◆IEEE publications bulletin

This Bulletin is the official announcement vehicle for IEEE publications, and information and educational services. Its purpose is to list as they become available all conference records, standards, special issues of Transactions and Journals, and other nonperiodic publications that may be purchased from IEEE Service Center.

Conference Publications

The publications listed below have become available since the last issue of this bulletin and, except as noted, were sent automatically to present subscribers to the appropriate option and suboption of the IEEE Open Order Plan (OOP). All conference publications are identified by appropriate OOP suboption codes. For completeness, the listing includes special issues or sections of IEEE periodicals that are devoted to IEEE conferences, as well as Conference Publications in the strict sense. Out-of-Stock items may be found in the Engineering Societies Library in New York City and in all libraries that subscribe to OOP.

For your convenience, the LC catalog card number is printed inside IEEE publications. Commencing with this issue we are bringing all pre-assigned LC numbers to your attention. The standard availability of LC cards for pre-assigned numbers is approximately six months after publication date.

Cement Industry Technical Conference, 21st IEEE (CIT), held May 21–24, 1979 in Tarpon Springs, FL; sponsored by IEEE IA. *Conf. Record.* Approx. 450 p. **LC 79-84523** (preassigned). $40.00. **79CH1442-3 IA.** OOP 1B.
  Scope: This conference record reports on the latest developments in drives and related products, power generation and distribution, maintenance and safety, automation, and general practices—all as related to the cement industry.

Chicago Spring Conference on Consumer Electronics, 20th Annual *see* **Consumer Electronics, 20th Annual Chicago Spring Conference on.**

Communications, 15th International Conference on (ICC), held Jun 10–14, 1979 in Boston, MA; sponsored by IEEE CSCB, IEEE Boston Section, IEEE AES, and IEEE GE. *Conf. Record,* 4 v. Approx. 1575 p. **LC72-194957.** $50.00. **79CH1435-7CSCB.** OOP 1C.
  Scope: The ICC '79 theme is "Communications Changing the World." International participation resulted in one-third of the technical papers being authored outside North America which is a doubling in the International contribution. The program contains a balance between communications research, technology and operations with emphasis on the direction in which the field is moving rather than a review of where it has been. Included is a tutorial on Integrated Services Digital Networks with a related session on the world-wide progress towards implementation. These provide strong foundations on the impact of digital technology and the future interrelationships between traditional switching and transmission functions. Similarly, the interaction between computer and communication technologies, along with their industrial and social service potential, are well-covered. The growing dependence on software, and the coupling between software, hardware and service features are also clearly illustrated. Finally, the continuing evolution of transmission via fiber optics, radio and satellites is discussed in detail. In summary, the format of ICC '79 permits a broad in-depth coverage of the present and future state-of-the-art in communications on a world-wide basis.

Computerized Data-Acquisition Systems in Particle and Nuclear Physics, Topical Conference on, held May 14-17, 1979 in Santa Fe, NM; sponsored by IEEE NPS, U.S. DoE, National Science Foundation, and the Clinton P. Anderson Meson Physics Facility. Papers in *IEEE Transactions on Nuclear Science.* Vol. NS-26. No. 4. Aug. 1979. **ISSN 0018-9499.** $15.00. **JH 48868** . (Not distributed under OOP).
  Coverage: The area of data acquisition in nuclear physics had not had a conference devoted to it for nine years before this one was held in 1979. The conference addresses the questions of hardware, software, and future developments. Computer cost decrease and the increase in hardware standardization has influenced development. The cost of developing standard software is, however, high and is also an influence on the data acquisition systems. There are sessions covering systems: university, national laboratory, integrated facility-wide, multiprocessor, and even future systems. A panel on the impact of changing computer technology on nuclear and particle physics is included. Interface hardware, data capture and user, have sessions. The area of software is covered in systems and development tools. Data analysis, experimental control, and other topics are represented.

Computerized Tomography, Workshop on Physics and Engineering in, *see* **Physics and Engineering in Computerized Tomography, Workshop on.**

Consumer Electronics, 20th Annual Chicago Spring Conference on, held Jun 4–5, 1979 in Chicago, IL, sponsored by IEEE BCCE and IEEE Chicago Section. Special Session on **Consumer Text Display Systems (Teletext and Viewdata)** in a special issue of *IEEE Transactions on Consumer Electronics.* Vol. CE-25. No. 3. Jul 1979. **ISSN 0098-3063.** $15.00. **JH47837.** (Not distributed under OOP).
  Scope: As an integral part of the recently held 1979 Chicago Spring Conference on Consumer Electronics, June 4th and 5th, 1979 (see a future issue of the *Bulletin* under "Conference Publications" for the entry "Consumers Electronics, 20th Chicago Spring Conference on"), four sessions deal with the subject of Consumer Text Display Systems. These sessions were organized and chaired by Dr. Walter S. Ciciora of the Zenith Radio Corporation. Dr. Ciciora's paper, "An Introduction to Teletext and Viewdata With Comments on Compatibility" (co-authored with Gary Sgrignoli and William Thomas), provides an introduction and overview of the entire subject. Some of the papers presented at these sessions cover such topics as UK teletext, Prestel—the world's first public view data service, videotext services, INFO-TEXT: newspaper of the future, teletext/viewdata LSI, telesoftware: home computing via broadcast teletext, television receiver design aspects for employing teletext LSI, a universal controller for text display systems, and others.

