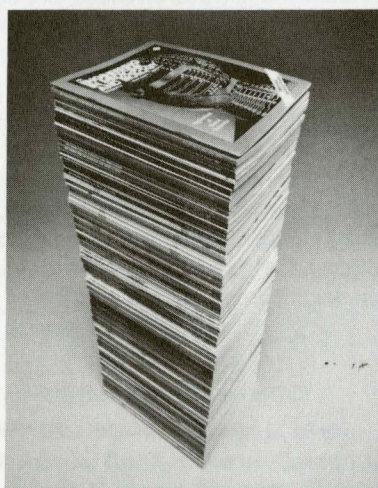


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IEEE Announces Results of Librarian Survey

In the June 1990 issue of this publication,
we asked librarians like you to evaluate
the effectiveness of the IEEE's *Publica-
tions Bulletin*, and our communications with li-
brarians in general.

Here are the results of the survey: The *Bulle-
tin* is generally viewed as a valuable source of
information that includes coverage of all IEEE
publications. The new format is also easier and
more useful to read.

Below are the questions that we included in
the survey:

1. I have always found the *IEEE Publications Bulletin*:

somewhat useful	45%
very useful	42%
usually throw it away unread	6%
no opinion	5%
no answer	2%
2. The new format of the *IEEE Publications Bulletin* is:

more useful	34%
easier to read	31%
not substantially different	16%
no answer	12%
as difficult to read as ever	5%
less useful	1%
not applicable	1%
3. In general, I have found ordering from the
IEEE to be:

about average	39%
very easy	19%
somewhat difficult	17%
no answer	14%
extremely difficult	7%
not applicable	4%

If any, what problems you encountered:

took too long to receive order	17%
material out of stock/out of print	14%
other	10%
uninformed telephone representatives	9%

incorrect shipment	4%
rarely receive news of IEEE publications	4%

4. Do you use the *IEEE Publications Bulletin* as
an ordering tool?

yes	74%
no	18%
no answer	8%
not applicable	0%

If yes approximately what percentage of
IEEE publications do you order from one
issue of the bulletin?:

5% or less	7%
6% to 25%	29%
no answer	11%
over 50%	4%
26% to 50%	3%
not applicable	0%

Further, what types of publications do you
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IEEE Conference Publications	62%
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IEEE Standards	40%
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Miscellaneous	17%
Special Issues	15%
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IEEE Educations (including videos)	3%

continued on next page

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5. Would you like to receive the *IEEE Publications Bulletin*:
- | | |
|-------------|-----|
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| monthly | 37% |
| bimonthly | 14% |
| no answer | 9% |
| other-never | 2% |
6. What sections of the *IEEE Publications Bulletin* do you need or use most?
- | | |
|---------------------------------|-----|
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| Non-Conference Special Sections | 11% |
| All of the above | 10% |
| IEEE Education | 6% |
| IEEE Videos | 5% |
| Non-OOP Publications | 0% |
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|-----------|-----|
| No | 60% |
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- | | |
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| Other-Order Personnel | 7% |
| Administration | 7% |
| Clerical | 2% |

8. In general, I receive information on the IEEE's publication program:
- | | |
|------------------|-----|
| about right | 69% |
| too infrequently | 15% |
| no answer | 8% |
| too frequently | 5% |
| almost never | 3% |

In response to the survey we have added the OOP selections for each publication. ♦



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AUTOTESTCON 90, Conference Record, held Sept. 17-20, 1990 in San Antonio, TX; sponsored by the IEEE Aerospace and Electronic Systems Society, the IEEE Instrumentation and Measurement Society, and the IEEE Central Texas Section.

The theme, "Advancing Mission Accomplishment" highlights the aspects of testing, the user, and the importance of completing the mission. The technical program is divided into four parallel tracks which address systems readiness issues: Concepts and Approaches; Technologies and Methodologies; Systems Engineering; and Special Topics.

616 pp., LC 83-81640, \$66.00
90CH2793-8-PCD (OOP 1/1B/1C)

COMPASS '90—Proceedings of the Fifth Annual Conference on Computer Assurance, Systems Integrity, Software Safety and Process Security, held June 25-28, 1990 in Gaithersburg, MD; sponsored by the IEEE Aerospace and Electronic Systems Society and the IEEE National Capital Area Council.

COMPASS provides a forum for issues affecting the integrity of computer systems and presents innovative technologies, research and standards for these systems. Topics covered are: System and Software Engineering; Formal Methods; and Standards, Regulation, and Liability.

208 pp., LC 89-82373, \$46.00
90CH2830-8-PCD (OOP 1/1C)

IEEE International Conference on Systems Engineering, held August 9-11, 1990 in Pittsburgh, PA; sponsored by the IEEE Aerospace and Electronic Systems Society and Wright State University.

Systems Engineering may be defined as the integration of our knowledge in different areas of science and engineering (e.g., electrical and electronics engineering; mechanical and materials engineering; aerospace and astronautical engineering; computer science and computer engineering; and industrial engineering and human fac-

tors engineering). Topics covered in this conference include: Control of Robot Systems; Control Systems; Design System Integration; Robotics; Simple Techniques for Adaptive Control; Telepresence and Teleoperation Issues in Robotics and Aerospace Applications; Special Applications of Control Systems; Digital Signal Processing; Digital Filters; Design Methodology for Robot Architectures; Modeling and Model Reduction; Multisensor Data Fusion/Integration Applications to Target Tracking and Robotics; Neural Networks; Automated Garment Manufacture; Automated Assembly Planning; Advanced Concepts in Robotic Systems; Automatic Target Recognition Systems; Multidimensional Signal Processing; Vision and Imaging Systems; and Nonlinear Issues for Electro-mechanical Systems.

672 pp., LC 90-81181, \$120.00
90CH2872-0-PCD (OOP 1/1C)

Proceedings of the 25th Intersociety Energy Conversion Engineering Conference (IECEC-90), held Aug. 12-17, 1990 in Reno, NV; sponsored by the American Institute of Chemical Engineers (note: every 7th year this conference is sponsored by the IEEE Aerospace and Electronic Systems Society and the IEEE Electron Devices Society. Last one sponsored in 1989 and the next in 1996).

This conference is available in six volumes. Volume 1: Aerospace Power Systems; Volume 2: Aerospace Power Systems and Conversion Technologies; Volume 3: Electrochemical Conversion and New Technologies for Energy Utilization; Volume 4: Energy Systems and Policy Impact on Energy; Volume 5: Renewable Resource Systems, Stirling Engines, and Systems and Cycles; Volume 6: Post-Deadline Papers; Unpublished Papers from IECE-89, and Subject and Author Indexes.

3,244 pp., 6 vols., \$240.00
ISBN 0-8169-0490-1 (assigned by AICE)
90CH2942-1-PCD (OOP 1/1C/1D)

ANTENNAS & PROPAGATION

1990 International Symposium Digest Antennas and Propagation, held May 7-11, 1990 in Dallas, TX; sponsored by the IEEE Antennas and Propagation Society.

850 papers are included in this symposium with sessions focused on Polarimetrics; Superconductivity; Digital Beamforming; Scattering from Antennas; Innovations in EM Education; Fiber Optic Applications to Phased Arrays; Millimeter Wave Components and Phased Arrays; Time Domain Analysis of Planar Circuits; the Role of Analysis in the Age of Computers and Reducing the Operation Count in EM Modeling.

4 vols, 2072 pp., LC 89-80729, \$136.00
90CH2776-3-PCD (OOP 1/1D)

CIRCUITS AND SYSTEMS

Bipolar Circuits and Technology Meeting, Proceedings of the 1990, held Sept. 17-18, 1990 in Minneapolis, MN; sponsored by the Electron Devices Society in cooperation with the IEEE Circuits and Systems Society and the IEEE Twin Cities Section.

Please see ELECTRON DEVICES for coverage.

262 pp., LC 90-81926, \$120.00
90CH2890-2-PCD (OOP 1/1D)

Computer Design: VLSI in Computers & Processors, Proceedings—1990 IEEE International Conference on, ICCD '90, held Sept. 17-19, 1990 in Cambridge, MA; sponsored by the IEEE Computer Society and the IEEE Circuits and Systems Society in cooperation with the IEEE Electron Devices Society.

Please see COMPUTER for coverage.

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COMPUTER-AIDED SYSTEMS ENGINEERING

This tutorial, presented by Dr. Howard Eisner, Professor at George Washington University, begins with an overview of Computer-Aided Systems Engineering (CASE). Some thirty formal elements of systems engineering are presented in an overview of the related field of computer-aided software engineering and software development life cycle factors. The CASE environment is examined, leading to the specific citation of some thirty categories of computer aids/tools that support systems engineering.

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COMMUNICATIONS

LEOS Summer Topical on Optical Multiple Access Networks, Conference Digest, held July 25-27, 1990 in Monterey, CA; sponsored by the IEEE Communications Society, the IEEE Electron Devices Society, and the IEEE Lasers and Electro-Optics Society.

Please see LASERS AND ELECTRO-OPTICS for coverage.

84 pp., LC 90-82546, \$35.00
90TH0306-1-PCD (OOP 6)

MILCOM '90—1990 IEEE Military Communications Conference, held Sept. 30-Oct. 3, 1990 in Monterey, CA; sponsored by the IEEE Communications Society.

"A New Era" is the theme of this year's conference. U.S. military needs in this time period are dependent on accurate, safe, reliable communications systems. These proceedings are one of the only sources of printed information available anywhere that address in detail the latest advances and challenges in the field of military communications technologies. Subjects covered were: Military Applications of Communication Systems; Advanced Modulation and Coding; Optical Communications; Spread Spectrum, LPI, Digital Signal Processing; and Network Survivability.

1294 pp., LC 89-82311, \$98.00
90CH2831-6-PCD (OOP 1/1C)

TENECON '89: Fourth IEEE Region 10 International Conference, held November 22-24, 1989 in Bombay, India; sponsored by the IEEE Computer Society, the IEEE Communications Society, the IEEE Industrial Electronics Society, the IEEE Region 10, the IEEE Bombay Section, and the All India Council.

Please see COMPUTER for coverage.

1140 pp., LC 89-84152, \$90.00
89CH2766-4-PCD (OOP 1/1H)

COMPONENTS, HYBRIDS, AND MANUFACTURING TECHNOLOGY

Electrical Contacts—1990: Proceedings of the Thirty-Sixth IEEE Holm Conference on Electrical Contacts and the Fifteenth International Conference on Electric Contacts, held August 20-24, 1990 in Montreal, Quebec, Canada; sponsored by the IEEE Components, Hybrids, and Manufacturing Technology Society, and the Canadian Electrical Association.

