

**A Quarterly Newsletter for Librarians  
on IEEE Publications and Services**

Published by the Institute of Electrical  
and Electronics Engineers, Inc.

Vol. 20, No. 3, 1990

# IEEE

## PUBLICATIONS BULLETIN

Route to:

## 1990 Membership Directory— Now Available

**P**ublished in April, the *1990 Membership Directory* could be one of the most useful references in your business or technical reference library.

Mobility in the field is great—roughly 50% of IEEE members change their address every 18 months. The *Membership Directory* brings you current information on the leaders in electronics and computing worldwide.

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In addition to the roster, the *Directory* contains a listing of over 4,000 IEEE Fellows, including their citations and other awards; winners of 33 major IEEE Awards for outstanding achievement in science and technology; and IEEE past presidents and directors. Also included in the *Directory* is a section on the purpose, organization and history of the IEEE with the requirements for the attainment of various membership grades.

The *1990 Membership Directory* is now available for only \$144.00. To order, please call 1-800-678-IEEE.



**Dr. Irving Engelson talks with Darla Wagner**

## Inside IEEE Conference Proceedings

### An Interview with Dr. Irving Engelson

**R**ecently, we sat with Dr. Irving Engelson, Staff Director, IEEE Technical Activities Department, to discuss the Conference Proceedings his department publishes. The interview was conducted by Darla Wagner, editor of the IEEE Publications Bulletin.

**PB** How many Conference Proceedings are published each year?

**IE** IEEE holds about 300 major conferences each year. Some small conferences have an attendance of under 100 and the large ones an attendance of many thousand. About 40% of these conferences publish a Conference Proceedings. Thus, the number of Conference Proceedings vary between 120-130 per year.

**PB** Because conferences represent leading edge technology, timely publication is important for librarians. How long does it take to get a Conference Proceeding published after a conference has taken place?

**IE** Because IEEE is a transnational organization and we operate in 130 countries, our technical and conference activities are largely decentralized and dispersed worldwide. Therefore, publishing schedules vary widely from conference to conference. Some Conference

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Proceedings are available by the time the conference is held. Other Conference Proceedings are published after the conference, with a few having delays as long as eight months.

**PB** Does the IEEE sponsor all of the conferences it publishes?

**IE** With very few exceptions, Conference Proceedings that we publish are for conferences that IEEE either sponsors or co-sponsors. We tend not to publish or distribute material whose intellectual content is not fully or partially controlled by IEEE.

**PB** How is the price and print run of each Conference Proceeding determined?

**IE** The print run of Conference Proceedings is based on the projected number of conference attendees and the projected number of post-conference sales to members and non-members. In both cases, we use historical data to help us in our decision making process. As to price, we generally tend toward price uniformity based on the size of the proceedings and not on its content, since most of our proceedings address state-of-the-art technology that is of relatively uniform value. We are also mindful of the budgetary problems faced by librarians and, therefore, tend to price our publications below the industry average.

**PB** Whom should librarian's consult when they have questions regarding IEEE Conference Proceedings?

**IE** Actually, there are a number of resources for information on our Conference Proceedings. In addition to our Customer Service Department, in our Technical Activities area the Manager of Conference Services (Perry Sensi) and the Manager of Product Development (Gerald Lapidus) are most intimately involved with the acquisition and marketing of our Conference Proceedings. These individuals can easily be reached by calling the IEEE general telephone number (908-981-0600).

**PB** What is the Open Order Entry Plan (OOP) and how can libraries participate in it?

**IE** The most effective way for a library to assure that it has all Conference Proceedings of IEEE sponsored and co-sponsored major conferences is to put in a standing order which we call OOP or Open Order Plan. When a subscriber has entered an open order, they automatically receive a copy of each of the Proceedings in the plan.

Because we appreciate these important library and corporate subscribers, we arrange for the hard binding of all the Conference Proceedings at no extra cost to the subscriber; otherwise, most of the Proceedings are soft bound. The OOP subscribers also receive a complimentary copy of the Annual *Index to IEEE Publications*. The subscribers are invoiced for each Conference Record at the time it is shipped to them.

**PB** What is the Prepaid Order Plan (POP)?

**IE** Increasingly, OOP subscribers convert their subscriptions to the POP or Prepaid

Order Plan. Under this plan, subscribers receive exactly the same publications as under the OOP plan, but by prepaying a fixed price, they receive a 30% discount on the order.

Under the POP option we process a single invoice rather than 120 or more (as under the OOP option) so we can pass the savings on to our valued subscribers. Librarians also like the prepaid option not only for the major savings in cost, but also because they save the processing expenses by handling a single invoice once a year as opposed to 120 invoices. Since we introduced the prepaid option a few years ago, about two thirds of our OOP subscribers have transferred to that option.

**PB** Why have some conferences been changed from OOP1 to OOP6?

**IE** The OOP option I mentioned earlier that contains approximately 120 Conference Proceedings is referred to as OOP-1 ALL. We also have a number of sub-options variously designated by numbers and letters. Each of these sub-options cover specific areas of technology or publications of a special nature such as books, standards, technical reports, etc. On occasion, as a publication evolves over the years, its nature may change requiring a transfer from one option or another. We realize that such changes may cause difficulty for subscribers who try to keep track of their acquisitions. However, we strongly feel that our literature should correctly reflect our various offerings and when those change sufficiently to suggest a reclassification, it is done.

**PB** How can libraries that do not participate in OOP most easily order Conference Proceedings?

**IE** Those who do not subscribe to any of our OOP options can order any of our Proceedings by placing a Purchase Order through our Customer Service Department. Should we run out of the hard copy version of a Proceedings, a library can always obtain Proceedings in microfiche form.

**PB** Librarians like to see consistency in publishing, such as title page in the same place, author index, etc. Are there any plans to make IEEE Conference Proceedings consistent?

**IE** We have just instituted ISBN for all Conference Proceedings with plans to add CIP data in the near future. On a headquarters level, we always strive to have consistency of products. However, as I have discussed earlier, we operate a largely decentralized conference activity on a worldwide basis. For example, conferences which are held in Europe and published there will frequently be produced in metric sizes and not in the size traditionally used in the United States, so there are built-in differences. Librarians are used to having heterogeneous products on their shelves that come from different publishers. As we emotionally view Conference Proceedings that are produced by our various entities in the same light, i.e., as publications of quasi-

autonomous entities, such non-uniformity becomes more readily acceptable. I do not foresee strict uniformity in the near future.

**PB** How can a librarian get a listing of the conferences they have signed up for in a given year?

**IE** Many libraries subscribe to TAG, our Technical Activities Guide, which contains our conference calendar and is published quarterly. TAG frequently indicates what conferences are expected to produce a Conference Proceeding. Thus, TAG provides one mechanism of learning about upcoming conferences and Conference Proceedings. Sometimes conferences are decided upon with little advance notice. In such cases, it is virtually impossible to alert librarians ahead of time of such events. We are considering generation of a document that will go to our OOP subscribers that would summarize the Conference Proceedings that they should have received. This will provide them with a quick check to see if their collections are complete.

*Editor's note:* If you wish to subscribe to TAG, call the IEEE Service Center at 1-800-678-IEEE or write to the IEEE Technical Activities Dept., IEEE Service Center, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331

**PB** What is the future of Conference Proceedings?

**IE** Conference Papers and, therefore, Conference Proceedings report not only on completed research and development but also on work in progress. Therefore, not all Conference Papers lend themselves to publication in our journals. Yet, because they reflect the current state-of-the-art technology, Conference Proceedings are frequently of more immediate use to the practitioner than many journal articles. I do not predict major changes in conferences in general and, therefore, in Conference Proceedings in particular.



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Electrical and Electronics  
Engineers, Inc.

# IEEE

## CONFERENCE

## PUBLICATIONS

To Order or for Information,  
Call 1-800-678-IEEE (8AM-4PM EST)  
or Fax (908) 981-9667

### ACOUSTICS, SPEECH AND SIGNAL PROCESSING

**ICASSP 90, Proceedings, 1990 International Conference on Acoustics, Speech, and Signal Processing**, held April 3-6, 1990 in Albuquerque, New Mexico; sponsored by IEEE Acoustics, Speech and Signal Processing Society.

The fifteenth in a series of international conferences devoted to experimental and theoretical aspects of signal processing, speech, and acoustics these proceedings consist of 5 volumes: Speech Processing, VLSI, Audio and Electroacoustics; Digital Signal Processing; Multidimensional Signal Processing; and Spectral Estimation, Underwater Signal Processing.

5 vols., 2970 pp., LC 84-645139, \$200.00  
90CH2847-2-PCC (OOP 1/1A)

### AEROSPACE AND ELECTRONICS SYSTEMS

**International Radar Conference, The Record of the IEEE 1990, RADAR-90**, held May 7-10, 1990 in Arlington, VA; sponsored by the IEEE Aerospace and Electronic Systems Society and the National Capital Area Council.

A unique learning experience for engineers and a thorough treatment of the field. Covered are: systems; imaging radar; phenomenology and interference; subsystems; moving target indication; target recognition and imaging; signal processing; antennas; moving target indication; phenomenology; tracking; systems and subsystems; interference and CFAR; target recognition; and signal processing and tracking.

700 pp., LC 90-081178, \$70.00  
90CH2882-9-PCC (OOP 1/1C)

**NAECON'90, Proceedings of the IEEE 1990 National Aerospace and Electronics Conference**, held May 21-25, 1990 in Dayton, Ohio; sponsored by the IEEE Aerospace and Electronics Systems Society and the IEEE Dayton Section.