Crime Countermeasures, 1979 Carnahan Conference on, held May 16–18, 1979 in Lexington, KY; sponsored by U. of Kentucky, IEEE AES, and IEEE Lexington Section, edited by John S. Jackson and R. William De Vore. U. of Kentucky, Office of Research and Engineering Services (ORES) Bulletin Series No.

117. *Proceedings.* 182 p. LC79-64890 (preassigned). ISBN 0-89779-018-9. $22.50. 79CH1448-4 AES OOP 1C.
Sessions on: Communication and control; identification and authentication, identification and evaluation; evaluation and detection. Specific topics dealt with were cooperative R & D for police in the U.K., external physical security systems for the U.S., access control, security techniques for small business retailers, crisis management, x-ray technology for parcel inspection, vehicle monitoring with computer map generation, data compression approach to cryptography, speaker recognition studies, imaging surveillance systems, and automated identifications.

Cyclotrons and Their Applications, 8th International Conference on, held Sep 18–21, 1978 in Bloomington, IN; sponsored by IEEE, U.S. National Science Foundation, U.S. DoE, et al., edited by J. W. Hicks. Proceedings in *IEEE Transactions on Nuclear Science.* Vol. NS-26. No. 2, Pt. 1, Apr 1979. $20.00. JH48843. (Not distributed under OOP.)
Scope: The preceding conference was held in 1975. This conference dates back to 19 years ago with the first one in 1959. Most of the cyclotrons described at that and the 1962 and 1963 meetings are still in operation. Papers presented at this conference describe important improvements to many of those cyclotrons. A variety of new applied uses for cyclotrons including trace element analysis, materials studies, and neutron beam production for radiation therapy are associated with these older machines. The second generation of isochronous cyclotrons comprises the machines that came into operation during the past few years, most notably, SIN, TRIUMF, VICKSI and Indiana. All of the new cyclotrons use digital control systems for dimensions of operational flexibility not possible in old systems. Significant extensions and additions being planned for the newer facilities are discussed. On the heavy ion front, a number of new facilities are being built. The electron cyclotron resonance (ECR) ion source for multicharged heavy ions shows promise of producing useful quantities of heavy ions with charged states significantly higher than those available from conventional sources. This will have an important effect on heavy ion programs at existing machines. The breadth of cyclotron applications impressed those at the conference, especially the medical applications. A noteworthy feature of this volume is "Cyclotrons—1978," an updated compilation of cyclotron data from all laboratories.

Electromagnetic Fields in Biological Systems, Symposium on, held Jun 27–30, 1978 in Ottawa, Canada; sponsored by IMPI and IEEE MTT, edited by Stanislaw S. Stuchly. *Proceedings.* 323 p. $40.00. 78CH1438-1 MTT. OOP 1D.
Scope: Provides a forum in which physical and life scientists report research to an interdisciplinary audience. The keynote address "Microwave Bioeffects Research" provides a background. Interest in the biological and medical effects of radiowave, "shortwaves," and microwaves began to develop in the 1930's. Productive research approaches are discussed along with the implications for future research. Sessions cover interactions with the central nervous system and at the macromolecular and cellular level; exposure systems and instrumentation; immunological, hematopoietic, mutagenic, developmental, and behavioral effects; medical applications of electromagnetic energy; dosimetry.

Fault-Tolerant Computing (FTCS-9), 9th International Symposium on, held Jun 20-22, 1979 in Madison, WI; sponsored by IEEE C. *Digest of Papers.* 235 p. LC79-613257. $22.00. 79CH1396-1C. OOP 1E.
Coverage: The FTCS-9 program is representative of the broad range of issues and interests which are now associated with the maturing field of fault-tolerant computing. The papers span the field of fault-tolerant computing from LSI testing to software fault tolerance. Topics covered by sessions include fault-tolerant systems with special sessions on progress in their development, reliability and performance evaluation, fault-tolerant software, testing, system diagnosis, self-checking circuits, LSI testing, and a panel discussion on producing dependable commercial computer systems.