This conference provided a forum on the international level for the presentation and discussion of the latest findings and developments in the field of electrical contacts and related technologies for all applications and current levels. The areas covered include static, breaking and sliding

contacts and all other disciplines that support them.

712 pp., LC 86-645722, \$100.00
90CH2900-9-PCD (OOP 1/1D)

IEEE/SEMI Advanced Semiconductor Manufacturing Conference and Workshop, held Sept. 11-12, 1990 in Danvers, MA; sponsored by the IEEE Components, Hybrids, and Manufacturing Technology Society, the IEEE Electron Devices Society, and the Semiconductor Equipment and Material International Trade Group.

The theme, "World-Class Manufacturing" was the main focus for this year's ASMC '90 Proceedings. Areas covered include: Manufacturing Management Approaches; Process Control; Yield Enhancement—CIM/CAM Solutions; and Integrated Process Improvement Methodologies. A Bibliography of Books and Articles Related to the Semiconductor Manufacturing—1990 is included.

176 pp., LC 90-80541, \$44.00
90CH2902-5-PCD (OOP 1/1D)

COMPUTER

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

700 papers spanning the breadth of automation and control are included in this conference proceeding. The technical program covered a selection of the following subjects: 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 highway systems; modelling 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 sys-

tems; control applications to functional electrical stimulation; manufacturing processes control; digital control; control of nonlinear mechanical systems: theory and applications; modelling and control of flexible manipulator arms; and modelling and design of mechanical systems and robots; and space systems control.

3 vols., 3122 pp., \$220.00
90CH2896-9-PCD

Application of Standards for Open Systems, Proceedings of the 6th International Conference on the, held Oct. 2-4, 1990 in Falls Church, VA; sponsored by the IEEE Computer Society and the National Institute of Standards and Technology.

The topics covered in this year's conference include: New OSI Policies; International Collaboration; Free Trade and Standards; Applications; Application Portability; Conformance and Interoperability Assurance; and Security and the Future.

160 pp., LC 90-84316, \$44.00
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90CH2911-6-PCD (OOP 1/1E)

Application Specific Array Processors, Proceedings of the International Conference on, 1990, ASAP 90, held Sept. 5-7, 1990 in Princeton, NJ; sponsored by the IEEE Computer Society; edited by Sun-Yuan Kung, Earl E. Swartzlander, Jr., Jose A.B. Fortes, and K. Wojtek Przytula.

This is the fourth of a series of conferences, formerly named the International Conference on Systolic Arrays. In 1990 the name was changed to the International Conference on Application Specific Array Processors in recognition of the importance of this area of technology. The present scope covers the fundamental aspects of application specific computing systems. Seventy papers cover the following topics: Design Methodology; Pot-pourri; Special-Purpose Systems; Mapping Applications onto Architectures; System Building Blocks; and Systolic Arrays.

864 pp., LC 90-82602, \$120.00
ISBN 0-8186-9089-5 (case)
ISBN 0-8186-6089-9 (microfiche)
90CH2920-7-PCD (OOP 1/1E)

Artificial Intelligence Applications, Proceedings [of] the Sixth Conference on, held March 5-9, 1990 in Santa Barbara, CA; sponsored by the IEEE Computer Society.

Encouraging a balanced program this year, three tracks are covered in AI applications: Engineering/Manufacturing; Business/Decision Support and Enabling Technology.

2 vols., 696 pp., LC 89-649004, \$80.00
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Computer Design: VLSI in Computers & Processors, Proceedings—1990 IEEE International Conference on, ICCD '90, held Sept. 17-19, 1990 in Cambridge, MA; sponsored by the IEEE Computer Society and the IEEE Circuits and Systems Society in cooperation with the IEEE Electron Devices Society.

This conference explores VLSI technology, the driving force behind the improvements of computer performance. One hundred and seven papers highlight the following topics: processor and computer architecture; computer-aided design for both integrated circuits and systems; design and test methods and techniques for circuits and systems; and technology for integrated circuit fabrication and packaging, system packaging and interconnection, and information storage.

500 pp., LC 90-82435, \$98.00
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90CH2909-0-PCD (OOP 1/1A/1E)

Computers in Cardiology, Proceedings, 1989, held Sept. 19-22, 1989 in Jerusalem, Israel; sponsored by the IEEE Computer Society.

The sixteenth proceedings held on Computers in Cardiology, this conference delves into recent advances of the technology. The topics covered include: Physiological Modeling; Cardiovascular Imaging; Cardiovascular Variability; Diagnostic Electrocardiography; Cine CT Imaging; ECG Signal Processing; Electrophysiological Modeling; Quantitative Coronary Arteriography; Body Surface Potential Mapping; Cardiovascular MRI; Patient Monitoring; Cardiovascular Modeling; Clinical Management; Ventricular Function; Clinical Decision Making; and Echocardiography.

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Frontiers of Massively Parallel Computation, the 3rd Symposium on the, FRONTIERS '90, held Oct. 8-10, 1990 in College Park, MD; sponsored by the IEEE Computer Society and the IEEE National Capital Area Council.

This state-of-the-art topic in computer architecture addresses the growing interest in designing and applying neural networks. Eighty-four papers cover the following top-

ics: Algorithms; Applications; Architectures; Networks; Systems; and Panel Discussions.

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90CH2908-2-PCD, (OOP 1/1E)

International Test Conference 1990, Proceedings, held Sept. 10-14, 1990 in Washington, DC; sponsored by the IEEE Computer Society and the IEEE Philadelphia Section.

An international conference that provided a forum for the discussion of: Advances in Test Pattern Generation; ISDN Device Testing; Systems Test; Inside an 1149.1 Boundary Scan Chip; Hierarchy in Test Generation; Generic Analog and Mixed Signal Test Approaches; Testing Topics; CAD Interface to 1149.1 Boundary Scan; IDDQ Testing; Concurrent Engineering: Ideals, Ideas and Impediments; QML (Qualified Manufacturing Line): A Method of Providing High Quality ICs; Cost Effective Mixed Signal ATE; Logic Synthesis for Testability; Boundary Scan; Test Techniques for Microprocessors; Test System Architecture; Design for Testability: Design and Analysis; CAD Tools for Functionality and Testability; CMOS IC Testing with IDDQ Current Monitoring; Using Test Systems at High Frequencies; Meeting the ASIC Test Challenges; Mixed Signal Testing; Maximizing the Efficiency of Test Development; New Analysis Techniques in BIST; Board Test Topics; Pseudorandom and Pseudoexhaustive BIST; Parallelism and Concurrence in Fault Simulation; New Methods of Predicting and Analyzing IC Defect Levels; Coping with Large Microprocessors; Cellular Automata and ECC in BIST; Improving Fault Simulation Performance; Memory Test Generation; CMOS Bridging Fault Detection and Diagnosis; Design and Applications of BIST; Wafer Probing Methods; Test Pattern Development; Fault Coverage and Latchup Issues; and Contactless Probing.

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Managing Expert System Programs and Projects, Proceedings: IEEE Conference on, held Sept. 10-12, 1990 in Bethesda, MD; sponsored by the IEEE Computer Society.

The first conference sponsored by the IEEE Technical Committee on Expert System Applications, "Managing Expert Systems and Projects" addresses the con-

cerns of this technology thoroughly and accurately. Topics covered include: Expert System Project Management; Expert System Case Studies: Lessons Learned; Beyond Technology: Managing Expert System Projects at American Express Company; Economic and Legal Considerations of Expert Systems; Adopting Approaches to Specific Company Needs; Standardization in Expert Systems; Getting Started in Expert Systems; Future of Expert Systems; Expert Systems Applications; and Innovative Technologies for Expert Systems.

240 pp., LC 90-82496, \$65.00
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90CH2913-2-PCD (OOP 1/1E)

Reliable Distributed Systems, Proceedings: Ninth Symposium on, held Oct. 9-12, 1990 in Huntsville, AL; sponsored by the IEEE Computer Society.

Broad in scope, this conference covered new techniques to assure high reliability and covered the following topics: Distributed Operating Systems; Networks and Communications; Distributed Data Bases; Replication and Real Time; Algorithms; and Architecture.

200 pp., LC 90-55475, \$60.00
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90CH2912-4-PCD (OOP 1E)

Signals, Systems & Computers, Twenty-Third Asilomar Conference on, Conference Record, held October 30-November 1, 1989 in Pacific Grove, CA; sponsored by the IEEE Computer Society; the Naval Postgraduate School and the San Jose State University; edited by Ray R. Chen from San Jose State University.

This conference was devoted to the presentation of new ideas and preliminary research results in the area of theoretical and applied signal processing, computer algorithms, circuits, systems, communications and image processing. Highlights include: multiprocessor architecture; digital computing with optics; neural network theory; radar/sonar processing; adaptive filtering; spectral estimation; VLSI and new DSP devices; fourier transform and convolution; computer vision; matrix based signal processing; array signal processing; signal subspace methods for array signal processing and robotics and intelligent control.

1989 by Marple Press, 2 vols., 1108 pp., LC 89-0501867, \$136.00
ISBN 0-929029-30-1
89CH2836-5-PCD (OOP 1/1E)

TENCON '89: Fourth IEEE Region 10 International Conference, held November 22-24, 1989 in Bombay, India; sponsored by the IEEE Computer Society, the IEEE Communications Society, the IEEE Industrial Electronics Society, the IEEE Region 10, the IEEE Bombay Section, and the All India Council.

The theme, "Information Technologies for the 90's, E2C2: Energy, Electronics, Computers, Communications" covered discussions in such areas as: ISDN Protocol; TDS-10 Switching System: AI and Expert Systems; Image Processing; Computer Architecture; S/W for Parallel Processing; Token Passing LAN & Applications; Optimization and Neural Networks; Digital Modulation and Modems; Functional Programming Languages; Architecture for Parallel Processing; Microwave Communication; Application and Implementation of Petrinet Concepts; Signal Processing and Filters; and Array Spectral Analysis.

1140 pp., LC 89-84152, \$90.00
89CH2766-4-PCD (OOP 1/1H)

Intelligent Control, Proceedings: 5th IEEE International Symposium on, held Sept. 5-7, 1990 in Philadelphia, PA; sponsored by the IEEE Control Systems Society and the IEEE Robotics and Automation Society in cooperation with the IEEE Computer Society.

Please see CONTROL SYSTEMS for coverage.