"Quality Technologies for an Assured Future," was the theme for this conference. Separated into three volumes, Volume 1

contains: digital technology and applications, and avionics subsystem and weapon technology. Volume 2 contains: flight control technology; software development and management; human factors; and simulation and training. Volume 3 contains: electronic combat; aerospace engineering systems; artificial intelligence; logistics engineering/info systems; quality technology and applications; total quality management; and late papers.

3 vols., 1378 pp., LC 79-640977, \$140.00  
ISSN 0547-3578  
90CH2881-1-PCC (OOP 1/1C)

### COMMUNICATIONS

**INFOCOM '90, Proceedings IEEE, The Conference on Computer Communications, Ninth Annual Joint Conference of the IEEE Computer and Communications Societies, The Multiple Facets of Integration**, held June 3-7, 1990 in San Francisco, CA; sponsored by the IEEE Computer Society and the IEEE Communications Society.

The theme, "The Multiple Facets of Integration" covers such topics as: LAN token rings; flow and congestion control; network management and planning; high speed interconnect; coding and error control; ATM switch performance; MANs; network design and capacity planning; LANs; polling; switching; gigabit network applications; broad protocols; PRNETs; high speed protocols and architecture; routing; network reliability; congestion in ATMs; B-ISDN services; protocol verification and conversion; random access; DQDB; protocols and security; queuing models; ATM switching and protocols; distributed systems and algorithms; integrated voice/data P/S or C/S; admission and flow control in ATMs; perspectives on FDDI and DGDB MAN technologies; packet voice; light-wave networks; new services; and token passing.

3 vols., 1312 pp., LC 86-640672, \$160.00  
ISBN 0-8186-2049-8 (paper)  
ISBN 0-8186-6049-X (microfiche)

contains: digital technology and applications, and avionics subsystem and weapon technology. Volume 2 contains: flight control technology; software development and management; human factors; and simulation and training. Volume 3 contains: electronic combat; aerospace engineering systems; artificial intelligence; logistics engineering/info systems; quality technology and applications; total quality management; and late papers.

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ISBN 0-8186-6049-X (microfiche)

ISBN 0-8186-9049-6 (case)  
90CH2826-6-PCC (OOP 1/1C,E)

### COMPONENTS, HYBRIDS, AND MANUFACTURING TECHNOLOGY

**Electronic Components & Technology Conference, 1990 Proceedings, 40th**, held May 20-23, 1990 in Las Vegas, Nevada; sponsored by the IEEE Components, Hybrids, and Manufacturing Technology Society and the Electronic Industries Association.

Thorough and comprehensive, this conference presents the latest developments associated with the design, fabrication and use of electronic materials, devices, components and systems. Topics covered are: electronic packaging in the 90s; optical devices & reliability; ceramic and inorganic materials; hybrid microcircuits: substrates and applications; electrical modeling; optical component packaging; environmentally sound manufacturing practices; passive components; single chip packaging; soldered interconnections; manufacturing processes; interconnect reliability; solder materials; advanced packaging; multichip modules; encapsulation and molding materials; manufacturing & quality systems; active components; polymides and organic materials; chip interconnections; stresses in plastic; connectors: electrical/optical; materials; packaging; interconnections; components; reliability; fiber optics; design/manufacturing technology; and packages, hybrids, ASICs.

2 vols., 1151 pp., LC 78-647174, \$90.00  
ISSN 0569-5503  
90CH2893-6-PCC (OOP 1/1D)

**Thermal Phenomena in Electronic Systems, I-THERM II, 1990 Proceedings: 2nd Inter Society Conference on**, held May 23-25, 1990 in Las Vegas, NV; sponsored by the IEEE Components, Hybrids, and Manufacturing Technology Society, American Society of Mechanical Engineers, National Institute of Standards and Technology, and Society of Automotive Engineers.

A wide range of subjects as they pertain to the thermal phenomena that occurs



within electronic systems and components is the focus of this conference. Topics covered include: thermally-induced failures in electronic systems, phase change and cryogenic thermal control, thermal modelling of computer systems and peripheral equipment, heat transfer in electronic devices and packages, and direct air cooling of electronic components.

180 pp., LC 89-81075, \$46.00  
90CH2798-7-PCC (OOP 1/1D)

COMPUTER

**Complexity Theory Conference, Proceedings Fifth Annual Structure in**, held July 8-11, 1990 in Barcelona, Spain; sponsored by the IEEE Computer Society.

Twenty papers show the original research and technical expositions in all areas of complexity theory. Covered are: NP-Hard problems, interactive proof systems, universal hashing, unambiguity of circuits, polynomial hierarchy, computational complexity, non-uniform complexity, and complexity classes.

328 pp., LC 90-82088, \$72.00  
ISBN 0-8186-2072-2 (paper)  
ISBN 0-8186-6072-4 (microfiche)  
ISBN 0-8186-9072-0 (case)  
90CH2899-3-PCC (OOP 1/1E)

**Computer-Based Medical Systems, Proceedings Third Annual IEEE Symposium on, CBMS'90**, held June 3-6, 1990 in Chapel Hill, NC; sponsored by the IEEE Computer Society, the IEEE Engineering in Medicine and Biology Society, and the IEEE Eastern North Carolina Section.

The technical program for CBMS'90 focused on the use of computers in medicine. These programs are directed toward engineers and computer scientists as well as physicians engaged in the development, design, evaluation and application of computer-based medical systems. The emphasis is on the design and application of reliable and safe computer-based medical systems. There are seven tracks where papers are presented and their subjects are: communications and image processing; communication aids for disabled people; medical device reliability and safety; cardiovascular technologies; artificial intelligence and neural nets; clinical assessment and risk evaluation; and health effects and risk assessment of environmental agents.

580 pp., LC 90-80139, \$75.00  
ISBN 0-8186-9040-2 (case)  
ISBN 0-8186-6040-6 (microfiche)  
90CH2845-6-PCC (OOP 1/1E)

**The Computer Security Foundations Workshop III, Proceedings of**, held June

12-14, 1990 in Franconia, NH; sponsored by the IEEE Computer Society.

Examining current theories of security in computer systems, this conference addresses: logic and protocol analysis; models of information flow; information flow in abstract machines; modeling new properties; covert channel analysis; covert channel detection; and database security.

176 pp., LC 90-81751, \$54.00  
ISBN 0-8186-2071-4 (paper)  
ISBN 0-8186-6071-2 (microfiche)  
ISBN 0-8186-9071-2 (case)  
90TH0315-2 (OOP 6)

**Databases in Parallel and Distributed Systems, DPDS90, Proceedings Second International Symposium on**, held July 2-5, 1990 in Dublin, Ireland; sponsored by the IEEE Computer Society and the Association of Computing Machinery; edited by Rakesh Agrawal and David Bell.

The increasing recognition of the importance for database systems in the 1990's is reflected in the eighteen papers presented at this conference. Covered are: parallel processing of database operations; parallel machines; parallel joins; parallel algorithms; distributed systems; and distributed query processing.

228 pp., LC 90-81054, \$64.00  
ISBN 0-8186-2052-8 (paper)  
ISBN 0-8186-6052-X (microfiche)  
ISBN 0-8186-9052-6 (case)  
90CH2895-1-PCC (OOP 1/1E)

**Design Automation Conference, 27th ACM/IEEE**, held June 24-38, 1990 in Orlando, FL; sponsored by the IEEE Computer Society and the Association for Computing Machinery.

The latest developments in the field of design automation is the focus of this conference. Topics covered include: HDL Validation and Intermediate Format; Probabilistic Techniques in Placement; Binary Decision Diagrams; Women in the Microelectronics Industry; New Scheduling, Allocation, and Mapping Techniques; Timing Driven Layout Techniques; Timing Verification; Data Management and Version Control; Data Path Optimization Algorithms; Issues in Floorplanning; Formal Methods for Design Verification; Distributed Computing Environment for Design Automation in the 90's; Synthesis and Testability; Layout Verification; Software Engineering in Design Automation; Boolean Methods; Layout Synthesis; Computer Aids for IC Manufacturability; Testing Strategies for the 1990's; Timing and Routing Optimization in Synthesis; Compactors; Electrical Simulation; Object-Oriented Approaches; Scheduling Algorithms for High-Level Syn-

thesis; Layout Synthesis; Accelerating Logic Simulation; Standards Openness and Design Environments In Electronic Design Automation; Data Path Synthesis; Symbolic Simulation - Techniques and Applications; Integration of Hardware and Software in Embedded Systems Design; Application of Behavioral Synthesis; Performance Constrained Routing; Testing Using Functional Models; Impact and Evaluation of Competing Implementation Media for ASICs; Decomposition and Partitioning in Logic Synthesis; New Approaches to Routing Problems; Combinational Test Generation; Object Databases in Electronic Design; Alternative Approaches to Behavioral Synthesis; Channel-Oriented Multilayer Routing; and Ideas in Testing.

772 pp., LC 85-644924, \$130.00  
ISBN 0-8186-9650-X (case)  
ISBN 0-8186-6050-3 (microfiche)  
ISSN 0738-100X  
90CH2894-4-PCC (OOP 1/1E)

**Distributed Computing Systems, Proceedings The 10th International Conference on**, held May 28-June 1, 1990 in Paris, France; sponsored by the IEEE Computer Society and the Institut National de Recherche en Informatique et en Automatique (INRIA).

A thorough review of the technical issues associated with distributed computing systems. Areas covered include: architecture, communication protocols, distributed operating systems, scheduling, distributed databases, languages, tools and methodologies, modeling and performance evaluation, reliability and fault tolerance, distributed algorithms and theory, real-time systems, and applications.

