of Denmark, is sponsored by Region 8 in co-operation with - Association of Electronics Manufacturers in Denmark; Copenhagen Telephone Company; Danish Academy of Technical Sciences; Danish Society of Chemical, Civil, Electrical and Mechanical Engineers; General Directorate of Posts and Telegraphs; Jutland Telephone Company; Municipal Telephone Company of Funen; Society of Engineers. The conference will be held 8-11 September 1981, at the Bella Center, Copenhagen, Denmark.

Its scope covers -

1. Fibres and fibre cables:

Design, basic phenomena, fabrication techniques, materials, characterization, coupling, splicing, cabling, installation, reliability, theory.

2. Devices:

LEDs, semiconductor lasers and other solid state lasers, amplifiers, detectors, switches, modulators, characterization, reliability, theory.

3. Integrated optics:

Planar optical waveguides, filters, couplers, microfabrication techniques, coupling to fibres, micro-optics, non-linear phenomena.

4. Equipment and techniques:

Optical transmitters and receivers, repeaters, coupling to optical fibres, circuit design, modulation techniques, multiplexing techniques.

5. Optical communication systems:

Telecommunication systems, short distance systems, special

application systems, trial and operational systems, reliability, testing, trends in systems, cost considerations.

Those wishing to offer contributions are asked to advise the Conference Secretary of the intended subject coverage of their paper as soon as possible.

Authors are asked to submit before 31st March 1981 an original, "camera-ready" paper in the form of an extended abstract on a maximum of four 29.7 x 21 cm sheets (European standard DIN A4), including any references, tables and figures.

The abstract must be typed in English on one side only, within a frame size of 24 x 16.5 cm and all figures must be original black-and-white diagrams or photographs.

At the top of the first sheet only, the following heading must be typed in block capitals on three separate lines, with two lines of space between the lines: the title of the abstract; the initials(s) and surname(s) of author(s); the organization(s) and country(s). Two lines of space must be allowed between the heading and the first line of text, and between paragraphs.

The heading and all text must start at the left-hand side of the frame size and must not be centred or indented.

Those abstracts which are accepted for inclusion in the programme will be reproduced same size by photolithography in the Conference Publication which will be available for collection by registrants on arrival at the Conference.

The conference programme will include a session on post-deadline papers. The instructions for preparation are the same as those for regular papers. The extended abstracts must be received by the Conference Secretary by 24 August 1981.

Scanned Image Microscopy

edited by Eric A. Ash

November/December 1980, xvi + 458pp., £18.40 (UK only) / \$42.50, 0.12.065180.7

A Rank Prize Fund Conference

Scanning electron microscopy is a well-established technique, but recently the process of scanning has also been applied to four radically new systems: acoustic microscopy, scanned optical microscopy, scanned photoacoustic microscopy and soft X-ray microscopy. In this book experts in this field present the results of their most recent research and attempt to delineate the direction of future progress.

Digital Signal Processing

edited by V. Cappellini and A.G. Constantinides

June 1980, xx + 292pp., £22.80 (UK only) / \$52.50, 0.12.159080.1

This book is a carefully edited selection of papers given at a Conference on Digital Signal Processing at Florence University in 1978. The papers are conveniently grouped in five parts: advanced methods and techniques for designing digital filters; improvements in efficient transformations (Fast Fourier Transforms); implementation aspects (using microprocessors); applications, for example radar systems, biomedicine, seismology; and finally the new field of art-processing.

Computer Image Processing and Recognition

Ernest L. Hall

February 1980, c. 568pp., £16.60 (UK only) / \$29.50, 0.12.318850.4

Contents

Introduction

Computer Image Processing and Recognition. Applications. Introductory Bibliography.

Image Formation and Perception

Introduction. Image Formation. Visual Perceptual Processing. Structural Models for Perceptual Processing. Computations Associated with Perception of Shapes and Patterns. References. Problems.