Industrial Electronics and Control Instrumentation Group (IECI '79) 1979 5th Conference, held Mar 19–21, 1979 in Philadelphia,

PA; sponsored by IEEE IECI, edited by Sotirios J. Vahaviolos. *Proceedings—Industrial and Control Applications of Microprocessors.* 380p. LC79-84363 (preassigned). $25.00. 79CH1444-9 IECI. OOP 1B.
Sessions on: Power, energy, distributed, consumer, and automotive systems; data acquisition; process and motor control; automated manufacturing and numerical control; control and biomedical applications; automated diagnosis and testing; intelligent instruments; industrial control products and applications; signal processing; monitoring and control; system development.

Information Theory, 1979 IEEE International Symposium on, held Jun 25–29, 1979 in Grignano, Italy; sponsored by IEEE IT. *Abstracts of Papers.* 172 p. LC72-179437 (LC79-173358 printed in error on the title page and on the verso of the title page). $15.00. 79CH1452-2 IT. OOP 1A.
Scope: This Symposium focuses on the dissemination of recent advances in Information Theory. This year such traditional areas as coding, Shannon theory, modulation, stochastic processes, detection and estimation theory, and pattern recognition are covered. Additionally, invited sessions and lectures include such topics as convolutional codes—theory lagging practice, complexity of computations, stochastic systems, and distributed algorithms and network routing.

Laser Engineering and Applications, (CLEA) [7th] IEEE/OSA Conference on, held May 30–Jun 1, 1979 in Washington, DC; sponsored by IEEE QEA and the Optical Society of America. *Digest of Technical Papers* with *Abstracts of Post-Deadline Papers* (separately but included with *Digest*). 114; 6 p. LC73-172175 (LC72-97521 printed in error on verso of title page). $22.50. 79CH1469-6 QEA. OOP 1D. The *Digest of Technical Papers* also appears in the *IEEE Journal of Quantum Electronics.* Vol. QE-15. No. 9. Sep 1979. $10.00. JH49155. Full papers are scheduled to be included in Vol. QE-16. No. 2 Feb 1980 of the same journal. (Not distributed under OOP).
Scope: Topics covered by this conference range from innovative new research on lasers and electrooptic devices to field demonstrations of mature applications. An effort has been made to maintain a balance and blend of devices and applications which would represent the synergism between laser technology and applications engineering. Specific areas covered in the program include new developments in gas, dye, and solid state lasers, linear and nonlinear optical devices, laser fusion, laser photochemistry and isotope separation, optical communications, biomedical applications, optical recording and signal processing, rotation sensors, radar, adaptive optics, and phase conjugation.

Machine Processing of Remotely Sensed Data, 5th Symposium, held Jun 27–29, 1979 in West Lafayette, IN; sponsored by IEEE C, IEEE GE, IEEE Central Indiana Section, et al. *Proceedings.* 468 p. LC78-78266 (preassigned). $25.00 79CH1430-8 MPRSD. OOP 1E.
Scope: The focus of this symposium is on the theory, implementation and novel applications of machine processing of remotely sensed data. The emphasis is on research results in three broad areas: 1) digital representation and understanding of remotely sensed scenes, 2) utilization of digitally processed data, and 3) extraction of information from digital data. Sessions include data processing—preprocessing, systems, and information extraction; applications to agricultural crops, land use, soils, and forestry; technology transfer; thematic mapper; future of data processing in remote sensing.

Mechanical Oscillations of Overhead Conductors, Symposium on, papers presented at the IEEE Power Engineering Society 1979 Summer Meeting, Jul 15, 1979 in Vancouver, B. C. Canada; sponsored by IEEE PE. *Papers.* 118 p. $10.00. 79TH0064-6-PWR. OOP 6. Text of "A" papers from the Summer Meeting (79CH1458-9 PWR) will be published in Dec 1979. Discussions and closures of the abstracted papers (79CH1459-7 PWR) will be published in Jul 1980.
Coverage: Control of bundle conductor motion and spacer dynamic properties; self-damping conductor; conductor galloping—Den Hartog mechanism; galloping and conductor

twisting; prevention of galloping in figure-8 cables; aerodynamic power in vortex-induced vibration of electrical transmission lines; galloping 345 kV bundled conductors; service life of steel transmission poles under dynamic loading; vortex shedding under turbulent air flow on a single vibrating cylinder; detuning for controlling galloping of single and bundle conductors; interphase spacers for controlling galloping of overhead conductors; vibration damping on long fjord crossings theoretical investigations.