628 pp., LC 88-659565, \$100.00  
ISBN 0-8186-2048-X (paper)  
ISBN 0-8186-6048-1 (microfiche)  
ISBN 0-8186-9048-8 (case)  
90CH2878-7-PCC (OOP 1/1E)

**Fault-Tolerant Computing: 20th International Symposium, Digest of Papers, FTCS 20**, held June 26-28, 1990 in Newcastle Upon Tyne, U.K.; sponsored by the IEEE Computer Society, British Computer Society, The Centre for Software Reliability, and the Institute of Electrical Engineers (UK).

The practical applications of fault tolerant computing technology in industry and government is addressed in these conference proceedings. Covered are: empirical results; checkpointing and recovery; algorithm based fault tolerance; financial and real-time constraints; manufacturing yield enhancement; analysis and modelling; regular geometric structures; experimental

methods and fault injection; built-in self test and coding; distributed algorithms; system-level diagnosis; modeling and evaluation; testable design; software fault tolerance; concurrent testing; distributed system architecture; and evaluation methods.

520 pp., LC 90-081527, \$76.00  
ISSN 0731-2071  
ISBN 0-8186-2051-X (paper)  
ISBN 0-8186-6051-1 (microfiche)  
ISBN 0-8186-9051-8 (case)  
90CH2877-9-PCC (OOP 1/1E)

**ICIS'90, The First International Conference on Systems Integration, Systems Integration'90**, held April 23-26, 1990 in Morristown, New Jersey; sponsored by the IEEE Computer Society and the Association for Computing Machinery; edited by Peter A. Ng, C. V. Ramamoorthy, Laurence C. Seifert, and Raymond T. Teh.

The nature of computer systems integration is explored in this collection of conference papers. Areas covered include: the impact of computer communication; the interaction of heterogeneous computer environments; the problems of coordination between diverse computer communications networks; and the mechanisms by which we would be able to solve multidisciplinary problems.

820 pp., LC 90-80665, \$90.00  
ISBN 0-8186-9027-5 (case)  
ISBN 0-8186-6027-9 (microfiche)  
90TH0309-5-PCC (OOP 6)

**INFOCOM '90, Proceedings IEEE, The Conference on Computer Communications, Ninth Annual Joint Conference of the IEEE Computer and Communications Societies, The Multiple Facets of Integration**, held June 3-7, 1990 in San Francisco, CA; sponsored by the IEEE Computer Society and the IEEE Communications Society.

Please see coverage under COMMUNICATIONS.

3 vols., 1312 pp., LC 86-640672, \$160.00  
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ISBN 0-8186-6049-X (microfiche)  
ISBN 0-1886-9049-6 (case)  
90CH2826-6-PCC (OOP 1/1C,1E)

**Logic in Computer Science, Proceedings Fifth Annual IEEE Symposium on**, held June 4-7, 1990 in Philadelphia, PA; sponsored by the IEEE Computer Society.

A comprehensive reference to the theoretical and practical issues involved in the field of computer science. Topics covered include: abstract data types, automated deduction, concurrency, constructive mathematics, database theory, finite model theory, knowledge representation, lambda and combinatory calculi, logical aspects of

computational complexity, logics in artificial intelligence, logic programming, modal and temporal logics, program logic and semantics, rewrite rules, software specification, type systems, and verification.

528 pp., LC 89-641304, \$90.00  
ISBN 0-8186-2073-0 (paper)  
ISBN 0-8186-6073-2 (microfiche)  
ISBN 0-8186-9073-9 (case)  
90CH2897-7-PCC (OOP 1/1E)

**Mass Storage Systems, Digest of Papers Tenth IEEE Symposium on**, held May 7-10, 1990 in Monterey, CA; sponsored by the IEEE Computer Society.

The theme, "The Crisis in Mass Storage," focusses on the widening gap between the development of raw hardware and technologies needed for the development of integrated storage systems. This Symposium begins with a Tutorial, "Magnetic and Optical Data Storage," which reviews the scientific and technical foundations upon which magnetic and optical data storage are based. Papers for this symposium cover current directions in existing storage, emerging technologies, innovative approaches, and development opportunities, with an emphasis on overall systems solutions.

206 pp., LC 89-46420, \$48.00  
ISBN 0-8186-2034-X (paper)  
ISBN 0-8186-6034-1 (microfiche)  
ISBN 0-8186-9034-8 (casebound)  
90CH2844-9-PCC (OOP 1/1E)

**Multiple-Valued Logic, Proceedings of the Twentieth International Symposium on**, held May 23-25, 1990 in Charlotte, NC; sponsored by the IEEE Computer Society.

A wide range of topics relating to multiple-valued logic are covered in this conference. Coverage includes: circuits; algebra; spectral techniques; special applications; logic design; logic; logic and algebra; logic and artificial intelligence; and artificial intelligence and expert systems.

452 pp., LC 79-641110, \$85.00  
ISBN 0-8186-2046-3 (paper)  
ISBN 0-8186-6046-5 (microfiche)  
ISBN 0-8186-9046-1 (case)  
90CH2886-0-PCC (OOP 1/1E)

**Pattern Recognition, Proceedings 10th International Conference on**, held June 16-21, 1990 in Atlantic City, NJ; sponsored by the IEEE Computer Society and the International Association for Pattern Recognition.

Computer vision, pattern recognition systems and applications, image, speech, and signal processing, and computer architecture for vision and pattern recognition were the main points of focus for this con-

ference. Split into two conferences, Conference A concentrates on computer vision and Conference B focusses on pattern recognition systems and applications. Coverage in Conference A includes: focus of attention; robot navigation; active vision; curvature; regularization; motion; 3D vision; machine vision in the 90s; interpretation/reconstruction/restoration; knowledge-based systems/matching; volumetric descriptions; texture; current and future problems in motion; and 3D surfaces. Coverage in Conference B includes: pattern recognition; character; line; texture; biomedical; hough; application; color; segmentation; shape; morphology; multi-scale/multi-resolution; and edges and features.

2 vols., 1708 pp., LC 90-82270, \$160.00  
ISBN 0-8186-2062-5 (paper)  
ISBN 0-8186-6062-7 (microfiche)  
ISBN 0-8186-9062-3 (case)  
90CH2898-5-PCC (OOP 1/1E)

**Visualization in Biomedical Computing, Proceedings of the First Conference on**, held May 22-25, 1990 in Atlanta, GA; sponsored by the IEEE Computer Society and the Association for Computing Machinery.

This conference provided a forum for international researchers, scientists, engineers and toolmakers to define and promote the emerging discipline of visualization. Topics covered include: volume visualization, biomedical applications: cells, molecules, and small systems; models of visualization; computer vision in visualization: segmentation of imagery; surface versus volume rendering; chaos and fractals in electroencephalography; visualization of the cardiovascular system; visual perception; MRI and flow studies; human-machine interfaces; the role of 3D Visualization in radiology and surgery; visualization in the neurosciences: addressing problems in research, teaching and clinical practice; computer vision in visualization; mathematical and computational models; treatment planning and general applications and visualization in medical education.

524 pp., LC 90-81042, \$150.00  
ISBN 0-8186-2039-0 (paper)  
ISBN 0-8186-6039-2 (microfiche)  
ISBN 0-8186-9039-9 (case)  
90TH0311-1-PCC (OOP 6)

CONSUMER ELECTRONICS

**Consumer Electronics Digest of Technical Papers, IEEE 1990 International Conference on, ICCE**, held June 6-8, 1990 in Rosemont, IL; sponsored by the IEEE Consumer Electronics Society.

This authoritative and comprehensive reference on consumer electronics reports on: TV systems and receiver architectures;



FM reception and audio processing; video recording systems; cable/consumer electronics interface requirements; testing TV systems and characterizing the transmission path; PIP and image compression; video recording technology; testing: methods and procedures; channel distortion reduction methods; video front-end functions; home bus; components; signal compression and format conversion; display technology; scan alternatives and IDTV processing; electronic imaging; audio for TV/VCR; emerging technologies; video digital signal processing; video cameras; digital audio and DSP; and personal communications.

416 pp., LC 84-643147, \$56.00  
90CH2871-2-PCC (OOP 1/1C)

#### CONTROL SYSTEMS

**American Control Conference, ACC'90, Proceedings of the 1990**, held May 23-25, 1990 in San Diego, CA; sponsored by the IEEE Control Systems Society and the American Automatic Control Council.

Broad in scope, this conference provided a forum for papers covering all aspects of the science of automation and control. Coverage includes: discrete event systems; control applications to military systems; adaptive control systems; applications of modeling and control techniques to microelectronics processing; pole placement in linear control; nonlinear controls; control of lightweight robotic systems; analysis and control of redundant manipulators; aerospace vehicle guidance and trajectory optimization; intelligent vehicle systems; modeling and realization; experimental control of flexible structures; complexity, uncertainty, information, & organization in control system design; decentralized and large scale systems; robust control of complex systems; modelling and control of stochastic systems; automation aids for air traffic control; robust adaptive control; reactor control; linear and nonlinear robust control: the QFT approach; control of flexible manipulator arms; robustness issues in robot control; aircraft and missile control; optimal control; controls/structures interaction research; robust stability; robust feedback design; benchmark problem for robust H2/H (infinity) control design; mystique of intelligent control; perturbation analysis of discrete event dynamic systems; control applications to functional electrical stimulation; manufacturing processes control; digital control; control of nonlinear mechanical systems: theory and applications; modeling and control of flexible manipulator arms; and modelling and design of me-

chanical systems and robots; and space systems control.