1,308 pp., 2 vols, LC 90-655042, \$130.00
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CONTROL SYSTEMS

Intelligent Control, Proceedings: 5th IEEE International Symposium on, held Sept. 5-7, 1990 in Philadelphia, PA; sponsored by the IEEE Control Systems Society and the IEEE Robotics and Automation Society in cooperation with the IEEE Computer Society.

This symposium presents a comprehensive look at intelligent control. Issues covered include: Hierarchical Autonomous Control; Hierarchical Controllers; Hierarchical Intelligent Control; Perception-Representation-Action Triad; Control with Non-Conventional Cost Function; Team Decision Making; Swarm Intelligence; Perceptual Robotics; Shape Representation; Active Perception; Acoustic Perception; Disparate Control in Control Applications; Subsystems of Learning in Control; Neurocontroller Design; Neural Network Applications; and Noise Identification in Linear Systems.

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ELECTROMAGNETIC COMPATIBILITY

Electromagnetic Compatibility, 1990 International Symposium on, held Aug. 21-23, 1990 in Washington, DC; sponsored by the IEEE Electromagnetic Compatibility Society.

This year's conference on electromagnetic compatibility discusses product safety and environmental issues relating to electromagnetic radiation and concentrated on the following subjects: Shielding Effectiveness; System Level EMC; EM Effects; EM Pulse; Product Safety; Circuit Level EMI Testing; EMI Control; System Level EMC Analysis; EM Environment; EM Pulse Protection; EMI Testing; ESD Testing; PCB Design for EMC; EMI Measurements; Electromagnetic Environmental Effects; EMI Measurements Procedures; Spectrum Issues in the Twenty-First Century; Antennas and Propagation Effects on EMI Testing; EMI Control in Cables; Socio-Economic Aspects of EMC; Spectrum Management; Sequency Union; Cables; EMI Control in Systems; and Radiation and Coupling.

718 pp., LC 83-645449, \$70.00
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ELECTRON DEVICES

Bipolar Circuits and Technology Meeting, Proceedings of the 1990, held Sept. 17-18, 1990 in Minneapolis, MN; sponsored by the Electron Devices Society in cooperation with the IEEE Circuits and Systems Society and the IEEE Twin Cities Section.

A thorough review of the technology. Topics covered include: Bipolar Process Technology; High Speed Data Circuits; BiCMOS Process Technology; Device Modeling and Characterization; Digital Circuit Design; High-Speed-Logic Process Technology; Device Physics; Analog Circuits; and High-Frequency Analog.

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Computer Design: VLSI in Computers & Processors, Proceedings—1990 IEEE International Conference on, ICCD '90, held Sept. 17-19, 1990 in Cambridge, MA; sponsored by the IEEE Computer Society and the IEEE Circuits and Systems Society in cooperation with the IEEE Electron Devices Society.

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1989 IEEE SOS/SOI Technology Conference, held October 3-5, 1989 in Stateline, NV; sponsored by the IEEE Electron Devices Society.

This conference provided an international forum for the presentation of research papers related to fabrication, material characterization, device physics, circuits and applications of semiconductors, primarily silicon, on a dielectric substrate. The following topics were covered: Device Modeling and Physics; Device Characterization; Materials Fabrication; Device Processing; Materials Characterization; and Advanced Circuit Applications.

186 pp., \$46.00
89CH2796-1-PCD (OOP 1/1D)

Indium Phosphide and Related Materials, Conference Digest, Second International Conference, held April 23-25, 1990 in Denver, Co; sponsored by the IEEE Electron Devices Society and the IEEE Lasers and Electro-Optics Society.

Thorough and comprehensive, this conference covers such topics as: heterojunction bipolar transistors; bulk crystal growth; HEMTs; solar cells; electronics; vapor phase epitaxy; semiconductor lasers; optoelectronic integrated circuits; optoelectronic devices; and processing and characterization of single crystal materials.

594 pp., LC 90-80596, \$170.00
90CH2859-7-PCD (OOP 1/1D)

LEOS Summer Topical on Broadband Analog Optoelectronics—Devices and Systems, Conference Digest, held July 23-25, 1990 in Monterey, CA; sponsored by the IEEE Electron Devices Society and the IEEE Lasers and Electro-Optics Society.

Please see LASERS AND ELECTRO-OPTICS for coverage.

70 pp., LC 90-82542, \$70.00
90TH0322-8-PCD (OOP 6)

LEOS Summer Topical on Integrated Optoelectronics, Conference Digest, held July 30-Aug. 1, 1990 in Monterey, CA; sponsored by the IEEE Electron Devices Society and the IEEE Lasers and Electro-Optics Society.

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90 pp., LC 90-82563, \$70.00
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continued on page 13



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STANDARDS

NOTE: Knowing that your engineers or researchers may ask for an IEEE standard by number, we have highlighted the numbers and italicized the titles. Also we have indicated the product number for ordering by placing the words "Product Number" in front of said number.

140-1990 IEEE Recommended Practice for Minimization of Interference from Radio Frequency Heating Equipment; 9/90. 20 pp., ISBN 1-55937-043-2, \$35.00. Product Number: SH13581-PCD (OOP 5)

380-1990 IEEE Recommended Practice for Testing Electronic Transformers and Inductors; 9/90.

64 pp., ISBN 1-55937-036-X, \$47.00. Product Number: SH13425-PCD (OOP 5)

421.2-1990 IEEE Guide for Identification, Testing, and Evaluation of the Dynamic Performance of Excitation Control Systems; 8/90.

44 pp., ISBN 1-55937-053-X, \$41.50. Product Number: SH13532-PCD (OOP 5)

421.4-1990 IEEE Guide for the Preparation of Excitation System Specifications; 9/90.

28 pp., ISBN 1-55937-054-8, \$39.00. Product Number: SH13540-PCD (OOP 5)

610.5-1990 IEEE Standard Glossary of Data Management Terminology; 8/90.

75 pp., ISBN 1-55937-046-7, \$45.00. Product Number: SH13458-PCD (OOP 5)

741-1990 IEEE Standard Criteria for the Protection of Class 1E Power Systems and Equipment in Nuclear Power Generating Stations; 9/90.

28 pp., ISBN 1-5537-047-5, \$45.50. Product Number: SH13466-PCD (OOP 5)

855-1990 IEEE Standard for Microprocessor Operating System Interfaces; 10/90. 256 pp., ISBN 1-55937-037-8, \$65.00. Product Number: SH13474-PCD (OOP 5)

NOTE: This is a revision of **855-1985, IEEE Trail-Use Standard Specification for Microprocessor Operating Systems Interfaces** [SH10249], please remove previous

standard **855-1985** and replace with **855-1990**.

1003.1-1990 IEEE Standard for Information Technology—Portable Operating System Interface (POSIX)—Part 1: System Application Program Interface (API) [C Language]; 11/90.

352 pp., ISBN 1-55937-061-0, \$75.00. Product Number: SH13680-PCD (OOP 5)

1068-1990 IEEE Recommended Practice for Repair and Rewinding of Motors for the Petroleum and Chemical Industry; 6/90.

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

8802-3: 1990 (E) (ISO-IEC) (ANSI/IEEE Std 802.3-1990 Edition) Information Processing Systems—Local Area Networks—Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications (ANSI); 9/90.

224 pp., ISBN 1-55937-049-1, \$70.00. Product Number: SH13482-PCD (OOP 5) Important: This standard supersedes IEEE Std **802.3-1985** and ISO 8802-3 : 1989. It now includes the ISO/IEC-approved versions of IEEE Std **802.3c-1985** and IEEE Std **802.3d-1987**.

C57.114-1990 IEEE Seismic Guide for Power Transformers and Reactors; 8/90.

16 pp., ISBN 1-55937-050-5, \$35.00. Product Number: SH13508-PCD (OOP 5)

IEEE Guide and Standards for Engineering in Safety, Maintenance and Operation of Lines (ESMOL); Fall 1990. 10/90.

320 pp., LC 90-084556, ISBN 1-55937-060-2, \$78.50. Product Number: SH13656

IEEE Stationary Battery Standards Collection; Fall 1990 edition. 10/90.

162 pp., ISBN 1-55937-059-9, \$65.00. Product Number: SH13664-PCD

IEEE Nuclear Power Standards Archive Collection; Fall 1990 Edition. 10/90.

864 pp., ISBN 1-55937-010-6, \$165.00. Product Number: SH13516-PCD

National Electrical Safety Code Interpretations 1988-1990, Second Interim Collection; 9/90.

24 pp., ISBN 1-55937-051-3, \$35.00. Product Number: SH13524-PCD (OOP 5)

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IEEE PRESS

Field Theory of Guided Waves, 2nd Edition by Robert E. Collin (Case Western University). 1990 by IEEE.

Long considered the most comprehensive account of electromagnetic theory and analytical methods for solving waveguide and cavity problems, *Field Theory of Guided Waves* has been completely revised and thoroughly updated. This new edition brings the reader practical and comprehensive coverage of Green's functions...dielectric resonators...integral techniques...layered media...microstrip lines...and much more.

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864 pp., LC 90-42254, \$74.95
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PCO256-8-PCD (OOP 2)

Microlenses: Coupling Light to Optical Fibers edited by Huey-Daw Wu (University of Colorado) and Frank S. Barnes (University of Colorado). 1990 by IEEE.

The coupling of laser diodes and light-emitting diodes to optical fibers, and the construction of a variety of microlenses and microlens arrays are the focus of this volume. *Microlenses* brings together a diverse group of theoretical and experimental results that enable the reader to develop designs with an extensive and practical grounding in the field.

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als Technologies** edited by R. Wayne
Johnson (Auburn University), Robert K. F.
Teng (California State University, Long
Beach), and John W. Balde (Interconnec-
tion Decision Consulting, Inc.). 1990 by
IEEE.