Microelectronics Symposium, 3rd Biennial University /Industry/ Government, held May 21–23, 1979 in Lubbock, TX; sponsored by IEEE AES, IEEE CHMT, IEEE ED, et al. *Conf. Record.* 186 p. LC79-87984 (preassigned). $20.00. 79CH1385-4 REG5. OOP 1D and H.
Scope and sessions: The conference encompasses a discussion of educational programs in microelectronics and the role of industry and government respecting the philosophy, content, and support of such programs. Sessions cover electronic properties and devices in compound semiconductors, interface properties and devices, noise and modeling, microlithography, foreign educational programs, innovative microelectronics instructional programs, microelectronics laboratory programs, and general aspects of microelectronics education.

Parallel Processing, 1979 [8th] International Conference on, held Aug 21–24, 1979 in Bellaire, MI; sponsored by Wayne State University and IEEE C, edited by Oscar N. Garcia. *Proceedings.* 326 p. LC79-83622 (preassigned). $22.00. 79CH1433-2C. OOP 1E.
Coverage: This is the eighth of a series of annual meetings initiated in 1972 as a small meeting on a special aspect of parallel processing—RADCAP (Rome Air Development Center Associative Processor) and its applications. It has expanded into a major meeting covering every facet of the subject with contributions from all over the world. A tradition has developed characterizing this conference: the papers presented are heavily oriented towards research topics but with a very pragmatic flavor. The present program reflects some new and broader trends towards concurrent computing. The emphasis seems to have shifted from the hardware organization features to more conceptual language translator and algorithmic topics. This volume contains the 55 papers presented at the conference. Session titles include languages and translations, models and analysis of parallel computation, performance evaluation, arithmetic processing, searching, interconnection networks, synchronization, reconfigurable systems, array processors, recent results, special purpose architectures, and pipelining. The keynote address concerns itself with "Issues in Parallel Computing."

Particle Accelerator Conference, 8th 1979, Accelerator Engineering and Technology, held Mar 12-14, 1979 in San Francisco, CA; sponsored by IEEE NPS, U.S. DoE, National Science Foundation, et al., edited by R. Hendrickson. *Proceedings* in *IEEE Transactions on Nuclear Science.* Vol. NS-26. No. 3. Parts 1 and 2. Jun 1979. ISSN 0018-9499. $25.00. JH48850. (Not distributed under OOP).
Coverage: The accelerator field is enjoying a period of much activity. Participants in this Conference heard of the start-up of the PETRA storage ring at DESY and about progress in the construction of CESR at Cornell, PEP at SLAC/LBL, the Proton-Antiproton Colliding Beam Facility at CERN, and the Doubler-Tevatron and the cooling ring at Fermilab. Construction progress reports were also presented for ISABELLE and the National Synchrotron Light Source at Brookhaven, several facilities in Japan, and many other accelerator projects around the world. For the future, descriptions of how the Large Electron-Positron Project and other next-generation systems that are now under active study could meet the needs of the high-energy physics community are presented. Sessions include applications of accelerators; accelerator systems, facilities and technology; beam dynamics; heavy ion and linear accelerators; synchrotron light sources; intense pulsed beams and collective acceleration.

Pattern Recognition, International Joint Conference on, 4th, held Nov. 7–10, 1978 in Kyoto, Japan; sponsored by IAPR and IEEE C. *Proceedings.* 1166 p. $40.00. 78CH1331-8C. OOP 1E.

Coverage: The first international joint conference held after the establishment of the IAPR (International Association for Pattern Recognition) represents, in its proceedings, the state-of-the-art of the wide varieties of pattern recognition activities in the world today. This volume includes over 200 papers from sessions on statistical methods, cluster analysis, syntactic methods, learning algorithms, perceptual modeling, theoretical problems, image restoration and transformation, feature extraction and picture description, image sequence and scene analysis, character recognition, remote sensing, speech, biomedical, and industrial applications, and special hardware and systems. Also features 15 invited surveys and an invited lecture on PIPS, the Pattern Information Processing System project.

Pattern Recognition and Image Processing, 1979 IEEE Computer Society Conference on, held Aug 6–8, 1979 in Chicago, IL; sponsored by IEEE C. *Proceedings.* 659 p. LC79-87911 (preassigned). $25.00. 79CH1428-2C. OOP 1E.
Coverage: At this conference practitioners discuss approaches to flexible and intelligent human interface to pattern and pictorial data. Sessions on: image processing; pattern recognition theory; industrial and medical applications; edge processing; structural pattern recognition; applied imagery pattern recognition; curve and shape description; scene analysis; texture and mathematical foundations: two-dimensional and three-dimensional shape description and matching; scene segmentation and interpretation; SIGGRAPH/PRIP; image coding and curve approximation; remote sensing and time-varying imagery. Panels on "transportable image processing software" and "image understanding: PRIP or AI?"