3 vols., 3295 pp., \$220.00  
90CH2896-9-PCC (OOP 1/1A)

#### DIELECTRICS AND ELECTRICAL INSULATION

**Electrical Insulation, Conference Record of the 1990 IEEE International Symposium on**, held June 3-6, 1990 in Toronto, Canada; sponsored by the IEEE Dielectrics and Electrical Insulation Society.

A comprehensive and thorough treatment of the technology today was offered in this electrical insulation conference. Topics covered include: multi-stress aging; liquid dielectrics; gases and vacuum; measurements and HV equipment; aging of rotating machinery; water treeing; flash-over/outdoor insulation; properties of materials; partial discharges; and cables and accessories.

468 pp., LC 89-80523, \$100.00  
90CH2727-6-PCC (OOP 1/1B)

#### ELECTROMAGNETIC COMPATIBILITY

**Electromagnetic Compatibility, 1989 International Symposium on. EMC'89 NAGOYA**, held September 8-10, 1989 in Nagoya, Japan; sponsored by the technical group on EMC of the Institute of Electronics, Information and Communication Engineers, IEE of Japan, and Electromagnetic Compatibility Society of the IEEE Inc., and the Tokyo Chapter.

Highlights of this international conference include: wave propagation; E lines; seismo-electromagnetic; bioeffect; sensor and antenna; lightning and EMP; EMC in amateur radio; EMC in spread spectrum system; and scattering.

2 vols., 996 pp., LC 83-645449, \$84.00  
89TH0276-6-PCC (OOP 6)

#### ELECTRON DEVICES

**CICC'90, Proceedings of the IEEE 1990 Custom Integrated Circuits Conference**, held May 13-16, 1990 in Boston, MA; sponsored by the IEEE Electron Devices Society.

Recent advances in the technology and applications that indicate an increasing trend towards system-level ASIC design and development. Coverage includes: new directions; new hardware & software tools; new hardware products; high density/performance gate arrays; mixed-level simulation & behavioral modeling; data converters; integrated sensors & processors; analog design techniques; logic simulation & delay estimation; design: myths, methods & systems; interface circuits & interconnects; telecommunication circuits &

systems; coding & signal processing; logic & circuit synthesis; widgets; cell based design; image processing ICs; fabrication technology & device modeling; reliability; custom IC design challenge; designer or chip/wafer vendor; highvolume - fast turnaround ASICs; large monolithic vs. chip sets; high speed computer elements; HDTV & related circuits; neural networks; placement & routing technology; testing; module generation, optimization & verification; and programmable logic devices.

796 pp., LC 85-653738, \$100.00  
90CH2860-5-PCC (OOP 1/1D)

**Power Semiconductor Devices & ICs, Proceedings of the 2nd International Symposium on, ISPSD'90**, held April 4-6, 1990 in Tokyo, Japan; sponsored by the IEEE Electron Devices Society and the Institute of Electrical Engineers of Japan.

The purpose of this conference was to provide an international forum for the presentation of the latest research and development in the area of power devices and high-voltage/power ICs. Many of the papers highlighted power devices for pulsed power applications, ASIC approaches to power ICs, and silicon carbide for power devices. Other papers covered such topics as: modeling & simulation; high voltage & power ICs; fast switching devices; material & process technologies; modeling & simulation of devices; and high power devices.

324 pp., \$52.00  
90TH0304-6-PCC (OOP 6)

**IEEE Solid-State Sensor and Actuator Workshop, Technical Digest**, held June 4-7, 1990 in Hilton Head Island, SC; sponsored by the IEEE Electron Devices Society.

Researchers in the field of solid state sensors and microactuators were provided an opportunity for the exchange of results, ideas and plans in this workshop. Subjects covered include: acoustic and resonant devices; microactuators; CAD; chemistry and physics of materials and processes; integrated sensor systems; magnetic sensors; fabrication methods, structures, and materials; accelerometers and flow sensors; chemical and biological sensors; and pressure sensors.

196 pp., LC 89-85516, \$46.00  
90CH2783-9 (OOP 6)

**VLSI Multilevel Interconnection Conference, 1990 Proceedings Seventh International IEEE, VMIC 1990**, held June 12-13, 1990 in Santa Clara, CA; sponsored by the IEEE Electron Devices Society.

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#### STANDARDS

**NOTE:** The standards have been listed in strict numerical order for ease of location and speedy ordering.

67-1990 **IEEE Guide for Operation and Maintenance of Turbine Generators**; June 1990.

64 pp., ISBN 1-55937-033-5, \$50.00.  
SH13359 (OOP 5)

449-1990 **IEEE Standard for Ferroresonant Voltage Regulators**; May 1990.

78 pp., ISBN 1-55937-030-0, \$43.50.  
SH13342 (OOP 5)

770X3.160-1989 **IEEE Standard Programming Language for Extended Pascal (ANSI)**; June 1990.

256 pp., ISBN 1-55937-031-9, \$55.00.  
SH13243 (OOP 5)

790-1989 **IEEE Guide for Medical Ultrasound Field Parameter Ultrasound (ANSI)**; June 1990.

96 pp., ISBN 1-55937-034-3, \$52.00.  
SH13003 (OOP 5)

823-1989 **IEEE Standard Methodology for Specifying Voice Grade Channel Transmission Parameters and Evaluating Connection Transmission Performance for Speech Telephony (ANSI)**; June 1990.

72 pp., ISBN 1-55937-032-7, \$55.00.  
SH13185 (OOP 5)

857-1990 **IEEE Guide for Test Procedures for HDVC Thyristor Valves**; August 1990.

24 pp., ISBN 1-55937-045-9, \$38.00.  
SH13441 (OOP 5)

993-1990 **IEEE Trial Use Standard Test Equipment Description Language**; June 1990.

96 pp., ISBN 1-55937-029-7, \$73.50.  
SH13227 (OOP 5)

1048-1990 **IEEE Guide for Protective Grounding of Power Lines**; June 1990.

32 pp., ISBN 1-55937-035-1, \$39.00.  
SH13367 (OOP 5)

1068-1990 **IEEE Recommended Practice for the Repair and Rewinding of Motors for the Petroleum and Chemical Industry**; June 1990.

24 pp., ISBN 1-55937-038-6, \$40.00.  
SH13391 (OOP 5)

1109-1990 **IEEE Guide for the Interconnection of User-Owned Substations to Electric Utilities**; June 1990.

24 pp., \$38.50. SH13409 (OOP 5)

C37.36b-1990 **IEEE Guide to Current Interruption with Horn-Gap Air Switches**; August 1990.

16 pp., ISBN 1-55937-037-8, \$30.00.  
SH13490 (OOP 5)

C37.103-1990 **IEEE Guide for Differential and Polarizing Relay Circuit Testing**; May 1990.

44 pp., \$62.00. SH13250 (OOP 5)

C57-1990 **Complete 1990 Edition: Distribution, Power, and Regulating Transformers**; March 1990.

1440 pp., ISBN 1-55937-024-6, \$110.00.  
SH13060

C62-1990 **Complete 1990 Edition: Guides and Standards for Surge Protection**; May 18, 1990.

420 pp., ISBN 1-55937-028-9, \$85.00.  
SH13334

ISO 8802-4-1989 (E) (ISO/IEC) (IEEE Std 802.4-1989) **Information Processing Systems—Local Area Networks—Part 4: Token-Passing Bus Access Method and Physical Layer Specifications**; July 1990.

304 pp., ISBN 1-55937-027-0, \$75.00.  
SH12948 (OOP 5)

N42.15-1990 **Verification of Liquid-Scintillation Counting Systems, American National Standard for**; July 1990.

16 pp., ISBN 1-55937-042-4, \$30.00.  
SH13417 (OOP 5)

**IEEE Nuclear Power Standards Collection, 1990 Edition**; June 1990.

1600 pp., ISBN 1-55937-009-2, \$165.00.  
SH13276

**How Due Process in the Development of Voluntary Standards Can Reduce the Risk of Anti-Trust Liability**, by David A. Swankin; prepared for the U.S. Department of Commerce, National Institute of Standards and Technology, Technology Services, Office of Standards Services. NIST-GCR-90-571, FREE, Please contact

the Standards Department at 908-562-3800 or 1-800-678-IEEE or fax to: 908-562-1571 or write to: IEEE Standards Department, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331.

**IEEE Statement on Improving US Participation in International Standards Activities**, presented at a hearing on Improving US Participation in International Standards Activities; Opportunity for Interested Parties to Comment; sponsored by the National Institute of Standards and Technology; prepared by IEEE Ad Hoc Task Group: Donald C. Fleckenstein, Marco W. Migliaro, and Andrew G. Salem. April 3, 1990, FREE, Please contact the Standards Department at 908-562-3800 or 1-800-678-IEEE or fax to: 908-562-1571 or write to: IEEE Standards Department, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331.

#### IEEE PRESS

**Applied Reliability Assessment in Electric Power Systems** edited by Roy Billinton (University of Saskatchewan), Ronald N. Allan (University of Manchester Institute of Science and Technology, United Kingdom), and Luigi Salvaderi (Ente Nazionale Per L'Energia Elettrica, Italy). 1990 by IEEE.

Examines the various aspects of power system reliability evaluation and application. The book covers generating capacity, composite systems, transmission and distribution, and reliability cost/reliability worth.

AUDIENCE: Engineers and researchers engaged in electrical power systems and energy generation.