Provides comprehensive information on
both ceramic and organic insulated multi-
chip modules. Emphasis is on intercon-
nect structures of over 2 circuit layers.
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tions office equipment, switching systems
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PC0260-0-PCD (OOP 2)

Semiconductor Diode Lasers edited by
William Streifer (Spectra Diode Labs) and
Michael Ettenberg (David Sarnoff Re-
search Center). 1990 by IEEE.
The richness of phenomena displayed by
diode lasers continue to occupy increasing
numbers of researchers. The discovery of
new effects, structures, and processes
has brought about applications in space
communications, solid state laser pumps,
compact disk players, computer printers,
and supermarket scanners. *Semiconduc-
tor Diode Lasers* examines the state of
the field of these devices which have be-
come the most widely manufactured la-
sers worldwide.
AUDIENCE: Engineers involved in the
field of optics.
320 pp., LC 90-5150, \$54.95
ISBN 0-87942-261-0
PC0254-3-PCD (OOP 2)

Units and Conversion Charts by Theo-
dore Wildi (Canadian Metric Practice
Guide Committee). 1990 by IEEE.
Quick reference to the conversion of units
from one system of measurement to an-
other, in chart format. Features the cor-
rect and most current SI units and their
proper symbols. Covers virtually every sci-
entific unit of measure in 67 charts and
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AUDIENCE: Engineers and scientists in all
fields.
96 pp., LC 90-47826, \$21.95
ISBN 0-87942-272-6
PC0266-7-PCD (OOP 2)

VLSI Signal Processing, IV edited by
Howard S. Moscovitz (AT&T Bell Labora-
tories), Kung Yao (University of California,
Los Angeles), and Rajeev Jain (University

of California, Los Angeles). 1990 by IEEE.
Prepared under the sponsorship of the Sig-
nal Processing Society, this book covers
the four basic categories of VLSI which in-
clude: CAD, Algorithms, Architecture and
Circuits, and Applications. Papers pre-
sented at the bi-annual VLSI Signal Pro-
cessing Workshop are also included in this
book.

AUDIENCE: Engineers in the field of Sig-
nal Processing.
480 pp., LC 90-5252, \$49.95
ISBN 0-87942-271-8
PC0265-9-PCD (OOP 2)

SPECIAL ISSUES

**Advanced Traffic Control Methods for
Circuit-Switched Telecommunications
Networks;** IEEE Communications Maga-
zine, Vol. 28, No. 10, Oct. 1990.
This special issue is composed of eight ar-
ticles on: Concept and Methodology of
Dynamic Nonhierarchical Routing (DNHR);
Approaches to Implementing State-Depen-
dent Dynamic Routing; Theoretical As-
pects of Dynamic Routing; Benefit of
Network Cost Reduction from Time-De-
pendent Dynamic Routing Applied to Inter-
national Networks; Broad Aspects of Real-
time Network Management; Advanced
Network Management Techniques; and
An Overview of Methods and Perfor-
mance Studies on Dynamic Routing.
\$20.00 JH9863-2-PCD

**Applications of Formal Methods: Devel-
oping Virtuoso Software;** IEEE Soft-
ware, Vol. 7, No. 5, Sept. 1990.
This issue covers the application of formal
methods across a range of challenging
software and hardware formalization and
shows what one can gain from doing so.
Other September 1990 issues of *IEEE
Computer* and *IEEE Transactions on Soft-
ware Engineering* cover the same topic,
but from different viewpoints. *Computer*
contains a tutorial by Jeannette Wing, "A
Specifier's Introduction to Formal Meth-
ods." IEEE Transactions on Software Engi-
neering covered more in the areas of spec-
ification languages and analyzers,
foundations, and techniques.
\$20.00 JH9965-5-PCD

Artificially Structured Materials; Journal
of Electronic Materials, Vol. 19, No. 6,
June 1990.
As a result of recent advances in thin film
deposition processes, artificially structured
materials are now routinely deposited with
dimensions of just a few tens of ang-
stroms. This continuing reduction in dimen-
sion and the advent of nano-structures cre-
ates exciting new possibilities for the
exploration of "quantum size" effects in a
new generation of devices. This issue in-

cludes a forward by Vassilis G. Keramidas
and Paul S. Peercy and eleven papers that
cover the following topics: Quantum
Wells of Binary and Ternary III-V Com-
pound Semiconductors; II-VI Heterostruc-
tures; GaAs and Si; and some examples of
Metal/Semiconductor Heterostructures.
\$20.00 JH9781-6-PCD

**Autonomous Underwater Vehicle Tech-
nology;** IEEE Journal of Oceanic Engineer-
ing, Vol. 15, No. 3, July 1990.
The ten papers included in this special
issue represent a broad look at the types
of research currently being undertaken in
the area of unmanned untethered vehicle
(UUV) technology. Four of the papers con-
sider the problems associated with the ac-
tual control of the vehicle platform. One
paper considers the actual design of an au-
tonomous underwater vehicle (AUV) sys-
tem and the parameters which impact that
design. The five remaining papers are di-
rected to the higher level control of an
AUV systems, with the exception of the
final paper which considers the acoustic
transmission of data in the underwater en-
vironment.
\$20.00 JH9784-0-PCD

Control Applications; IEEE Control Sys-
tems, Vol. 10, No. 6, Oct. 1990.
There are four selected papers included in
this issue that were presented at the 1989
Annual Conference of the IEEE Industrial
Electronics Society (IECON'89) held in Phil-
adelphia, PA on Nov. 6-10, 1989. The pa-
pers are: "Trajectory Control of a Multi-
Axes Robot with Electrical Servo Drives";
"Development of an Autonomous Cow-
Milking Robot Control System"; "An Archi-
tecture for High Performance Control
Using Digital Signal Processor Chips"; and
"Image Based Operation for Human-
Robot Interaction".
\$20.00 JH9893-9-PCD

**Defense Meteorological Satellite Pro-
gram (DMSP): Calibration and Valida-
tion of the Special Sensor Micro-
wave/Imager (SSM/I);** IEEE Transactions
on Geoscience and Remote Sensing, Vol.
28, No. 5, Sept. 1990.
There is an introduction to this topic, fol-
lowed by papers on the results of the
DMSP SSM/I Cal/Val (Defense Meteorolog-
ical Satellite Program, SSM/I = a seven-
channel four-frequency linearly polarized,
passive microwave radiometric system
which measures atmospheric, ocean, and
terrain microwave brightness tempera-
tures at 19.3, 22.2, 37.0, and 85.5 GHz;
Cal/Val = Calibration/Validation) project.
\$20.00 JH9609-9-PCD

Electromagnetic Fields; IEEE Spectrum,
Vol. 27, No. 8, August 1990.
This special report on electromagnetic

fields includes four articles on the possible
health effects of these fields. They are:
"60 Hertz and the Human Body", "Part 1.
Biology", "Part 2. Society", and "Part 3.
Preventive Medicine".
\$15.00 JH9420-1-PCD

Engineering Education for the 90's;
IEEE Technology and Society Magazine,
Vol. 9, No. 3, Sept./Oct. 1990.
This issue includes three articles focusing
on engineering education: "Science, Tech-
nology and Society Education for Engi-
neers"; "Bridging the Gap Between Educa-
tion and Industry Expectations in Africa";
and "International Technical Education: A
Comparative Study of Five Countries".
\$20.00 JH9969-7-PCD

**Experimental Evaluation of Computer
Systems Reliability;** IEEE Transactions
on Reliability, Vol. 39, No. 4, Oct. 1990.
The reliability of computer systems is af-
fected by errors from all sources: those
that reoccur in the field at a random rate
and are readily fixed by replacement and
those identified and repaired that will
never reappear. Measurements are made
through all stages and provide the basis
for gaining understanding and insight into
the system and the manufacturing pro-
cess, some from field experience and oth-
ers at the development and manufacturing
stage. In this special issue the previous
topics are covered by a guest editors' pro-
log and eleven papers on the topic.
\$20.00 JH9724-6-PCD

**Formal Methods in Software Engineer-
ing;** IEEE Transactions on Software Engi-
neering, Vol. 16, No. 9, Sept. 1990.
"Formal Methods in Software Engineer-
ing" has been a coordinated effort with
IEEE Computer and *IEEE Software* maga-
zines. *IEEE Computer* contains a tutorial
on the formal methods that will help those
unfamiliar with this topic understand the
papers in the other two publications. *IEEE
Software* contains papers on the use of
formal methods. This issue addresses pa-
pers on new results, ranging from the very
theoretical to those demonstrating the ap-
plication of formal methods to complex
problems. There are eleven papers and a
Guest Editor's Introduction included.
\$20.00 JH9740-2-PCD

**Formal Methods: Prelude to Virtuoso
Software;** Computer, Vol. 23, No. 9, Sept.
1990.
This is the companion article to the Sep-
tember 1990 *IEEE Software* and the Sep-
tember 1990 *IEEE Transactions on Soft-
ware Engineering* articles on "Formal
Methods". Five articles are included in
this issue on: "A Specifier's Introduction
to Formal Methods"; "Tango: A Frame-
work and System for Algorithm Anima-

tion"; "Project Athena as a Distributed
Computer System"; "Multimedia Con-
ferencing on Local Area Networks"; and
"Multiprocessor Performance-Measure-
ment Instrumentation".

**Global Deployment of SDH-Compliant
Networks;** IEEE Communications, Vol 28,
No. 8, August 1990.
This special issue is devoted to an interna-
tional perspective on evolution towards
the high-performance SDH network. The
following topics are covered: CCITT Stan-
dardization Activities; North American Per-
spectives on SONET; French Telecom
Strategy for an Introduction of SDH; Italian
Synchronous Digital Network Plans; and
the Asian and Pacific Countries SDH
Usage.
\$20.00 JH9861-6-PCD

**Integrating Network Management Infor-
mation;** IEEE Network, Vol. 4, No. 4, July
1990.
The techniques for integrating network
management information is the focus of
this issue. Topics include: Open Sys-
tems, Interconnection (OSI) Network Man-
agement Interfaces, Object-Oriented Data
Modeling, Database Performance, and
Local Area Network (LAN) Implementa-
tions.
\$20.00 JH9946-5-PCD

**1990 International Conference on Con-
sumer Electronics;** held June 6-8, 1990 in
Rosemont, IL; sponsored by the IEEE Con-
sumer Electronics Society; IEEE Transac-
tions on Consumer Electronics, Vol. 36,
No. 3, August 1990.
Topics covered include: HDTV; EDTV;
Image Generation System; PAL Systems;
DBS and FSS Converters; Film-To-Video
Imaging; Video Camera Processing and
Use; Rewritable Magneto-Optical Disc;
Teletext; and Smart Cards. You can also
purchase the conference proceedings
(order number 90CH2871-2, \$56.00), men-
tioned in the *IEEE Publications Bulletin*
Vol. 20, No. 3, 1990.
\$20.00 JH9569-5-PCD