Pattern Recognition (PR) and Artificial Intelligence (AI), 1978 IEEE Computer Society Workshop on, held Apr 12-14, 1978 in Princeton, NJ; sponsored by IEEE C. *IEEE Transactions on Pattern Analysis and Machine Intelligence.* Vol. PAMI-1. No. 2. Apr 1979. $10.00. JH49643. (Not distributed under OOP).
Coverage: This special issue is composed of the papers selected from the 1978 IEEE Computer Society Workshop on Pattern Recognition (PR) and Artificial Intelligence (AI) held in Princeton, NJ, Apr 12-14, 1978. The whole question of whether there exist substantial common methodologies between AI and PR was the subject of considerable discussion and varied opinions at the Workshop. The papers cover three topics where the interaction between the methodologies of PR and AI was most prevalent: analysis of images, analysis of speech, and certain general algorithms. The papers present either theoretical, or experimental results, or both with the emphasis on concrete results.

Physics and Engineering in Computerized Tomography, Workshop on, held Jan 17–19, 1979 in Newport Beach, CA; sponsored by IEEE NPS and U. of California, Irvine Extension. Papers in *IEEE Transactions on Nuclear Science.* Vol. NS-26. No. 2. Pt. 2. Apr 1979. $15.00. JH50013. (Not distributed under OOP).
Coverage: Rapid advances made during the last five years in the field of computerized x-ray tomography, also known as CT, have added a new dimension to the field of medical imaging. Development of CT is the most significant advancement in the medical imaging field since the discovery of x-rays by Roentgen in 1895. The introduction of computerized tomography has brought medical imaging into the realm of advanced physics and engineering utilizing the most sophisticated computer and radiation detector technology available. The organizing committee felt that due to the diversity of the applications and recent advances made in the field, a meeting to discuss the physics and engineering aspects of computerized tomography was needed. The conference sessions were organized into broad categories of mathematical methods, engineering developments, new methods and systems, emission tomography, nuclear magnetic reasonance, ultrasound and x-ray computerized tomography. The potentially useful methods in medical imaging are rapidly becoming more diverse and will encompass an even greater spectrum of technologies in the future. Three previous conferences on a similar theme, UCLA in 1973, Brookhaven in 1974, and Stanford in 1975, all stressed the technical aspects of medical imaging.

Plasma Science, [6th] IEEE International Conference on, held Jun 4–6, 1979 in Montreal, Canada; sponsored by IEEE NPS. *Conf. Record-Abstracts.* 184 p. LC79-87916 (pre-assigned). $25.00. 79CH1410-0NPS. OOP 1B.
Sessions on: Plasmas and neutral beams for fusion research; fusion reactor technology; advanced fuel technology; plasma heating; intense electron and ion beams; plasma focus; energy storage; magnetics; magnetofluiddynamics; plasma waves, instabilities and antennas; gaseous electronics; thermionics and plasma diodes; switchgear arc technology; arc science, plasma diagnostics; computer applications; plasma chemistry; laser isotope separation, nuclear-pumped lasers; laser-plasma interactions; field reversed ring configurations, plasma-wall interactions; high power microwave generation, space plasma and super-heavy elements.

Power Engineering Society Winter Meeting, 1979 IEEE, held Feb 4–9, 1979 in New York, NY; sponsored by IEEE PE. *Text of "A" Papers.* Approx. 1000 p. $45.00. 79CH1417-5 PWR. OOP 1G. Abstracts in *IEEE Transactions on Power Apparatus and Systems.* Vol. PAS-98. No. 4, Jul/Aug 1979. $15.00. JH48967. Individual preprints are available, $3.00 each, *write for list of titles.* (Not distributed under OOP). Accepted discussions and authors closures to be available in a separate bound volume, 79CH1418-3 PWR by Nov. 1979.
Scope: Planning research, development, design, application, construction, installation, and operation of apparatus, equipment, structures, materials and systems for the safe reliable and economic generation, transmission, distribution, conversion and control of electric energy for general industrial commercial, public and domestic consumption. Examples of session topics include international power system planning practices, security systems for nuclear power plants, hydro electric power, optimum supply and use of fuel, update on nuclear safety related equipment qualification, and energy development.

Princeton Workshop on Pattern Recognition and Artificial Intelligence, 1978, *see* **Pattern Recognition (PR) and Artificial Intelligence (AI), 1978 IEEE Computer Society Workshop on.**

Reliability Physics, 17th International Symposium, held Apr 24–26, 1979 in San Francisco, CA; sponsored by IEEE ED and IEEE R. *Proceedings.* 263 p. LC79-87999 (preassigned). $16.00. 79CH1425-8PHY. OOP 1D, F.
Coverage: This Symposium addresses the physical mechanisms for device failure, accelerated testing and related reliability issues. Equipment and analysis techniques related to these are also covered. Emphasis is on the reliability physics of LSI devices from design through processing, packaging, and testing. Sessions cover LSI failure modes, packaging and assembly, metallization and photovoltaic reliability, moisture and reliability, III–V Compound Devices, analytical techniques, and LSI device technology and reliability.