560 pp., LC 90-40180, \$69.95  
ISBN 0-87942-264-5  
PC0251-9-PCC (OOP 2)

**Integrated Optics: Devices and Applications** edited by Joseph T. Boyd (University of Cincinnati). 1990 by IEEE. Integrated optics is approaching a turning point for practical applications...and the range of applications described by the 66 technical papers in this volume is truly impressive. They represent expanded re-



search activity over the past 15 years and were selected for their current value in describing the present status of a specific aspect of integrated optics, for their value in introducing the novice to some aspects of the field and for their historical value in representing technological evolution. AUDIENCE: Engineers engaged in Laser Technology and Applications and Electro-Optics. 464 pp., LC 90-37592, \$49.95 ISBN 0-87942-268-8 PC0259-2-PCC (OOP 2)

**Modulation Doped Field Effect Transistors: Applications & Circuits** edited by Hejnrich Daembkes (Daimler-Benz AG Research Center, Ulm). 1990 by IEEE. Covers the applications of the new MODFETs to all important areas of high speed and high frequency systems. It begins by describing the microwave and the noise properties and the application to low noise amplifiers. The first section of the book ends with a description of performance when used as power amplifiers, as mixer or as oscillator. The second section deals with digital circuits and includes applications in dividers, multipliers, converters, multiplexers and memories. The volume concludes with applications to optoelectronic circuits. AUDIENCE: Engineers working in microwave and millimeterwave communications, radar systems design, high speed circuit design and high speed optical data transmission. 448 pp., LC 90-37557, \$49.95 ISBN 0-87942-256-4 PC0262-6-PCC (OOP 2)

**Modulation Doped Field Effect Transistors: Principles, Design, and Technology** edited by Heinrich Daembkes (Daimler-Benz AG Research Center, Ulm). 1990 by IEEE. Beginning with a simple look at the physics needed to calculate band arrangement, this volume illustrates how the MODFETs operate and discusses the influence of the different parameters on the devices' properties. Different concepts of MODFETs are introduced and discussed. Circuits engineers will find the section on device modeling of particular interest. It covers the various approaches to modeling, using either analytical or numerical descriptions, and describes the device from the physics as well as from the circuits point of view. The final section demonstrates future directions in the field, describing the impact of new materials and additional degrees of design flexibility. AUDIENCE: Solid state device and circuit designers and engineers working in microwave communications.

516 pp., LC 90-36211, \$59.95 ISBN 0-87942-257-2 PC0261-8-PCC (OOP 2)

**Perspectives on Packetized Voice and Data Communications** edited by William Lidinsky (AT&T Bell Laboratories) and David Vlack (AT&T Bell Laboratories). 1990 by IEEE. This book identifies the key issues in a network which is designed to carry traffic with vastly different characteristics such as bandwidth, delay, and error requirements. The consequence of such a network is the need to differentiate the various traffic types and to treat them differently. Several approaches are addressed and a strong case is presented for the need of convectionless network services which has been overlooked in most of the prior literature. AUDIENCE: Telecommunications planners and engineers with specific interest in broadband ISDN. 304 pp., LC 90-32479, \$39.95 ISBN 0-87942-263-7 PC0252-7-PCC (OOP 2)

**Photonic Switching** edited by H. Scott Hinton (AT&T Bell Laboratories) and John E. Midwinter (University College, London). 1990 by IEEE. Because optics will find a number of niche markets in switching in the near future, this volume will be of particular interest. The book provides a balanced and current overview of what has been achieved and what can be expected in the future. AUDIENCE: Engineers working in the fields of Laser Technology, Laser Applications, Optical and Optoelectronic Devices, and Optical Signal Processing. 464 pp., LC 90-4083, \$54.95 ISBN 0-87942-260-2 PC0253-5-PCC (OOP 2)

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vided the impetus for the European program and the progress that it has made to date. Video Tutorial, 1990, \$109.95, HV0164-4-PCC

**High Performance Modulation Doped Field Effect Transistors,** presented by Lauren F. Palmateer, Cornell University. This Video Tutorial explores the advantages of AlInAs/GaInAs/InP MODFETs over the conventional AlGaAs/GaAs MODFET for low noise millimeter-wave device applications. Video Tutorial, 1990, \$109.95, HV0179-2-PCC

**The Impact of Coherent Detection Techniques on Terrestrial and Planetary Atmospheric Research, and on the Discovery of Interstellar Molecules,** presented by Pierre Encrenaz, Observatoire de Paris (Available in English or French). The common complaint about inaccurate weather forecasts may actually become a thing of the past! This Video Tutorial will address significant research being done in this very important field. Interstellar molecules which could barely be detected 20 years ago are now being observed routinely by radiotelescopes. The recent discoveries of the presence of unsuspected molecules show that the interstellar medium is far more complicated than had been assumed. These observations are due in large part to the significantly increased sensitivity of receivers through the use of both homo- and pseudomorphic HEMTs and superconducting (SIS) junctions. The data obtained from these atmospheric studies will have the practical benefit of providing more accurate short and long range weather predictions. The same technology is being used to study the atmosphere of the planets and their satellites within our own solar system. Video Tutorial, 1990, \$109.95, HV0178-4-PCC

**ROBOTICS/90 SERIES** The following three Video Tutorials on robotics, which were all produced in 1990, are available as a package at a reduced price, or may be purchased individually.

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**Modeling and Control of Automated Manufacturing Systems,** presented by Alan Desrochers, Rensselaer Polytechnic Institute. New researchers as well as practicing engineers will find this Video Tutorial to be of great value. It gives you a summary of the significant research in automation and flexi-

ble manufacturing. It provides you with the newest mathematical control methods, and explains their potential for changing the operation of modern manufacturing systems. In addition to discussing modeling methods, control issues, manufacturing software, and performance analysis of transfer lines, the Tutorial emphasizes the Petri net approach. Video Tutorial, Total running time: 3-4 hours, 1990, \$135.95. HV0160-2-PCC

**Networking for Computer-Integrated Manufacturing,** presented by A. Ray, University of Texas (Arlington); K.H. Murali, Industrial Technology Institute and Arun Ayyagari, Boeing Electronics Division. This Video Tutorial furnishes you with an in-depth look at the fundamentals of networking for computer-integrated manufacturing. Emphasizing intelligent manufacturing and systems integration, the program covers several components of network analysis and design. Topics include basic concepts and architectures of CIM networking, introduction to manufacturing automation protocol (MAP) and technical and office protocols (TOP), Management and control of CIM networks, and analysis and simulation of CIM networks. Video Tutorial, Total running time: 3-4 hours, 1990, \$135.95. HV0161-0-PCC

**Sensor-Based Planning and Control in Robotics,** presented by R.A. Brooks, MIT and Vladimir J. Lumelsky, Yale University. Anyone with an interest in sensor-based planning control will find this Video Tutorial of value. The research in the area has ranged from pure mathematics to hardware design, bringing widespread changes to the field. This program places strong emphasis on new ideas, such as hierarchical realization of complex behavior in mobile robots and who-sensitive arm manipulators. It also provides you with an in-depth look at recent experimental developments. Video Tutorial, Total running time: 3-4 hours, 1990, \$135.95. HV0162-8-PCC

**Statistical Model Based Speech Enhancement Systems,** developed and presented by Yariv Ephraim, AT&T Bell Labs. This Video Tutorial will focus on solving three basic problems of speech enhancement by using a unified statistical approach. The problems include signal estimation from a given sample function of noisy speech, source coding given noisy speech, and classification of noisy speech signals. They are tackled by an approach based on Gaussian autoregressive hidden Markov modeling of the clean signal as well as the noise process. Video Tutorial, 1990, \$109.95. HV0165-1-PCC

**Talking Voice Chips,** presented by Randall Restle, assisted by Kam Yu, both of Texas Instruments. Using new types of programmable speech synthesizers, engineers can now design a voice into an electronic system more easily and inexpensively than ever before. The quality of the 100% solid state voice, whether male or female, is about as good as any tape recording. *Talking Voice Chips* shows how to design speech into electronic equipment using a mathematical model of the human voice that enables efficient digital storage and the recreation of realistic speech. Dr. Restle demonstrates three popular competing speech synthesis technologies: Linear Predictive Coding (LPC), Adaptive Differential Pulse Coding Modulation (AADPCM), and Continuously Variable Slope Delta Modulation (CVSDM). Video Tutorial, Total running time: 88 minutes, 1990, \$109.95. HV0163-6-PCC

SPECIAL ISSUES

**Aerospace Control Systems;** IEEE Control Systems Magazine, Vol. 10, No.4, June 1990. The Control System Society Technical Committee on Aerospace Control Systems has chosen nine papers for this special issue. The nine papers were taken from the 1989 American Control Conference to illustrate some of the important aerospace applications that control engineers are tackling today. Subjects covered are: landing control of modern aircraft; autopilot design of a modern large transport aircraft; parallel digital processing approach; parameter identification for the control of two types of space systems; and parameter estimation for the space shuttle main engine dynamics using the recursive maximum-likelihood method. pp. 3-65, \$20.00 JH9891-3-PCC

**Cache Architectures in Tightly Coupled Multiprocessors;** Computer, Vol. 23, No. 6, June 1990. There are six papers in this issue which cover current technology trends in cache architectures under the following topics: new, scalable architectures supporting private caches; hardware/compiler trade offs to support efficient cache coherence; performance evaluation of cache-based multiprocessors; reliability and efficient interprocessor; efficient implementation of virtual memory through caching; and the design of caches and their associated protocol to increase processor efficiency. pp. 9-69, \$20.00. JH9871-5-PCC

**Computer Arithmetic;** IEEE Transactions on Computers, Vol. 39, No. 8, August 1990. This special issue provides a view of the



current state-of-the-art in computer arithmetic. Twelve papers cover the following topics: design of adders; improvements to the Booth multiplication algorithm; computation of square roots; algorithms for the evaluation of elementary functions; residue number systems; number system that uses pairs of logarithms to represent numbers; and exotic number systems. pp. 981-1115, \$20.00, JH9013-4-PCC