**1989 International Geoscience and Re-
mote Sensing Symposium (IGARSS
'89)—Quantitative Remote Sensing: An
Economic Tool for the Nineties;** IEEE
Transactions on Geoscience and Remote
Sensing, Vol. 28, No. 4, July 1990.
With the popularity of the IGARSS'89, se-
lected papers will be included in this and
following issues of this transaction. Thirty-
nine papers in Microwave Propagation and
Back-Scatter; Advanced Image-Processing
Techniques; SAR Instruments and Data
Processing; and Image Applications and
Data Management are in this issue. The
September 1990 issue will contain the pa-
pers from the Hydrology and Evapotranspi-

ration. The November 1990 issue will con-
tain the papers from SAR Ocean Applica-
tions and Imaging Spectroscopy.
\$20.00 JH9608-1-PCD

**Least Squares Error Modeling, Part 1;
Article Title is: "Signal Processing via
Least Squares Error Modeling";** IEEE
ASSP Magazine; Vol. 7, No. 4, Oct. 1990.
Describing general techniques for select-
ing model parameters so that modeling
error is minimized in the squared error
sense is the main focus of this special
issue.
\$20.00 JH9847-5-PCD

Logic and Memory; IEEE Journal of Solid-
State Circuits, Vol. 25, No. 5, Oct. 1990.
This issue contains twenty-one papers on:
two high-speed 4-Mb SRAM's; the first
BiCMOS DRAM; a unique and highly flexi-
ble 16-Mb DRAM; and an advanced 1-Mb
nonvolatile flash memory.
\$20.00 JH9812-9-PCD

Magnetics; Proceedings of the IEEE, Vol.
78, No. 6, June 1990.
This Special Issue addresses the topic of
magnetic phenomena. It is meant to com-
plement the special issue edited by Mark
Kryder in November 1988 which dealt ex-
clusively with magnetic recording. Eight
articles and an editor's preface by Robert
M. White are in this issue. Topics covered
are: Spin-Wave Instabilities; Auto-Oscilla-
tions; Chaos in Yttrium-Iron-Garnet; Thin
Film Magnetism; Modern Permanent Mag-
nets; Soft Magnetic Materials; Magnetic
Sensors; Diluted Magnetic Semiconduc-
tors; Rotary Head Magnetic Recording;
and Modeling of Magnetizing Processes.
\$20.00 JH9430-0-PCD

**Multifunction MMIC'S and Their Sys-
tem Applications;** IEEE Transactions on
Microwave Theory and Techniques, Vol.
38, No. 9, Sept. 1990.
The papers in this special issue are
grouped into several sections: Overview;
Processing; Silicon and GaAs on Silicon;
Multifunction MMIC Circuits; and System
Considerations for MMIC Insertion.
\$20.00 JH9657-8-PCD

Networks; IEEE Expert, Vol. 5, No. 5, Oct.
1990.
There are two articles included in this spe-
cial issue. The first article is "Seteli: The
Strategy Expert for Telecommunication In-
vestments," which describes integrating
economic and behavioral factors with com-
plex engineering knowledge. The second
article titled, "Expert Design of Local Area
Networks," discusses using a rule-based
expert system to configure distributed in-
formation systems.
\$20.00 JH9931-7-PCD

Neural Networks, I: Theory and Modeling; Proceedings of the IEEE, Vol. 78, No. 9, Sept. 1990.

The first of two issues devoted to neural networks, this selection addresses theoretical foundations and neural modeling. There are four papers on theoretical foundations and four papers on neural modeling with an introduction edited by Clifford Lau and Bernard Widrow. \$20.00 JH9433-4-PCD

Neural Networks, II: Analysis, Techniques, & Applications; Proceedings of the IEEE, Vol. 78, No. 10, Oct. 1990. The second of two special issues devoted to the topic of neural networks, this issue presents papers in mathematical analysis, related techniques, implementations, and applications. \$20.00 JH9434-2-PCD

Optical Fiber Communications '90; Journal of Lightwave Technology, Vol. 8, No. 9, Sept. 1990.

This special issue contains twenty-five selected papers from the two hundred and twenty-two papers presented at the Optical Fiber Communications Conference held January 22-26, 1990 in San Francisco, CA (conference order number is 90CH2821-7, \$80.00). Highlights from the following topics were covered in the special issue papers: Fiber, Cable, and Glass Technologies; Optoelectronic Components and Integrated Optics; and Systems and Subsystems. \$20.00 JH9772-5-PCD

Rendering Reconsidered; IEEE Computer Graphics and Applications, Vol. 10, No. 5, September 1990.

Two of the articles included in this issue present parallel processing approaches to Bresenham's line drawing algorithm. Other articles focus on cubic algebraic surfaces, solid modeling, medical imaging, and vector and raster technology. \$20.00 JH9886-3-PCD

Satellite Communications; Proceedings of the IEEE, Vol. 78, No. 7, July 1990. This issue of the PROCEEDINGS addresses the current and future state of satellite communications. Organized into three sections, the first section focuses on current, emerging and experimental systems and services; section two on major emerging technologies; and the last section on special topics. \$20.00 JH9431-8-PCD

Sea Surface-Generated Ambient Noise: 20-2000 Hz; IEEE Journal of Oceanic Engineering, Vol. 15, No. 4, Oct. 1990. This special issue focuses on the measurement of the deep-ocean ambient noise field with vertical arrays. \$20.00 JH9785-7-PCD

SISDEP-88; IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, Vol. 9, No. 11, Nov. 1990. This special issue contains nine papers selected from the Third International Conference on Simulation of Semiconductor Devices and Processes (SISDEP-88) held in Bologna, Italy on Sept. 26-28, 1988. The papers cover a number of topics, ranging from the microscopic derivation of physical models, to process and device simulation, and general-purpose CAD tools. \$20.00 JH9553-9-PCD

Systems, Man, and Cybernetics; IEEE Control Systems Magazine, Vol. 10, No. 5, August 1990. This special issue is based on papers presented at the 1989 IEEE International Conference on Systems, Man, and Cybernetics (SMC) held November 14-17, 1989, in Cambridge, MA. The papers in this issue present an introduction to many interesting aspects of human-machine interaction. \$20.00 JH9892-1-PCD

Teaching Electromagnetics; IEEE Transactions on Education, Vol. 33, No. 3, August 1990. Three areas of electromagnetics are covered in this special issue: Teaching Control Theory; Control Laboratory Experience; and Control Curricula and Programs in the United States. \$20.00 JH9573-7-PCD

Visualization of and Interaction with Biomedical Data; IEEE Transactions on Biomedical Engineering, Vol. 37, No. 8, August 1990. Physical phenomena of numerous kinds can now be made visible on the computer screen. Special computer architectures have been designed to facilitate the computing and visualization of data. The purpose of this special issue is to call attention to present applications of the visualization of and interaction with biomedical data. \$20.00 JH9506-7-PCD

Voice in Computing; Computer, Vol. 23, No. 8, August 1990. The purpose of this special issue is to take stock of voice in computing by assessing the state of the technology, examining typical applications, and discussing directions in integrating voice with computing. This issue features a blend of telecom and computing articles. \$20.00 JH9873-1-PCD

TUTORIALS

Digital Image Warping. 1990 by IEEE. Digital image warping is a growing branch of the field of image processing that deals with geometric transformation techniques. Traditionally used for geometric correction

in remote sensing and medical imaging, warping has recently enjoyed a new surge in interest from the computer graphics field as a viable tool for image synthesis and special effects. 340 pp., \$95.00 EH0322-8-PCD (OOP 8)

Software Maintenance and Computers; by David H. Longstreet. 1990 by IEEE. A world-wide view of the research being conducted in the field. This tutorial is aimed at managers of information systems, programmers, and researchers. 284 pp., LC 90-33579, \$55.00 ISBN 0-8186-5898-3 (microfiche) ISBN 0-8186-8893-X (case) 90EH0302-0-PCD

Techniques for Cubic Algebraic Surfaces; by Thomas W. Sederberg. IEEE Computer Graphics and Applications, Vol. 10, No. 4, July 1990. This is part one of a two-part tutorial (part two will appear in the September 1990 issue of this magazine) which discusses some techniques that may have potential for performing free-form modeling with algebraic surfaces. Specific attention is paid to cubic algebraic surfaces, although many of the ideas presented have application to algebraic surfaces of any degree. Topics addressed include piecewise constructions, interpolation to points and space curves, and parameterization. pp. 14-25, \$20.00 (for complete issue) JH9885-5-PCD

Techniques for Cubic Algebraic Surfaces; by Thomas W. Sederberg. IEEE Computer Graphics and Applications, Vol. 10, No. 5, Sept. 1990. This is part two of a two-part tutorial (part one appeared in the July 1990 issue of this magazine) which discusses techniques that may have potential for performing free-form modeling with algebraic surfaces. Specific attention is paid to cubic algebraic surfaces, although many of the ideas presented have application to algebraic surfaces of any degree. Topics addressed include piecewise constructions, interpolation to points and space curves, and parameterization. pp. 12-21, \$20.00 (for complete issue) JH9886-3-PCD

Visual Programming Environments: Paradigms and Systems; edited by Ephraim P. Glinert. 1990 by IEEE. This is volume one of a two volume set on visual programming environments which addresses visual alternatives. Topics covered in this volume include: Classification of Programming Environments; Graphical Representations for Programs and Systems; Environments I: The Pioneering Efforts; Environments II: Visual Front Ends

for Main-Line Textual Languages; Case Study; From PECAN to GARDEN and Beyond; Environments III: Using Data-Flow, Actors and Agents; Case Study: The Evolution of ThingLab; Environments IV: More Constraint-Based Systems; and Environments V: Parallel and Distributed Computing. 661 pp., \$90.00 ISBN 0-8186-8973-0 (case) ISBN 0-8186-5973-4 (microfiche) EH0324-4-PCD (OOP 8)

Visualization in Scientific Computing; edited by Gregory M. Nielson, Bruce Shriver, and Lawrence J. Rosenblum. 1990 by IEEE. This tutorial is an authoritative reference source designed for scientists, engineers, and students who are new to scientific visualization or who are interested in expanding their knowledge in this subject. This issue includes articles from the August 1989 special visualization issue of *Computer* magazine. The text is divided into five sections: Introduction and Overviews of Scientific Visualization; Foundations and Techniques of Scientific Visualization; Applications of Scientific Visualization; Survey of Scientific Visualization at Research Labs; and Video. 283 pp., LC 90-80532, \$85.00 ISBN 0-8186-8979-X (case) ISBN 0-8186-5979-3 (microfiche) EH0307-9-PCD (OOP 8)

HIGHLIGHTED PAPERS

Application Specific Integrated Circuits (ASICs) by Hideaki Kobayashi; IEEE Potentials, Vol. 9, No. 3, Oct. 1990. Where is integrated chip design headed? This article covers: help in practicing; behavioral level ASIC design via flowchart entry; and also includes a suggested reading list at the end.