Software Management Tutorial:, held at 18th (printed in error on title page of Tutorial as 16th) IEEE Computer Society International Conference (COMPCON Spring '79), Feb. 26–Mar 1, 1979 in San Francisco, CA; sponsored by IEEE C, edited by Donald J. Reifer. © 1979. 384 p. LC78-68651 (preassigned). $16.00. EH0146-1. OOP 8. *See* July 1979, vol. 9, no. 3, p. 2 Publications Bulletin for the Digest of Papers from the Computer Society International Conference, 18th IEEE (COMPCON SPRING '79).
Coverage: Selected reprints provide the material for a basic understanding of the theories, tools, techniques, and skills of software management. Being introductory, there has been no attempt to gather all the knowledge a practicing manager might need. Provides a framework for organizing the knowledge encompassing five basic functions of management: planning, organizing, staffing, directing, and controlling. Both commercial and military systems are treated. Several case studies are provided. There is a special section on the interface between software management and techology.

Space Transportation System User Symposium, Getting Aboard the Space Shuttle; held Feb 23, 1978 in Greenbelt, MD (televised by satellite to additional locations); sponsored by IEEE AES, IEEE Washington Section, and NASA. *Proceedings—Teleconference by Satellite.* © 1979. 137 p. $13.00. TH0058-8. OOP 6.
Coverage: Functional utilization of the STS; STS operations and planning; user policies and cost; get-away specials and project enterprise; utilizing the STS: user participation, commercial applications, STS profitability; NASA Space Shuttle Program update: current FY 1979 funding considerations, Space Shuttle development plan, FY 1979 milestones (target dates), and Space Shuttle Program assessment.

Ultrasonics Symposium *see* **Medical and Biological Applications...; Nondestructive Evaluation and Industrial Applications...; Surface Acoustic Waves and Signal Processing...** all under Miscellaneous Publications.

University/Industry/Government Microelectronics Symposium, 3rd Biennial *see* **Microelectronics Symposium, 3rd Biennial University/Industry/Government.**

Special Issues

The special issues listed below have become available since the last issue of this Bulletin. Special issues devoted entirely to conferences are listed in the Conference Publications section.

Applications of Electromagnetic Theory to Geophysical Exploration; *Proceedings of the IEEE.* Vol. 67. No. 7 July 1979. $10.00. JH47050.
Coverage: Geophysical exploration is a manifestation of the need to locate natural resources that are hidden from view. The purpose of this issue is to provide a quantitative understanding of how electromagnetic waves interact with geological media for a reliable interpretation of measured data. Half the papers in this issue were presented at a special session at the General Assembly of the International Union of Radio Science held in Helsinki, Finland, in early August 1978. Specific topics dealt with in this issue include radar concepts as applied to subsurface exploration, image theory, the influence on inhomogeneities within the earth on a remote sensing device, the role of transients in electromagnetic exploration, and transient excitation of an idealized layered earth model. These previous topics deal with active sources. For passive approaches such as exploiting the earth's natural electromagnetic field contributions include the potential of this method in locating major geological features, the fundamental model of magnetotelluric sounding, lateral variations of earth's conductivity, electromagnetic induction effects at an ocean coast, and the data-processing aspects of interpretation.

Communications Privacy; *IEEE Communications Society Magazine.* Vol. 16. No. 6. Nov. 1978. $6.00. JH43091.
Scope: The intriguing field of Communications Privacy is the topic of this Special Issue. The first four papers are introductory. DES (Data Encryption Standard) is discussed in terms of why it was needed, how it came about, its basic algorithm, and a review of some of the issues regarding its efficacy. There is an overview of the use of a cryptographic algorithm, such as DES, in communication systems. The basic idea of the public key approach to cryptography is briefly outlined along with a description of its applications to communications. The next three papers cover the same topics but with more technical depth. The concept of public key cryptosystems is explained along with known techniques for implementation. A comparison of the computational effort involved in implementing these public key algorithms is offered. The fundamental notions of cryptography and the DES are reviewed with a description of a new data communications network being designed from the outset to incorporate cryptographic protection. A fairly detailed description of one possible approach to a secure digital voice network based on the DES is offered. Finally, the involvement of NSA (National Security Agency) in the development of the DES is discussed.

Consumer Text Display Systems (Teletext and Viewdata) *see* **Consumer Electronics, 20th Annual Spring Conference on,** under Conference Publications.