**Europower, Looking Ahead to 1992;** IEEE Spectrum, Vol. 27, No. 6, June 1990. Europower '92 reports on how a united Europe plans to exploit technology to improve its trading posture. The present plans are to turn the tariff-free common market into a single market - one lacking nontariff barriers. With the single market in mind, major companies are consolidating their operations. This means engineers' careers will change in that they will be required to be mobile. Another important point is the move toward market-controlled economies in the Eastern bloc and the USSR. Another is the unification of West and East Germany. These and many other issues concerning the status and historic changes brought about by Europe 1992 are covered in this issue. pp. 19-62, \$15.00, JH9418-5-PCC

**Fault-Tolerant Systems;** Computer, Vol. 23, No. 7, July 1990. This issue opens with an introductory article by Victor Nelson explaining the basic concepts of the field. The next article, by Daniel Siewiorek, discusses how these fault-tolerance techniques are incorporated in practical commercial systems. The balance of the articles in the issue discuss recent advances in several other areas important to fault-tolerant computing: software fault tolerance, error-detection strategies, coding, fault tolerance in VLSI circuits, and reliability modeling. pp. 15-88, \$20.00, JH9872-3-PCC

**Fifteenth European Solid-State Circuits Conference, ESSCIRC '89,** held September 1989 in Vienna, Austria; IEEE Journal of Solid-State Circuits, Vol. 25, No. 3, June 1990. Twenty of the 188 papers submitted to this conference are included in this special issue. Topics covered in the papers are: high-speed modems; BiCMOS video sample-and-hold circuit; unified design of data converters and filters; implementation of filters in CMOS using switched-capacitor and continuous-time techniques; power interface IC; improvements in analog chip design; methods of performing semi-analytical analysis of analog circuits; new design philosophies and tools to cope with the increasing complexity of VLSI; DSP circuits; speed demands placed by video ap-

plications on buffer RAM's; low-impedance CMOS line driver; problem of high-speed interconnections and its influence on time jitter; and a new clocking scheme to avoid race conditions in pipeline circuits. pp. 632-769, \$20.00, JH9810-3-PCC

**Fire Hazards and Polymer Fire Behavior;** IEEE Electrical Insulation Magazine, Vol. 6, No. 3, May/June 1990. The three papers in this issue focus on the problems created by fire and the products of combustion. Their titles are: "Fire Hazards - Present Codes and Standards"; "Fire Test Methods for Electrical and Dielectric Materials"; and "Fire Behavior of Polymeric Materials". pp. 8-23, \$20.00, JH9903-6-PCC

**High-Power Microwave Generation,** IEEE Transactions on Plasma Science, Vol. 18, No. 3, June 1990. This is the third Special Issue of the IEEE TRANSACTIONS ON PLASMA SCIENCE on high-power microwave generation (1st in December 1985 and the 2nd in April 1988). The papers in this issue are organized into four general categories: Fast Wave Devices (including free-electron lasers and electron-cyclotron masers); Slow Wave Devices (including backward-wave oscillators, traveling wave tubes, Cherenkov masers, klystrons, and magnetrons); Plasma Devices (including the virtual cathode oscillator); and a category comprising papers not easily identified with the previous three categories, such as the Magnicon. There are 43 papers contained in this issue. pp. 257-645, \$20.00, JH9689-1-PCC

**1989 IEEE Hot Chips Symposium,** held June 26-27, 1989 in Palo Alto, CA; IEEE Micro, Vol. 10, No. 3, June 1990. This issue continues the second half of articles derived from the oral presentations given at the 1989 Hot Chips Symposium. Four feature articles include: "Multiplexed Buses: The Endian Wars Continue", "The 68040 Processor: Part 2, Memory Design and Chip Verification", "The TMS390C602A Floating-Point Coprocessor for Sparc Systems", and "Motorola's 88000 Family Architecture". Special feature article rounds out the issue, "The Gmicro/300 32-Bit Microprocessor". pp. 9-75, \$20.00., JH9939-0-PCC

**Large Scale and Decentralized Systems;** IEEE Transactions on Automatic Control, Vol. 35, No. 6, June 1990. There are six papers in this issue on: general decentralized structure; application areas; general decentralized controller design approaches; implementation issues; and from information structures to discrete event systems. pp. 642-705, \$20.00, JH9492-0-PCC

**Multidimensional Signal Processing;** Proceedings of the IEEE, Vol. 78, No. 4, April 1990.

The last special issue on Multidimensional Systems was in June 1977 of this journal. The purpose of this issue is to give a balanced, integrated presentation of theoretical fundamentals and important applications in this field. There are fifteen papers included in this issue on: fundamental mathematical limitations which influenced the development of multidimensional digital signal processing theory; theory of multidimensional systems; neighbor sets more general than the quarter-lane causal, the weakly causal, and the asymmetric half-plane which have applications to image processing and geophysical data processing; nonlinear filtering; multidimensional signal processing that include geophysical prospecting; scheme for extracting signals from co-channel interference environments using known spectral correlation properties of those signals without the knowledge of the content or direction-of-arrival of the transmitted signal, the antenna array geometry, or the background noise covariance of the receiver; and fast 2-D maps for processing an image. pp. 590-775, \$20.00. JH8879-9-PCC

**Multivalued Logic Systems for VHDL;** IEEE Design & Test of Computers, Vol. 7, No. 3, June 1990. This special issue presents five articles dealing with multivalued logic systems for VHDL. The introductory article is on "Tuning VHDL for Multivalued Logic Modeling". The other five papers are on: "A Minimalist Approach to VHDL Logic Modeling," "A VHDL Standard Package for Logic Modeling," "A Value System for Switch-level Modeling," "Transparent Logic Modeling in VHDL", and "Logic Modeling In Waves" pp. 8-55, \$20.00. JH9897-0-PCC

**Organometallic Vapor-Phase Epitaxy;** Journal of Electronic Materials, Vol. 19, No. 4, April 1990. The thirteen papers in this special issue are a representation of the 52 papers given at the Workshop on Organometallic Vapor Phase Epitaxy which was held in Monterey, CA from October 8-11, 1989. The topics covered are: atomic layer epitaxy; selective growth; practical aspects; growth on patterned substrates; and growth and performance of electronic and photonic devices. pp. 289-397, \$20.00. JH9778-2-PCC

**Signaling System No. 7 (SS7);** IEEE Communications Magazine, Vol. 28, No. 7, July 1990. This issue is dedicated to exploration of various facets of Signaling System No. 7 (SS7) and its role in the evolving global in-

formation age network. Specific topics on SS7 in this issue are: tutorial review; ISDN signaling in global networks; performance modeling; ISDN signaling system in NTT's network; Italtel's implementation experiences; and transcontinental interconnection of signaling networks between the United States, Japan and Great Britain. pp. 10-92, \$20.00. JH9860-8-PCC

**Space: Pushing the Envelope;** IEEE Expert, Vol. 5, No. 3, June 1990. The two articles featured in this special issue, are: "Pushing the Envelope: Space Telerobotics" at Carnegie Mellon University by Christopher Locke and "Planning for Space Telerobotics: The Remote Mission Specialist" by Mark Rokey and Sven Grenander from the Jet Propulsion Laboratory. The first article describes three space-oriented projects at CMU's Robotics Institute: the Ambler Planetary Rover, Self-Mobile Space Manipulator, and Hubble Space Telescope Scheduling System. The second article covers RMS, the remote mission specialist which is one of the control schemes that the Jet Propulsion Laboratory is studying. pp. 2-15, \$20.00. JH9929-1-PCC

**Spread Spectrum Communications I;** IEEE Journal on Selected Areas in Communications, Vol. 8, No. 4, May 1990. This Volume I deals exclusively with code division multiple access, both using direct sequence and frequency hopping spread spectrum through eighteen included papers. The first issue on this subject appeared in the IEEE Journal on Selected Areas in Communications in May 1982 and was concerned with a history of spread spectrum, contained a tutorial on this subject, and dealt primarily with military applications. pp. 486-710, \$20.00. JH9801-2-PCC

**Surviving Disaster;** IEEE Communications Magazine, Vol. 28, No. 6, June 1990. The eight papers in this special issue cover many aspects of disaster mitigation and recovery. The beginning paper is on a key user's experience before, during and after Hurricane Hugo. Next, actual experiences of Japan's service Provider, NTT, with a series of natural disasters. Other topics covered include: how end users can plan for disaster mitigation with their local exchange carrier; solution employed by an end customer who is absolutely dependent on continuous communications; techniques to provide service assurance; a method for providing for survivability of future SONET-based fiber networks; and Southwestern Bell describes their plan to implement "Digital City," a self-healing ring architecture that provides broad network capabilities in fault tolerance and auto-

matic recovery from failures. pp. 12-60, \$20.00. JH9859-0-PCC

## TUTORIALS

**Advances in Distributed System Reliability;** by Suresh Rai (Louisiana State University) and Dharma P. Agrawal (North Carolina State University). 1990 by IEEE. This tutorial provides a literacy forum for exchanging information among planners and design engineers of parallel and distributed computing networks, computer systems analysts, specialists in computer reliability and maintainability, and other computer engineering professionals. The tutorial emphasizes the importance of such a close interaction and the impact of reliability on parallel/distributed computing networks. It also covers traditional strategies for performability evaluation and case studies. 333 pp., LC 89-45997, \$48.00. ISBN 0-8186-8907-2 (case) ISBN 0-8186-5907-6 (microfiche) EH0300-4-PCC