The Evolving Relationship Between Open Standards and Technology by Wayne E. Rosing and Matt M. Perez; Computer, Vol. 23, No. 9, Sept. 1990, pp. 82-84. The relationship between open standards and technology is undergoing a change, particularly in the way standards are developed and deployed today and in their impact on business. This article also includes a glossary of terms.

Microfabrication Techniques and Applications by Dino Ciarlo; IEEE Potentials, Vol. 9, No. 3, October 1990, pp. 13-16. Progress in IC microfabrication is having an impact on other microtechnologies. This article covers: key technologies; anisotropic etching; diffracting gratings; thin windows; and photoresist molds.

MOS Materials by Michael Hewitt; IEEE Potentials, Vol. 9, No. 3, October 1990, pp. 17-20. Silicon, silicon dioxide, and aluminum—What makes them so popular? This article covers the materials individually and also describes how they interact with each other, including a suggested list of titles for further reading at the end of the article.

New Pay Phones Hit the Street by Glenn Zorpette; IEEE Spectrum, Vol. 27, No. 5, May 1990, pp. 28-31. The Federal Communications Commission opened the market to competition six years ago, ushering in new players, technologies, services—and confusion. This article is the first of a series on technical advances and changes in the regulatory climate in U.S. telephony since the court-ordered divestiture of the AT&T Co. six years ago.

The 1988-89 Taulbee Survey Report by David Gries and Dorothy Marsh; IEEE Computer, Vol. 23, No. 10, Oct. 1990, pp. 65-71. The results listed in this article are from findings that emerge from a December 1989 survey of the Forsythe list of computing departments. The survey focuses on the production and employment of PhDs who graduated in 1988-89 and the faculty of PhD-granting computing departments during the 1989-90 academic year.

Voyager Mission Telecommunication Firsts by Edward C. Posner, Lawrence L. Rauch, and Boyd D. Madsen; IEEE Communications Magazine, Vol. 28, No. 9, Sept. 1990, pp. 22-27.

This article represents the results of one phase of research carried out at the Jet Propulsion Laboratory, California Institute of Technology, sponsored by the National Aeronautics and Space Administration.

SPECIAL SECTIONS

1989 7th IEEE/CHMT International Electronic Manufacturing Technology Symposium, held Sept. 25-27, 1989 in San Francisco, CA. Sponsored by the IEEE Components, Hybrids, and Manufacturing Technology Society. IEEE Transactions on Components, Hybrids, and Manufacturing Technology, Vol. 13, No. 3, Sept. 1990. Fourteen papers are included in this special section from the 1989 7th IEEE/CHMT International Electronic Manufacturing Technology Symposium. Topics covered include: Vacuum Mechatronics; Low Stress Silver-Glass Die Attach Material; VLSI Integrated Circuit Manufacturing; CAD Coupled Laser Beam Test System; Electronic System Packaging; Design Realization as a Process; Surface Mount Device Assembly; LED Array Modules; GaAs

Devices; Fine Pitch Surface Mount Technology Assemblies; SMT Chip Capacitors; SMT Attached Solder Joints; Placing Surface Mount Components; and Fabrication of High Density Multichip Modules. pp. 473-569, \$20.00 JH9541-4-PCD

IEEE Static VAR Compensators Planning, Operating, and Maintenance Experiences, held Feb 5, 1990 in Atlanta, GA. Sponsored by the IEEE Power Engineering Society and the IEEE Atlanta Section. This is a compilation of papers presented in the panel session address "Static VAR Compensators Planning, Operating and Maintenance Experiences" at the 1990 IEEE Power Engineering Society Winter Meeting, held February 4-8, 1990 in Atlanta, GA. There are six papers included in this publication on: SVC at Kansas Gas and Electric Company; SVC installation; Project Management of an SVC; Monitoring of SVC Design and Engineering; Maintenance Aspects of SVC; and Beaver Creed SV. 35 pp., \$8.00 90TH0320-2-PWR-PCD

IEEE International Magnetics Conference, held April 17-20, 1990 in Brighton, United Kingdom; sponsored by the IEEE Magnetics Society. IEEE Transactions on Magnetics, Vol. 26, No. 5, Sept. 1990. Included is the conference proceedings which cover the following topics: Recording Heads; Magneto-Optics; Hard Materials; Nanocrystalline & Amorphous Alloys; Superconductivity; Soft Films; Microwave Magnetics; Domains & Domain Walls; Magnetism in the Life Sciences; Sensors; Thin Film Media; Electromagnetics; Electromagnetic Analysis; Crystalline & Amorphous Wires; Magnetization Processes; Particulate Recording Media; Soft Magnetic Devices; Soft Materials; Magnetic Measurements; Magnetic Methods for Evaluation of Materials; Topics in Biomagnetism; Recording Theory; Magnetic Recording Systems; Finite Elements & Design; Head-Medium Interface; Transformers & Inductors; Coding; Multilayers; Eddy Currents; Recording Heads & Discs; Solid State Memories; Electromagnetic Machines; Noise in Thin Film Media; and Electromagnetic Fields. pp. 1289-2849, \$50.00 JH9643-8-PCD

IGARSS '89 Papers; IEEE Transactions on Geoscience and Remote Sensing, Vol. 28, No. 5, Sept. 1990. This issue includes six papers from the Hydrology and Evapotranspiration section of the IGARSS '89 conference proceedings. pp. 940-980, \$20.00 JH9609-9-PCD

Knowledge Engineering and Software Engineering, papers from the First International Conference on Software Engineering and Knowledge Engineering, held June

15-16, 1990 in Skokie, IL. IEEE Transactions on Knowledge and Data Engineering, Vol. 2, No. 3, September 1990. The five papers, including an introduction by Shi-Kuo Chang, address knowledge and its utilization in software systems development. pp. 271-326, \$20.00 JH9637-0-PCD

PICA '89—1989 IEEE Power Industry Computer Applications Conference, held May 1-5, 1989 in Seattle, WA; sponsored by the IEEE Power Engineering Society and the IEEE Seattle Council. IEEE Transactions on Power Systems, Vol. 5, No. 3, August 1990.

Five papers have been included in this special section within the IEEE Transactions on Power Systems. Topics covered include: Network Topology; Band Matrix; Priority Evaluation; Multi-Area Reliability Calculations and Real-Time Expert System. pp. 1001-1038, \$30.00 JH9703-0-PCD

1989 Transmission and Distribution Conference, held April 2-7, 1989 in New Orleans, LA; sponsored by the IEEE Power Engineering Society and the IEEE New Orleans Section. IEEE Transactions on Power Delivery, Vol. 5, No. 3, July 1990.

Three papers are included from this conference, they are: "A New Water Tree Retardant XLPE", "Cable Environment Analysis and the Probabilistic Approach to Cable Rating", and "Investigation of the Insulation Performance of the Insulator Covered with Lichen". pp. 1617-1640, \$30.00 JH9695-8-PCD

Visual Programming, IEEE Transactions on Software Engineering, Vol. 16, No. 10, Oct. 1990.

Visual Programming is a key to enhancing computer utilization by allowing those who are not familiar with computer technology to create programs. Seven papers are included in this issue on generation/synthesis of programming environments for specification, analysis, and execution of visual programs in certain specific application domains; and specific visual programming languages/systems. pp. 1105-1197, \$20.00 JH9741-0-PCD

UNITED STATES ACTIVITIES

Directory of Volunteer Opportunities in Precollege Mathematics and Science Education For Engineers and Scientists. 1990

The directory is a guide to education-related programs that aim to improve math, science, and technology education at the precollege level. The programs listed are established, ongoing efforts that are nationally coordinated but operate locally in different cities. They are heavily depen-

dent upon volunteers at the local level. IEEE members are invited to write to the IEEE-USA Office for a copy of the directory and then to volunteer for one of the programs. The directory contains a handy matrix that enables the reader to see at a glance whether an assignment fits his or her unique skills, interests, and undoubtedly hectic schedule. In most cases, time commitments are relatively limited; so potential volunteers should not be put off by fear of overcommitting themselves. Copies of the *Directory of Volunteer Opportunities in Precollege Mathematics and Science Education for Engineers and Scientists* are available at the IEEE-USA office, 1828 L. Street, N.W., Suite 1202, Washington, DC 20036-5104, or phone: (202) 785-0017.

Your Career in the Electrical, Electronics and Computer Engineering Fields. 1990.

This career guidance brochure has been thoroughly revised and updated. The brochure is distributed to high school and college students who are interested in exploring careers in electrical, electronics, or computer engineering. Copies are also sent to high school counselors, libraries, career counseling centers, and other interested institutions and individuals. IEEE members who wish to distribute the brochure to local student groups or others may write to the IEEE-USA Office, 1828 L. Street N.W., Suite 1202, Washington, DC 20036-5104 or phone: (202) 785-0017, for up to 25 complimentary copies. For larger groups it is suggested that a single copy be displayed. Individual copies are available free. Multiple copies may be purchased for \$.75 each.

MISCELLANEOUS PUBLICATIONS

Distinguished Visitors Program by the IEEE Computer Society. August 31, 1990. This is the book for the 1990-1991 Distinguished Visitors Program which is intended to serve both regular and student chapters of the IEEE Computer Society in continental North America. However, requests from chapters outside of this area may be considered as well. Details are included if one would like to request the service of a Distinguished Visitor, as well as a brief dossier and picture of the listed Distinguished Visitor. Please contact: Lisa Granoien at the IEEE Computer Society, Headquarters Office, 1730 Massachusetts Avenue, N.W., Washington, D.C. 20036-1903, phone: (202) 371-0101, fax: (202) 728-9614. Price: FREE. Please, limit one copy per customer.

NOTE: In 1991 the Distinguished Visitors Program catalog will be distributed through the IEEE Computer Society, Membership Office, 10662 Los Vaqueros Circle, Los Alamitos, CA 90720, phone (714) 821-8380 FAX: (714) 821-4010.

Managing R&D To Be Competitive, edited by the staff of IEEE Spectrum. This material is excerpted from the October 1990 issue of IEEE Spectrum. It covers worldwide profiles, how it's changed, what's to be done?, and the outlook. 84 pp., \$15.00 TH0324-6-PCD

NOTES

CORRECTION TO IEEE PUBLICATIONS BULLETIN, Vol. 20, No. 3, 1990: Please correct the phone number for the IEEE General Service Number to (908) 981-0060 (it was incorrectly noted in the Bulletin as: (908) 981-0600).