Database Machines; *IEEE Transactions on Computers.* Vol. C-28. No. 6. Jun 1979. $10.00. JH47506.
Coverage: Database machine (DBM) design, a relatively new field, is the result of an architectural approach which raises the level of the interface from the central processor unit (CPU) to the storage subsystem, and distributes processing power closer to the devices on which data are stored. Large-scale integration (LSI) technology is another impetus. A wide variety of ideas concerning how to structure a DBM, the interfaces and tasks it is to perform, are being put forth. Papers covering topics such as hardware algorithms for nonnumeric computation, DIRECT—a multiprocessor organization for supporting relational database management systems, a design for a list merging network, DBC—a database computer for very large databases, architectural features and implementation techniques of the multicell CASSM, and RAP. 2—an associative processor for databases and its applications. Many contributions were derived from the Database Architectures session of the Fifth Annual Symposium on Computer Architecture. *See* Jul 1978 bulletin for Conf. Record.

Solid-State Circuits for Telecommunications; Joint Special Issue published simultaneously as *IEEE Transactions on Communications.* Vol. COM-27. No. 2. Feb 1979. $10.00 JH47902 and *IEEE Journal of Solid-State Circuits.* Vol. SC-14. No. 1. Feb 1979. $10.00. JH49247.
Coverage: Rapid progress has been made in applying integrated-circuit technology to specific circuit and subsystem functions in telephone communication systems with the objectives to reduce cost, power consumption, and physical size of telephone equipment while increasing its reliability and adding service features. Digital applications of integrated circuits have attracted more attention than analog applications. Effective utilization of integrated circuits in telephone applications depends on good communications between system designers and components engineers which this Joint Special Issue hopes to further. Most of the papers in this issue describe specific developments of large-scale integrated (LSI) circuits for telephone system applications. The remaining papers describe more general work which may find important applications in telephony in the future. Some of the papers cover topics such as integrated PCM codec, an NMOS telephone code for transmission and switching applications, integrated DTMF receiver, a sampled analog MOS LSI adaptive filter, and a new family of low-delay FM detectors.

IEEE Standards

ANSI/IEEE Std C57. 106-1977 American National Standard-IEEE Guide for Acceptance and Maintenance of Insulating Oil in Equipment; (Revision of IEEE Std 64-1969) Oct 14, 1977. 28 p. $6.00. SH06486. OOP 5.

IEEE Std 4-1978 IEEE Standard Techniques for High-Voltage Testing, 6th ed.; (Revision of IEEE Std 4-1969) ©1978. 125 p. $13.00. SH06965. OOP 5.

IEEE Std 268-1979 IEEE Standard Metric Practice; (Supersedes IEEE Std 268-1976) Aug 8, 1979. 47 p. $5.00. SH07633. OOP 5.

IEEE Press

Engineer in Transition to Management: A Learning Tool for the Engineer or Other Professional Newly Promoted to Management, by Irwin Gray, Envort-Gray Corp. © 1979. 127 p. ISBN Clothbound: 0-87942-111-8. ISBN Paperbound: 0-87942-112-6. LC78-61533 (preassigned). $18.95. PC01164 (clothbound only). OOP 2. Also distributed through John Wiley & Sons, Inc. Wiley Order Numbers Clothbound: 0-471-05212-4 and Paperbound: 0-471-05213-2.
Contents: Introduction; Responsibility for the Performance of Others; Leadership: Three Approaches; Responsiblity for the Bottom Line; Red Tape and How to Deal With It; The Managers Basic Bookshelf.

Miscellaneous Publications

Computer-Aided Design Tools for Digital Systems, Tutorial [originally a text for a tutorial held at the 5th Annual Symposium on Computer Architecture, Apr 3–5, 1978 in Palo Alto, CA], edited by W.M. van Cleemput. 2nd edition. © 1979. 168 p. LC79-84649 (preassigned). $12.00. EH01321. OOP 8.
Coverage: The papers in this tutorial emphasize the aspects of design automation of particular interest to computer architects. Included are a survey of computer design methodology and its relationship to design automation tools and a description of an integrated design automation system. A series of papers dealing with architectural level descriptions is followed by a section on the simulation of digital systems at a very high level and a concluding section on register and gate level simulation techniques.

IEEE 1978 Student Papers [winners of 1978 Student Paper Contest]; 264 p. $14.00. TT0113-1.
Scope: Fourth annual publication of student-authored papers which have been judged to be the best in the Regional IEEE Student Paper Contests.