**Detection of Downed Conductors on Utility Distribution Systems.** 1990 by IEEE. \$8.00. EHO0310-3PWR-PCC

**Guidelines for Integrating RAM Considerations into an Engineering Project** by Vernon H. Guthrie, John A Farquharson, Robert W. Bonnett, and E.F. Bjoro Jr. IEEE Transactions on Reliability, Vol. 39, No. 2, June 1990. These guidelines present a structured RAM process for integrating RAM considerations in each of six defined project phases: feasibility study; conceptual and preliminary design; detailed design; procurement; startup; and operations. pp. 133-139, \$20.00, JH9722-0-PCC

**Security and Privacy Volume I Proceedings of the First Five Symposia 1980-1984;** sponsored by the IEEE Computer Society Technical Committee on Security and Privacy and co-sponsored by the International Association for Cryptologic Research (ICAR); edited by Christi E. Garvey. This is Volume I of two volumes containing the first eight years of the Proceedings of the Symposium on Security and Privacy sponsored by the IEEE Computer Society Technical Committee on Security and Privacy and co-sponsored by the International Association for Cryptologic Research (ICAR). 906 pp., LC 90-55188, \$100.00 ISBN 0-8186-5999-8 (microfiche) ISBN 0-8186-8999-4 (case) 90EH0314-5-PCC

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## HIGHLIGHTED PAPERS

**Strategic Planning for the Future of IAS** by E. G. Kiener; IEEE Transactions on Industry Applications, Vol. 26, No. 2, March/April 1990, pp. 190-192. In celebrating its twenty-fifth year of service to the electrical engineering profession, the Industry Applications Society's (IAS) Long Range Planning Committee (LRPC), formed at the Denver conference in October 1986, wanted to share with the readers, the subjects which they are working on. They are: society restructuring, membership development, transnational activities, and new technology.

## SPECIAL SECTIONS

**Discrete Event Systems,** IEEE Control Systems Magazine, Vol. 10, No. 4, June 1990. The six papers presented in this special section provide a sampling of some of the motivating applications for the study of DEDS and also some of the research activity that is currently under way. Subjects covered are: DEDS, Petri net, and GSMP models. pp. 66-112, \$20.00. JH9891-3-PCC

**High Order Spectral Analysis,** IEEE Transactions on Acoustics, Speech, and Signal Processing, Vol. 38, No. 7, July 1990.



This special section presents important new results in the area of higher order spectra and reflects the most recent work carried out in digital signal processing. Papers presented in this issue cover: a comparative investigation of two higher order spectra identification procedures; algorithms to estimate the parameters of a causal nonminimum phase ARMA system using only output cumulants; methods for detecting a transient signal of unknown shape in additive stationary noise by using a detection statistic computed from the bispectrum; two approaches for signal amplitude reconstruction from bispectra; and a new method to FIR system identification using higher order statistics.

pp. 1236-1317, \$20.00. JH9463-1-PCC

**Japan International Electronic Manufacturing Technology Symposium (IEMT)**, held in April 26-28, 1989 in Nara, Japan. IEEE Transactions on Components, Hybrids, and Manufacturing Technology, Vol. 13, No. 2, June 1990.

This is a forum for manufacturing technologists to present and discuss new developments in electronic manufacturing technology basically in the technical areas of materials, processes, design and analysis, and reliability. This issue contains three papers in substrate, two in component, and one each in process, packaging technology and analysis.

pp. 434-461, \$20.00. JH9540-6-PCC

**1989 Nuclear Science Symposium**, was to be held Oct. 21-28, 1990 in San Francisco, CA. IEEE Transactions on Nuclear Science, Vol. 37, No. 2, April 1990.

Due to an earthquake this conference was not held, but the papers are being included in this special issue of the transaction. Subjects covered include: tracking and imaging detectors; radiation detector developments and applications; calorimetry detectors; trigger processing; data acquisition and analysis systems; analog and digital nuclear electronics circuits; radiation damage in detectors; astronomy and space instrumentation; nuclear medicine instrumentation and imaging; environmental and health physics instrumentation and applications; nuclear well logging; nuclear power systems; and reactor instrumentation and control. It does include an author index.

pp. 39-1051, \$40.00. JH9666-9-PCC

**Representation and Use of Knowledge for Decisionmaking in Human, Mechanized, and Ideal Agents.** IEEE Transactions on Systems, Man, and Cybernetics, Vol. 20, No. 2, March/April 1990.

The seven papers included in this issue are from the 1988 Illinois Interdisciplinary Workshop on Decisionmaking held at the

University of Illinois in Champaign-Urbana. The intent of the Workshop was to examine a variety of perspectives concerned with representation and use of knowledge for decisionmaking in human, mechanized, and ideal agents.

pp. 293-364, \$20.00. JH9749-3-PCC

**Transmission and Distribution Conference, 1989**, held April 2-7, 1989 in New Orleans, Louisiana. There are no published conference proceedings. IEEE Transactions on Power Delivery, Vol. 5, No. 2, April 1990.

This issue contains approximately 80% of the papers presented at the Transmission and Distribution Conference in 1989.

pp. 738-1174, \$20.00. JH96941-PCC

#### UNITED STATES ACTIVITIES

**Guidelines to Professional Employment for Engineers and Scientists.** 3rd edition. "Guidelines to Professional Employment for Engineers and Scientists" has been updated and approved by 33 engineering and scientific societies, including the Institute of Electrical and Electronics Engineers, Inc. The Guidelines were developed for use by employers in evaluating their own practices, by professional employees in evaluating their own responsibilities and those of their employers, and by new graduates and other employment seekers in evaluating their potential new employers.

A free sample copy of the document and information about receiving bulk copies can be obtained by phoning (202) 785-0017, ask for Bessy Burch.

**IEEE Member Opinion Survey.** July 1990. This publication is the result of the first worldwide IEEE member opinion survey. Topics such as employment, education levels, use of computers in the workplace, and important issues for electrical engineers in the 1990s are included in the core section. U.S. and non-U.S. members were also sent questions pertaining to their particular needs.

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#### MISCELLANEOUS PUBLICATIONS

**Artificial Neural Networks: Concept Learning**, edited by Joachim Diederich.

1990 by IEEE.

This volume of the technology series is devoted to the emerging field of concept learning. Ten papers are included in this issue on the following subjects: reinforcement and recruitment learning; connectionist learning procedures; learning without teaching or reinforcement signal; adaptive resonance theory; and connectionist sequential machine.

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**Artificial Neural Networks: Electronic Implementations**, edited by Nelson Morgan. 1990 by IEEE.

This volume is a continuation of the IEEE Computer Society series begun by V. Vemuri in the field of Artificial Neural Networks (ANNs). Subjects covered include: description of an artificial neural network IC; ANN hardware; floating-gate technology; ANN implementations; electronic analog of the human cochlea (inner ear); special-purpose bit-serial digital design which implements 5 billion elementary decision per second; and future large ANN systems.

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**EUROPOWER '92**, edited by the staff of IEEE SPECTRUM.

This material is excerpted from the June 1990 issue of IEEE SPECTRUM. The article reports on how a united Europe Community plans to exploit technology to improve its trading posture.

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**VLSI Technology, 1990 Symposium on, Digest of Technical Papers**, held June 4-7, 1990 in Honolulu, Hawaii; sponsored by the IEEE Electron Devices Society.

This conference represents a comprehensive look at VLSI technology. Topics covered include: dry etching, planarization, deposition, and lithography; high-density DRAM technology; high-performance CMOS technologies; interconnect reliability; MOS reliability; high-performance bipolar; VLSI interconnects; complementary and high-performance bipolar; BiCMOS and SOI integration technologies; computer-aided manufacturing and process control; MOS device technology; thin dielectrics; and non-volatile technologies.

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#### ENGINEERING IN MEDICINE AND BIOLOGY

**Computer-Based Medical Systems, Proceedings Third Annual IEEE Symposium on**, CBMS'90, held June 3-6, 1990 in Chapel Hill, NC; sponsored by the IEEE Computer Society, the IEEE Engineering in Medicine and Biology Society, and the IEEE Eastern North Carolina Section.

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#### GEOSCIENCE AND REMOTE SENSING

**10th Annual International Geoscience & Remote Sensing Symposium, Remote Sensing Science for the Nineties, IG-ARSS '90**, held May 20-24, 1990 in College Park, MD; sponsored by the IEEE Geoscience & Remote Sensing Society and the U.S. National Committee/International Union of Radio Science.

This conference entitled, "Remote Sensing Science for the Nineties" examines the urgency for exploiting the technologies and techniques associated with remote sensing. Topics covered include: subsurface

methods; radar scattering; clean air atmosphere measurements/propagation; oceanography/coastal; microwave models/measurements; corrections/atmospheric effects; passive microwave systems; remote sensing in tropical forests; moderate resolution land analysis; signal processing noise and calibration; SAR geometry and SNR improvement; image analysis; inversion and signal processing for geoscience; surface scattering; measurements of rain from space and earth platforms; sensor calibration; wind measurements; terrestrial ecology; agriculture; geometric registration, rectification, and resampling; subsurface sediment geology; radar modulation mechanisms; weather radar research and applications; radar ocean scattering; SAR calibration; airborne radar systems; water vapor retrieval; forest ecosystem dynamics; land analysis; multi-sensor data fusion/GIS; geologic remote sensing: visible to radar wavelength; remote sensing sensor optical measurements; scattering and propagation through rain; remote sensing of snow; temperature retrieval; vegetation structure; global change; artificial intelligence; SAR processing techniques; geologic remote sensing field experiment; stochastic modeling; topography and digital elevation model (DEM); SAR ocean waves; spaceborne lidar and optical; sea ice field measurements; millimeter waves; passive microwave remote sensing techniques and simulation; advanced spectroscopy; spatial analysis and data compression; SAR polarimetry techniques; imaging spectrometry for geological mapping; plant canopy modeling; optical remote sensing techniques; optical and IR oceanography; soil moisture; sea ice back scattering; lightning cloud measurements; laser-stimulated light emission and reflectance; stereo matching and digital terrain mapping; spatial textural analysis; SAR systems and techniques; active microwave sensing; data integration for geologic studies; lidar and optical; radar scatterometry; remote sensing of estuaries; vegetation modeling; SAR sea ice classification; remote sensing systems, ground and space; EOS/SAR Alaska; applications for developing countries; classification algorithms and accuracy analysis; and SAR speckle and texture.