NEW CONFERENCES: IEEE SOS/SOI TECHNOLOGY CONFERENCE, listed in the Electron Devices section of the Conference Proceedings, is a new conference starting in 1989; sponsored by the IEEE Electron Devices Society.

The first conference sponsored by the IEEE Technical Committee on Expert System Applications, can be located under COMPUTER, CIRCUITS AND SYSTEMS, and ELECTRON DEVICES in the conferences listing: **Computer Design: VLSI in Computers & Processors, Proceedings 1990 IEEE International Conference on, ICCD '90**.

IJCNN CONFERENCES: The 1990 International Joint Conference on Neural Networks (IJCNN-90), held January 15-19, 1990 in Washington, D.C. (known as the Winter IJCNN) is available from Lawrence Earlbaum Assoc., Hillsdale, NJ, phone: 201 666-4110, ISBN 0-80580-754-3, \$39.95, 2 vols. The 1990 International Joint Conference on Neural Networks (IJCNN-90), held June 17-21, 1990 in San Diego, CA (known as the Summer IJCNN) is available from the IEEE, order number 90CH2898-5, \$180.00.

NEW JOURNAL: IEEE MICROWAVE AND GUIDED WAVE LETTERS, will begin publication in January 1991. It will be issued monthly, starting January 1991. The content will be on original research relevant to all aspects of microwave/millimeter-wave technology, with emphasis on components, devices, circuits, guided wave structures, systems and applications covering the frequency spectrum from microwave to infrared. There is a call for papers and they should be sent to: Dr. Tatsuo Itoh, Editor-in-Chief, Department of

Electrical and Computer Engineering, The University of Texas, Austin, TX 78712-1084 or phone (512) 471-1072, fax (512) 471-5445, please call for details to submit papers.

NEW JOURNAL: IEEE TRANSACTIONS ON SUPERCONDUCTIVITY, will begin a quarterly journal in 1991. It is being offered by the IEEE Superconductivity Committee.

NEW JOURNAL: IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, will begin a quarterly journal in 1991. It is being offered by the IEEE Circuits and Systems Society.

SOCIETY CHANGES NAME: The IEEE Acoustics, Speech, and Signal Processing Society, has recently changed their name to the IEEE Signal Processing Society.

TRANSACTION CHANGES NAME: The *IEEE Transactions on Acoustics, Speech, and Signal Processing* on January 1, 1991, will be titled the *IEEE Transactions on Signal Processing*.

MAGAZINE CHANGES NAME: The *ASSP Magazine*, has recently changed their name to the *IEEE Signal Processing Magazine*.

Conference Publications continued

LEOS Summer Topical on New Semiconductor Laser Devices and Applications, Conference Digest, held August 1-3, 1990 in Monterey, CA; sponsored by the IEEE Electron Devices Society and the IEEE Lasers and Electro-Optics Society.

Please see LASERS AND ELECTRO-OPTICS for coverage.

70 pp., LC 90-82562, \$70.00
90TH0323-6-PCD (OOP 6)

LEOS Summer Topical on Optical Multiple Access Networks, Conference Digest, held July 25-27, 1990 in Monterey, CA; sponsored by the IEEE Communications Society, IEEE Electron Devices Society, and the IEEE Lasers and Electro-Optics Society.

Please see LASERS AND ELECTRO-OPTICS for coverage.

84 pp., LC 90-82546, \$35.00
90TH0306-1-PCD (OOP 6)

Proceedings of the 25th Intersociety Energy Conversion Engineering Conference (IECE-90), held Aug. 12-17, 1990 in Reno, NV; sponsored by the American Institute of Chemical Engineers (note: every 7th year this conference is sponsored by the IEEE Aerospace and Electronic Systems Society and the IEEE Electron De-

vices Society. Last one sponsored in 1989 and the next in 1996).

Please see AEROSPACE AND ELECTRONIC SYSTEMS for coverage.

3,244 pp., 6 vols., \$240.00
ISBN 0-8169-0490-1 (assigned by AICE)
90CH2942-1-PCD (OOP 1/1C/1D)

ENGINEERING IN MEDICINE AND BIOLOGY

IMAC89 Proceedings The First International Conference on Image Management and Communication in Patient Care: Implementation and Impact, held June 4-8, 1989 in Washington, D.C.; sponsored by the IEEE Engineering in Medicine and Biology Society; edited by Seong K. Mun, Melvyn Greberman, William R. Hendee, and Roger Shannon.

A comprehensive reference on image management and communications, this conference covered such topics as: scope and challenges of IMAC in patient care: an international perspective; role of image based information in patient care: problem definition; approaches to improved information in patient care: problem definition; approaches to improved systems: current efforts and possible solutions; technical barriers to network development and information exchange; assuring the quality of care; evaluation of IMAC technologies; customer planning for PACSA; the future: what might happen next?; display technology; communication technology; image processing and clinical applications; and basic IMAC concepts.

328 pp., LC 89-82653, \$60.00
ISBN 0-8186-1950-3 (paper)
ISBN 0-8186-5950-5 (microfiche)
ISBN 0-8186-8950-1 (case)
90CH2837-3-PCD (OOP 1/1F)

INDUSTRIAL ELECTRONICS

TENCON '89: Fourth IEEE Region 10 International Conference, held November 22-24, 1989 in Bombay, India; sponsored by the IEEE Computer Society, the IEEE Communications Society, the IEEE Industrial Electronics Society, the IEEE Region 10, the IEEE Bombay Section, and the All India Council.

Please see COMPUTERS for coverage.
1140 pp., LC 89-84152, \$90.00
89CH2766-4-PCD (OOP 1/1H)

INDUSTRY APPLICATIONS

IEEE Conference Record of 1990 Forty-Second Annual Conference of Electrical Engineering Problems in the Rubber and Plastics Industries, held April 30-May 1, 1990 in Akron, Ohio; sponsored by

the IEEE Industry Applications Society and the IEEE Akron Section.

An authoritative reference on this topic, subjects covered include: UNIX Concepts and Capabilities; CIM-Computer Integrated Manufacturing; Communication Network Applications; Brushless D.C.; Real Time Networking; Digital Computer Based Data Acquisition & Control Software Packages; Implementing ETHERNET; Baker Instrument Company; Surge Limiters; Networking Digital Transmitters; Partnerships for Profit; and Power System Protection - Power Monitoring.

72 pp., LC 84-644754, \$40.00
90CH2862-1-PCD (OOP 1/1B)

1990 Rural Electric Power Conference, Papers Presented at the 34th Annual Conference, held April 29-May 1, 1990 in Orlando, FL; sponsored by the IEEE Industry Applications Society.

A wide range of papers relating to rural electric power were presented at this conference. Coverage includes: Electric Utilities Coping with a Hurricane; Reactive Power Measurement; Rural Power Quality; Voltage Gradient Modification; Retail Load Competition; Rural Electric Distribution Feeders; Voltage Drop Calculations; Energy Forecast Model; Electric Motors Reliable Operation; Vacuumtronic Power Distribution Substations; Proofing Your System With Power, Control, and Communication Cables; Neutral Trip Settings; Transformer Replacement; Automated Bus Transfer Control; Nordon High Impedance Ground Fault Detector; Surge Arrester; URD Cable; and AEIC CS5/6-87 Qualification Testing.

160 pp., LC 83-641006, \$44.00
90CH2823-3-PCD (OOP 1/1B)

INSTRUMENTATION AND MEASUREMENT

AUTOTESTCON 90, Conference Record, held Sept. 17-20, 1990 in San Antonio, TX; sponsored by the IEEE Aerospace and Electronic Systems Society, the IEEE Instrumentation and Measurement Society, and the IEEE Central Texas Section.

Please see AEROSPACE AND ELECTRONIC SYSTEMS for coverage.

616 pp., LC 83-81640, \$66.00
90CH2793-8-PCD (OOP 1/1B/1C)

CPEM '90 Digest, 1990 Conference on Precision Electromagnetic Measurements, held June 11-14, 1990 in Ottawa, Canada; sponsored by the IEEE Instrumentation and Measurement Society, the National Bureau of Standards, the National Research Council, and the International Union of Radio Science.

New developments in the theory, realization and practice of precision electromagnetic measurements and the determination of related fundamental constants was the main focus of this conference. Highlighted subjects include: Microwave Noise; AC/DC Transfer; Microwave and Optical Frequency Standards; Josephson Effect; Ion Trap Frequency Standards; Avogadro's Constant; Quantum Hall Resistance; and RF and Microwaves.

472 pp., LC 89-82032, \$60.00
90CH2822-5-PCD (OOP 1/1B)

LASERS AND ELECTRO-OPTICS

Indium Phosphide and Related Materials, Conference Digest, Second International Conference, held April 23-25, 1990 in Denver, CO; sponsored by the IEEE Electron Devices Society and the IEEE Lasers and Electro-Optics Society.

Please see ELECTRON DEVICES for coverage.

594 pp., LC 90-80596, \$170.00
90CH2859-7-PCD (OOP 1/1D)

LEOS Summer Topical on Broadband Analog Optoelectronics—Devices and Systems, Conference Digest, held July 23-25, 1990 in Monterey, CA; sponsored by the IEEE Electron Devices and the IEEE Lasers and Electro-Optics Society.

This conference provided a forum for the discussion of progress in broad-band light-wave systems, particularly in the areas of multichannel video and R/F microwave transmission. The ten invited papers, seventeen contributed papers and three symposia discussed include: Video Subscriber Loop Applications, Prospective from Telecommunications and Cable Industries; Optoelectronic Components and User Interface Technology, RF Analog Optical Links; Optical Technologies for Phased Array Antennas, and System Architectures.

70 pp., LC 90-82542, \$70.00
90TH0322-8-PCD (OOP 6)

LEOS Summer Topical on Integrated Optoelectronics, Conference Digest, held July 30-Aug. 1, 1990 in Monterey, CA; sponsored by the IEEE Electron Devices Society and the IEEE Lasers and Electro-Optics Society.

The latest developments in integrated optoelectronics was the main focus of this conference. In particular, the conference highlighted semiconductor integrated components realized using GaAs and InP based materials, bringing together researchers working on a range of component technologies including: Hybrid and Flip Chip-Circuits; Integrated Transmitters and Receivers; Novel Integrated Compo-

nents Incorporating New Guided Wave Structures; and, Novel Optical Addressing and Processing Techniques.