Computer Representation of Images

Three Dimensional Imaging. Computer Representation of Natural Images. Two Dimensional Transforms - Image Representation Using Orthogonal Functions and Matrices. References. Problems.

Introduction to Physical System Modelling

P.E. Wellstead

1979, x + 280pp., £18.00 (UK only) / \$41.50, 0.12.744380.0

Contents - Introduction.

Basics - Generalized variables and system elements. Basic system elements in mechanical, electrical, fluid, magnetic and thermal systems. Special multi-port system elements. Interconnection of system elements.

Systematic modelling methods - Network methods. Variational methods. Bond graph methods.

Case studies - The paper machine flow or head box. An overhead gantry crane. The ball and beam problem. An automotive engine test bed. Coupled electric drives. Subject index.

Electronic Imaging

edited by T.P. McLean and P. Schagen

1979, xviii + 522pp., £32.00 (UK only) / \$74.00, 0.12.485050.2

This book consists of papers presented at an International Symposium at the Royal Society in 1978. It has been edited to present a balanced coverage of the many aspects of the subject: the pick-up display and recording of images of visible scenes, the processing of such images by electronic means, the sensing and use of images originating from non-visible radiation, such as infrared, microwave or ultrasonic and the interpretation by the eye-brain complex of the images presented to it.

Academic Press

A Subsidiary of Harcourt Brace Jovanovich, Publishers
London New York Toronto Sydney San Francisco
24-28 Oval Road, London NW1 7DX, England
111 Fifth Avenue, New York, NY 10003, USA



Further information from: Secretary of 7th ECOC, M. Danielsen, Electromagnetics Institute, Technical University of Denmark, DK-2800 Lyngby, Denmark.

Seventh European Solid-State Circuits Conference (ESSCIRC '81)

Organized by Nachrichtentechnische Gesellschaft im VDE (NTG), in co-operation with Convention of National Societies of Electrical Engineers of Western Europe (EUREL) and Institute of Electrical and Electronics Engineers (IEEE), this conference will be held at the University of Freiburg, 22-24 September 1981.

The aim of the ESSCIRC series of conferences is to provide an annual European forum for the presentation and discussion of recent advances in Solid-State Circuits.

ESSCIRC '81 in Freiburg will be along the lines of the previous conferences which have been held since 1975 in Canterbury, Toulouse, Ulm, Amsterdam, Southampton and Grenoble.

Further information from: Bernd Hoefflinger, University of Dortmund, Postfach 50 05 00, D-4600 Dortmund 50, F. R. Germany.

Railways in the Electronic Age.

The Institution of Electrical Engineers, in association with the Institute of Electrical and Electronics Engineers Inc (United Kingdom and Republic of Ireland Section), the Institution of Civil Engineers, the Institution of Electronic and Radio Engineers, the Institution of Mechanical Engineers and the Institution of Railway Signal Engineers, has organized the conference to review progress made in the application of electrical and electronic systems to mainline and rapid transit railways and to consider future developments.

The conference will cover recent developments and their impact on all aspects of railway systems. It is intended that the main topics will be: The impact of higher train speeds on control and communication; The consequences of power electronics; and The influence of development in micro-electronics.

Papers dealing with the following topics are expected to form the basis of the conference: System Experience; Management and System Services; Signalling and Telecommunications; Rolling Stock and Power Supplies; and Human Factors.

Those intending to offer a contribution should have submitted a

250-word synopsis to the IEE Conference Department on or before 3 November 1980.

The authors whose synopses are selected for development into full contributions for further consideration will be requested to provide a typescript of between 2500-5000 words of text for assessment by 8 May 1981.

The conference will be held at the Institution of Electrical Engineers, Savoy Place, London WC2, on 17-20 November 1981.

Further information from IEE Conference Department, Savoy Place, London WC2R OBL.