3 vols., 2649 pp., LC 89-82170, \$164.00  
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#### INDUSTRY APPLICATIONS

**Industrial & Commercial Power Systems Technical Conference, 1990 IAS, Conference Record**, held April 30-May 3, 1990 in Detroit, MI; sponsored by the

IEEE Industry Applications Society, and the IEEE Southeastern Michigan Section.

This conference focused on the following areas of industrial and commercial power systems: power system reliability; power systems analysis; power systems protection; power systems engineering; and surge protection and wave shape.

144 pp., LC 88-641172, \$50.00  
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**Pulp and Paper Industry Technical Conference, Conference Record of 1990**, held June 18-22, 1990 in Seattle, WA; sponsored by the IEEE Industry Applications Society and Seattle Section.

Coverage of this conference includes: lockout and tagout training; National Electrical Code changes; AC winder drive; tin plating vs silver plating; networking communication for power monitoring; brushless doubly-fed machines; brush foot-printing; ground potential gradients around power substations; retrofitting obsolete 15KV switchgear; waveform distortion on protective relays; overload protection for medium voltage motors; synchronous motor drive chipper drives; ESD; engineering management; neutral grounding techniques; electrical energy usage; AC vs DC technology; eddy currents on DC motor bearings; conceptual power system design; power systems analysis; improving machine up-time; and millwide. There is also an "Electrical Engineering Pulp & Paper Bibliography 1977-1989" which is a ready source of reference material to aid the electrical engineer in performing his tasks to easily solve encountered problems.

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**Textile, Fiber and Film Industry Technical Conference, IEEE 1990**, held May 2-3, 1990 in Atlanta, GA; sponsored by the IEEE Industry Applications Society.

There are 10 papers included in this conference proceedings, they are: "IEC & NEMA Motor Starters—Understanding the Difference"; "Troubleshooting Solid State Power Devices"; "Brushless D.C.—A Modern Approach to Variable Speed Drives"; "Application Considerations of Adjustable Frequency Extruder Drives"; "Low Voltage Fusible Disconnects: Applications and Maintenance"; "Temperature Control of Heated Rolls"; "A.C. Vector Drive Using Current Regulated PWM"; "Disconnecting Means: An Examination of the National Code and Review of Current Applications"; "Optimizing System Coordination and Overcurrent Protection with Zone Selective In-



terlocking"; and "Power Quality Issues within Modern Industrial Facilities".

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#### INFORMATION THEORY

**Information Theory, 1990 IEEE International Symposium, ISIT**, held January 14-19, 1990 in San Diego, CA; sponsored by the IEEE Information Theory Society.

Subjects covered include: spread-spectrum communications; detection theory; neural networks; data compression; channel capacity; coding theory; trellis coding; communication systems; broadcast channels; estimation; quantization; Shannon theory; error-control and other coding; communication theory; modulation; optical communications; source coding; stochastic processes; multiple access; signal processing; cyclic codes; error-correcting codes; cryptography; speech processing; block coding; viterbi decoders; communication theory applications; pattern recognition; entropy; and convolutional codes.

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#### LASERS AND ELECTRO-OPTICS

**CLEO, Conference on Lasers and Electro-Optics, 1990 Technical Digest Series Volume 7**, held May 21-25, 1990 in Anaheim, CA; sponsored by the IEEE Lasers and Electro-Optics Society, American Physical Society, and Optical Society of America.

This year CLEO was held concurrently with the XVII International Quantum Electronics Conference (QEC '90). Technical sessions were held jointly to provide comprehensive coverage on: terawatt to petawatt lasers; doped fiber lasers; ultra-fast optoelectronics; novel solid state and liquid lasers; and chaos and noise in lasers.

624 pp., LC 89-64034 (conference ed. softcover), LC 89-64035 (postconference ed. hardcover), \$66.00  
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**IQEC'90, XVII International Conference on Quantum Electronics, Digest of Technical Papers, Conference Edition**, held May 21-25, 1990 in Anaheim, CA; sponsored by the IEEE Lasers and Electro-optics Society, American Physical Society, and Optical Society of America.

The subjects covered at this year's conference are: laser spectroscopy; nonlinear optical processes; optical interaction with condensed matter and ultrafast phenomena; physics of laser sources; and lasers in chemistry and biology.

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**Nonlinear Optics: Materials, Phenomena and Devices Digest, NLO'90**, held July 16-20, 1990 in Kauai, Hawaii; sponsored by the IEEE Lasers and Electro-Optics Society and the Optical Society of America.

This conference provided a forum for interaction among researchers interested in recent progresses in nonlinear optical materials, phenomena, and devices. Areas covered include: Fundamental Phenomena; Laser Spectroscopy; Liquid Crystals; Organics; Fibers; Waveguides/ Couplers; Phase Conjugation; Applications of Nonlinear Semiconductor; Photorefractives; Semiconductors; Organic NLO and Devices; Photorefractive Applications; and Semiconductor Lasers and Interfaces.

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**Millimeter Wave and Far-Infrared Technology, International Conference on, ICMWFT '90**, held June 18-22, 1990 in Beijing, China; sponsored by the IEEE Microwave Theory and Techniques Society, Beijing Section of the IEEE, Chinese Institute of Electronics, Georgia Institute of Technology, and U.S. Army Research Office; edited by Ann Simmons McMillan and Gail M. Tucker.

Progress in the fields of millimeter waves and far-infrared technology was the topic for this conference. Coverage includes: radiometry/astronomy; high Tc superconductors; FEL and orotron; materials/MMW apparatus & measurements; plasma detection/diagnostics; sub-mm - IR detectors/fast detectors; atmospheric effects; MMW detectors; gyrotron; IR - MMW magnetospectroscopy; integrated circuits; spectroscopy; sources, source technology; applications/systems; quasi-optics; and optically pumped lasers.

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**Fusion Engineering, Proceedings IEEE Thirteenth Symposium on**, held October 2-6, 1989 in Knoxville, TN; sponsored by the IEEE Nuclear and Plasma Sciences Society, American Nuclear Society, and Oak Ridge National Laboratory; edited by M.S. Lubell, M. B. Nestor, and S. F. Vaughn.

This conference focused on the following areas of fusion engineering: major experimental programs; magnet engineering; blanket engineering; electrical power control; plasma engineering; vacuum systems and vessels; diagnostic systems; controls, instrumentation, and data acquisition; heating and current drive; next-generation devices; heating and current drive; safety; magnet materials and insulation; blanket and shield systems; quality assurance and reliability; electrical generators; diverters and plasma-facing components; power systems; magnetic systems and components; tritium; inertial confinement fusion; commercial reactors; fusion machine design and performance; magnet codes analysis; cryogenics; plasma fueling; particle control and fueling; and inertial confinement fusion.

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**Plasma Science, IEEE Conference Record - Abstracts 1990 IEEE International Conference on**, held May 21-23, 1990 in Oakland, CA; sponsored by the IEEE Nuclear and Plasma Sciences Society.

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**Autonomous Underwater Vehicle Technology, AUV '90, Proceedings of the Symposium on**, held June 5-6, 1990 in Washington, DC; sponsored by the IEEE Oceanic Engineering Society.

The technological issues associated with the development of long range, fully autonomous undersea vehicles were the main focus for this conference. Subjects covered include: AUV computer architecture; AUV system issues; AUV control systems; energy systems; navigation and path planning; collision avoidance; sensors; and acoustic communications.

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#### POWER ELECTRONICS

**1989 Automotive Power Electronics**, held August 28-29, 1989 in Dearborn, Michigan; sponsored by the IEEE Power Electronics Society; edited by Balarama V. Murty.

This workshop enabled engineers from the automotive, power electronics, and semiconductor industries to exchange information, propose future directions, and document related technology papers. This volume is divided into four sections: discrete power devices and intelligent power; automotive applications of power electronics; packaging and reliability; and power integrated circuits.

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**PESC '90 Record, 21st Annual IEEE Power Electronics Specialists Conference**, held June 10-15, 1990 in San Antonio, TX; sponsored by the IEEE Power Electronics Society.

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**VLSI Circuits, 1990 Symposium on, Digest of Technical Papers**, held June 7-9, 1990 in Honolulu, Hawaii; sponsored by the IEEE Solid-State Circuits Society.

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This conference offered engineers an opportunity to fully explore the field of vehic-

ular technology. Past and future directions were discussed such as the beginning in the engineering of communications to serve public safety and commercial radio dispatch to the new technology of radio paging, mobile telephone, vehicle fuel injection, climate control, speed control, robotic control systems to deliver parts to factory production lines, and automated airport people movers. Sessions cover the following topics: antennas; hardware & Circuits; land transportation systems; vehicular electronics; system design; microcell systems; spectrum efficiency; system control; speech coding; data transmission; propagation; modulation techniques; signalling; channel coding; channel assignment strategies; mobile satellite technologies; and paging.

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