90 pp., LC 90-82563, \$70.00
90TH0321-0-PCD (OOP 6)

LEOS Summer Topical on New Semiconductor Laser Devices and Applications, Conference Digest, held Aug. 1-3, 1990 in Monterey, CA; sponsored by the IEEE Electron Devices Society and the IEEE Lasers and Electro-Optics Society.

The effects of semiconductor laser devices in numerous applications areas is covered in this conference. Topics covered include: Stable Frequency Diode Lasers; Frequency Conversion on Diode Laser Radiation; Optical Communications; Phased Locked Arrays or Coherent Phased Arrays; High Power Devices; Applications; and Diode Amplifiers.

70 pp., LC 90-82562, \$70.00
90TH0323-6-PCD (OOP 6)

LEOS Summer Topical on Optical Multiple Access Networks, Conference Digest, held July 25-27, 1990 in Monterey, CA; sponsored by the IEEE Communications Society, the IEEE Electron Devices Society, and the IEEE Lasers and Electro-Optics Society.

This conference provided a forum for members of the communications and optics communities to explore the capabilities and limitations, and the promise and reality of optical multiple access networks.

84 pp., LC 90-82546, \$35.00
90TH0306-1-PCD (OOP 6)

MAGNETICS

INTERMAG '90, 1990 Digests of, held April 17-20, 1990 in Brighton, UK; sponsored by the IEEE Magnetics Society.

The latest developments in the field of magnetics is the focus of this conference. Topics covered include: Recording Heads; Magneto-Optics; Hard Materials; Nanocrystalline & Amorphous Alloys; Superconductivity; Soft Films; Microwave Magnetics; Domains & Domain Walls; Magnetism in the Life Sciences; Sensors; Thin Film Media; Electromagnetics; Electromagnetic Analysis; Crystalline & Amorphous Wires; Magnetization Processes; Particulate Recording Media; Soft Materials; Soft Magnetic Devices; Magnetic Measurements; Magnetic Methods for Evaluation of Materials; Topics in Biomagnetism; Recording Theory; Magnetic Recording Systems; Finite Elements & Design; Head-Medium Interface; Transformers & Inductors; Coding; Multilayers; Eddy Currents; Recording Heads & Discs; Solid State Memories; Electromagnetic Machines;

Noise in Thin Film Media; and Electromagnetic Fields.

658 pp., LC 72-649866, \$68.00
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NEURAL NETWORKS

IJCNN International Joint Conference on Neural Networks, held June 17-21, 1990 in San Diego, CA; sponsored by the IEEE Neural Networks Society, the San Diego Section of the IEEE, and the International Neural Networks Society.

This large conference on Neural Networks covered areas such as: applications; invertebrate neural networks; image processing; supervised learning; associative memory; unsupervised learning; sensation and perception; electrical neurocomputers; sensorimotor control systems; electrical neurocomputers; optical neurocomputers; machine vision; robotics and control; neuro-dynamics; neurocognition; and optimization.

3 vols., 2992 pp., LC 90-81478, \$180.00
90CH2879-5-PCD (OOP 1/1A/1B/1C/1D/1F/1H)

OCEANIC ENGINEERING

Current Measurement, Proceedings of the IEEE Fourth Working Conference on, held April 3-5, 1990 in Clinton, MD; sponsored by the IEEE Oceanic Engineering Society.

Radar and Lagrangian Technology, Spatially Integrating Technology, Point Source and Related Technology, and Acoustic Doppler and Related Technology were the main points of focus for this conference.

352 pp., LC 90-80714, \$54.00
90CH2861-3-PCD (OOP 1/1C)

OCEANS '90, Conference Proceedings, held Sept. 24-26, 1990 in Washington, DC; sponsored by the IEEE Oceanic Engineering Society.

"Engineering in the Ocean Environment," the theme for this conference, covered topics such as: Acoustic Instrumentation for Ocean Sensing; AUV Technology; Underwater Acoustics/Transients; Air-Sea Interaction; High Technology Applications to Oceanographic Measurements; Data Bases and Modeling; Active Microwave Remote Sensing; Underwater Acoustics/Localization and Tracking; Underwater Acoustics/Localization and Tracking; High Technology Applications to Ocean Engineering; Underwater Acoustics/Noise and Scattering; Synthetic Aperture Radar and Imaging Techniques; Applications of Satellite Measurements; Marine Communications and Navigation; Underwater Acoustics/Signal Processing; and Underwater

Acoustics/Transducers & Data Acquisition Systems. 624 pp., LC 90-80542, \$120.00
90CH2858-9-PCD (OOP 1/1C)

PROFESSIONAL COMMUNICATION

IPCC '90—Communication Across the Sea: North American & European Practices; held Sept. 12-14, 1990 in Guildford, Surrey, England; sponsored by the IEEE Professional Communication Society.

This international conference on Professional Communication addressed the concerns of Region 8 comprising Europe, the Middle East, and Africa. Topics covered include: Interpersonal Conflict; Technical Communication: Engineer's or Specialist's Job?; The Communication Process; The Paperless Office; Proposal Preparation; Language Reference Bases; Modern Approaches to Machine Translation; PCS Goals and Products; Automated Text Processing and Desktop Publishing; Explaining Science and Engineering to the Lay Public; Engineering Communication; Communication Tools; Usability Testing and Text Analysis; Shakespeare Gets a Computer; Submitting Manuscripts to Technical Journals; Communication; Skills of Technical Communication: When and How Acquired?; New Directions for the Transactions; International English; and Technically Speaking.

248 pp., LC 90-70536, \$50.00
90CH2886-PCD (OOP 1/1F)

ROBOTICS AND AUTOMATION

Intelligent Control, Proceedings: 5th IEEE International Symposium on, held Sept. 5-7, 1990 in Philadelphia, PA; sponsored by the IEEE Control Systems Society and the IEEE Robotics and Automation Society in cooperation with the IEEE Computer Society.

Please see CONTROL SYSTEMS for coverage.

1,308 pp., 2 vols, LC 90-655042, \$130.00
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90TH0333-5-PCD (OOP 1/1A)

SOLID-STATE CIRCUITS

1990 IEEE International Solid-State Circuits Conference Digest of Technical Papers 37th ISSCC, 1st Edition; held February 14-16, 1990 in San Francisco, CA; sponsored by the IEEE Solid-State Circuits Council.

Thorough and comprehensive, this conference presented the latest developments in the field of solid-state circuits. Topics covered include: Telecommunication Cir-

cuits; Microprocessors; Nonvolatile and Fast Static Memories; Application-Specific ICs; High-Speed Analog; High-Speed Signal Processors; Static RAMs; Emerging Circuit Technologies; Analog-to-Digital Converters; High-Speed Communication ICs; D/A Converters and Filters; Image Sensors, Processors, and Displays; DRAM and Embedded Memory; Innovative Circuit Designs; and Analog Power ICs. Opening the conference were three papers: "Supercomputers for the Nineties: Making the Powerful Accessible" by S. Nelson; "The New Joint R&D" by W. Ouchi; and "The Impact of High-Definition Television and Solid-State Circuits" by F. Vresswijk.

336 pp., LC 81-644810, \$140.00
ISSN 0193-6530
90CH2824-1-PCD (OOP 1/1A)

BINGHAMTON SECTION

Proceedings of the 1990 IEEE Southern Tier Technical Conference, held April 25, 1990 in Binghamton, NY; sponsored by the IEEE Binghamton Section; edited by E. J. Mohring and T. N. Rajashekara.

Broad in scope, this conference covered a variety of topics in the field. Subjects covered include: Communications System Design; Applied AI; Artificial Neural Networks; PWM Switching; Decentralized Kalman Filter Techniques; Artificial Intelligence; Fiber-Optic Communication; Off-Line Series Resonant Converter; DFT Based Model Simplification; VLSI RISC Micro-Architecture; Huygens Principle; High Phase Order Transmission; The Mission Computer; Large Bus Switching Performance; Two Dimensional Magnetic Field Sensor; Emergency Restoration Structure; Memory Card Address Bus Design; Gallium Arsenide Monolithic Microwave Integrated Circuits; PC Based 2kx2k Direct Imaging System; Computer Integrated Manufacturing; Signed-Digit 3 Valued Logic; Computer Packaging Architecture and Electrical Design; Reliable and Nonrestrictive Pulse Detection; Network Communication with DAE 1.0; PC on a PC Board; Gettering of Ion Implanted Copper in Polyamide; Real-Time Systems; PMCP on Application System; Device I-V Curves; Sonar Beamforming; and Build-In Self-Test Circuits.

305 pp., LC 90-81479, \$50.00
90TH0313-7-PCD (OOP 6)

REGION 3

SOUTHEASTCON '90—Proceedings; held April 1-4, 1990 in New Orleans, LA; sponsored by the IEEE Region 3 and the IEEE New Orleans Section.

The theme of this conference, "Technologies Today and Tomorrow," covered such topics as: Electric and Magnetic Fields in Power Systems; Microprocessor Development Systems; Piezoelectric Actuators; Optical Computing; Topics in Electrical Engineering; Numerical Methods; Neural Networks; Software Development; Speech Processing; Robotics; Control of Space Structures; Power System Planning and Analysis; Radar and Microwave Theory; Theoretical Issues in Computing; Control Theory; Digital Filters; Applications of Signal Processing; VLSI; Applications of Expert Systems; Computer Networks; Electric Power Algorithms; and Pattern Recognition.

3 vols., 1,166 pp., LC 84-643372, \$92.00
90CH2883-7-PCD (OOP 1/1H)

ROCHESTER SECTION

Proceedings: The Third Annual IEEE ASIC Seminar and Exhibit, held Sept. 17-21, 1990 in Rochester, NY; sponsored by the IEEE Rochester Section.

A thorough review of the issues associated with ASIC, this conference covered the following topics: ASIC in the 90s; Management and Economics; ASIC Memories; System Engineering; Simulation and Verification; Design Methodology; Digital Signal Processing ASIC; Analog and Digital ASIC Design; ASIC Education and Industrial Training; Design Systems (CAD); Cell Libraries; Design Case Studies; ASIC Technology and Manufacturing; and Design Synthesis.

656 pp., LC 90-80445, \$80.00
90TH0303-8-PCD (OOP 6)

SOUTH AFRICA SECTION

IEEE 1990 South African Symposium on Communications and Signal Processing, COMSIG 90 Proceedings, held June 29, 1990 in Johannesburg, South Africa; sponsored by the IEEE South Africa Section.

Coding and Modulation, Meteor Burst Communication, Image Processing, Speech Processing, Signal Processing, and Packet Radio were the issues covered in the third COMSIG.

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