Thyristor and Variable Static Equipment for AC and DC Transmission

The Institution of Electrical Engineers, in association with the Institute of Electrical and Electronics Engineers Inc (United Kingdom and Republic of Ireland Section) and with the support of the Convention of National Societies of Electrical Engineers of Western Europe (EUREL) and the Electric Power Research Institute (USA), has organized this international conference in London, 30 November to 3 December 1981.

It is an appropriate time to review existing operating experience with respect to planning criteria and also to discuss the issues involved in the design and application of variable static equipment which includes: converters for hvdc, thyristor controlled reactors, magnetically variable reactors and thyristor switched capacitors.

The aim of the conference is to discuss the design and utilization of variable static equipment used to supply power and reactive power, its role in power transmission systems, the benefits it brings and any special problems in its application.

The Organizing Committee invites offers of contributions on System Planning, Design and Application.

Those intending to offer a contribution should have submitted a 250-word synopsis to the IEE Conference Department on or before 6th October 1980. The authors whose synopses are selected for development into full contributions for further consideration will be requested to provide a typescript of approximately 3,000 words for assessment by 25 May 1981.

Further information from: IEE Conference Department, Savoy Place, London, WC2R OBL.

MEETINGS OUTSIDE REGION 8

5th International Conference on Pattern Recognition.

Co-sponsored by IAPR and the IEEE Computer Society at Miami Beach, Florida, 1-4 December 1980. Research papers on all aspects of pattern recognition were invited, including the following topics: Methodologies; Preprocessing and Feature Extraction; Applications; and Implementations.

Further information from: 5-ICPR, P. O. Box 639, Silver Spring, MD 20901, USA.

1980 IEEE International Electron Devices Meeting

The Annual Technical Meeting of the Electron Devices Society will be held in Washington, DC, 8-10 December 1980. After presentation of awards (David Sarnoff, J. J. Ebers and 1979 Student Best Paper), there will be an evening panel discussion on microstructure issues.

Areas to be covered will include: Solid State Devices; Device Technology; Integrated Electronics; Electron Tubes; Energy-Conversion Devices; Quantum-Electronic Devices; Detectors, Sensors and Displays. Further information from: Melissa M. Widerkehr, Conference Manager, Courtesy Associates, Inc., 1629 K Street, N. W., Suite 700, Washington, D.C. 20006, USA.

National Telecommunications Conference (NTC 80)

The National Telecommunications Conference will be held in Houston, Texas, on 1-4 December 1980. An outstanding technical programme has been organized, with 77 sessions addressing the demands and challenges of the 1980s. These include tutorial sessions on Spread Spectrum Communications and Cryptographic Techniques, as well as a special session devoted to Amateur Radio. Meetings of various committees of the Communications Society will be held during the conference.

NTC '80 is a truly international conference, with authors and exhibitors from all parts of the world. As telecommunications brings together the nations of the world, it is particularly appropriate that NTC '80 brings together the people and companies that lead the way in telecommunications. An International Lounge is provided for the convenience of participants from other countries.

Further information from: Dr. H. S. Hayre, General Chairman, EE Dept, University of Houston, Houston, Tx 77006, USA.

ADVERTISING AND INSERT RATES

Deadline dates in box on front page

ADVERTISING RATES

Display - \$1,200 per full page, \$650 per half page, \$350 per quarter page. These rates are for 'camera ready' copy - a charge at cost will be made for any setting required.

INSERT RATES

For full Regional distribution to over 10,000 members in Europe, Middle East and North Africa, size A5 or folded to A5 (148mm x 210mm), weight 10gms \$1,200, 20gms \$1,400, 30gms \$1,600. Lower rates for distribution to one country only or to a group of countries. Additional charge if collation or folding required. Recommended method of delivery is by direct air mail parcel post (check local postal regulations for maximum weight per parcel) or by air freight addressed to County Secretarial Services. Surface transport is liable to considerable delay at port of entry. Before shipment of inserts check that the deadline date will be met including allowance for customs clearance and delivery to Guildford.

020 All the above rates are net and include no allowance for discount.

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