LSI Testing, Tutorial [initially presented at COMPCON '77 Spring, Feb 28–Mar 3, 1977 in San Francisco, CA] edited by Warren G. Fee. 2nd edition. © 1978. 173 p. LC78-70843 (preassigned). $12.00 EH01222. OOP 8.
Coverage: The advent of LSI components is presenting challenges not previously faced by test engineers. Some of the problems with the testing of LSI devices are that they must be tested at full duty cycle, they require input patterns which may be hundreds of thousands of clock cycles long, and the internal nodes are not available. This last problem has made it difficult to isolate and duplicate specific failure mechanisms which has led to confusion as to reliability problems as opposed to test problems. It is important that any test plan for LSI devices try to differentiate between reliability and test problems. Test engineers must handle these new challenges. In the event that they fail, it becomes incumbent upon the design engineer to define test criteria for the LSI devices to insure the success of the overall product. Section one of this text begins the study of LSI testing with a look at the LSI components tester and the testing done by the semi-conductor manufacturer. Microprocessor testing is explored in section two. Memory testing is almost synonymous with LSI testing. Section three looks at patterns, pattern sensitivity, and provides a guide for the selection of test patterns. Section four rounds out the study with a practical, common sense approach to reducing failure rates in LSI components.

The following three volumes are collected papers on specific subjects taken from the out-of-print Ultrasonics Symposium Proceedings: 1970, 1972–1977.

Medical and Biological Applications, Collected Papers on From the IEEE Ultrasonics Symposium Proceedings (1972–1977), edited by J. de Klerk and B. R. McAvoy. © . 596 p. (LC74-77824 printed in error on title page; there is no LC for this pubn.) $32.00. TH0052-1. OOP 6.
Coverage: Discusses the use of ultrasonics in medicine and biology. A sample of the papers included cover such topics as specific tumor diagnosis by ultrasound imaging, measuring heart stroke volume, scanning acoustic microscope, automatic echoencephalography, computer-controlled two-dimensional cardiac motion imaging, A-scope determination of cerebral states, diagnostic capabilities of ultrasound in medicine—past, present, and future, real-time ultrasonic B-scan artery-imaging system, synthetic aperture holographic imaging—a medical application, instrumentation for acoustical discrimination of biological cells, effect of low intensity ultrasound on nucleic acid components, research in cancer therapy with ultrasound, new acoustical imaging method by means of hologram matrix, et al. A total of 128 reprinted papers.

Nondestructive Evaluation and Industrial Applications, Collected Papers on From the IEEE Ultrasonics Symposium Proceedings (1970–1977), edited by J. de Klerk and B. P. McAvoy. ©.

699 p. (LC74-77824 printed in error on title page; there is no LC for this pubn.) $32.00. **TH0054-7.** OOP 6.

Coverage: Discusses the use of ultrasonics in nondestructive evaluation and industrial applications. A sample of the papers included cover such topics as ultrasonic thermometry, acoustic emission, large-area ultrasonic fields for acoustic imaging, metal deformation with ultrasound, transmission frequency spectra of ultrasonic waves through multi-layer media, government regulation of acoustic design, directional ultrasonic radiators in air and water, new acoustic imaging systems for non-destructive testing, consumer produce applications of ultrasonics, ultrasonic scattering studies for failure prediction, ultrasonic experiment in reducing smog, ultrasonics: historical aspects, defect characterization by ultrasonic signal process techniques, et al. A total of 144 reprinted papers.

Surface Acoustic Waves and Signal Processing, Collected Papers on From the IEEE Ultrasonics Symposium Proceedings (1970–1977), edited by J. de Klerk and B. R. McAvoy. ©. 2419 p. (LC74-77824 printed in error on title page; there is no LC for this pubn.) $100.00. **TH0053-9.** OOP 6.

Coverage: Discusses the use of ultrasonics for surface acoustic waves in devices employed for signal processing. A sample of the headings papers are organized under include fabrication and materials, filters, RAC's, transform devices, non-linear effects and device applications, propagation, measurement, transducers, guided surface waves, acoustic waveguides, convolvers and multistrip couplers, non-linear and acoustoelectric effects, signal processing, surface and bulk wave propagation, instrumentation techniques, delay lines, waveguides, oscillators, resonators, improved surface wave materials, phenomena affecting saw device performance, saw acousto-optic interactions, surface wave transducers and scattering, acousto-optic and acousto-electric devices, et al. A total of 421 reprinted papers.

Supplement to Literature in Digital Signal Processing: Author and Permuted Title Index, supplement to the revised and expanded edition, edited by James F. Kaiser and Howard D. Helms, ©1979. Approx. 235 p. $12.00. **JH4686-2 ASSP.** OOP 7.

Coverage: This supplement indexes 2,442 titles in digital signal processing literature, mostly from January 1975 through June 1978. It supplements *Literature in Digital Signal Processing: Author and Permuted Title Index,* revised and expanded edition, edited by Howard D. Helms, James F. Kaiser, and Lawrence R. Rabiner, all of Bell Laboratories, ©1975, IEEE Press. **ISBN Clothbound: 0-87942-051-0, ISBN Paperbound: 0-87942-052-9, LC75-6135,** $16.95, **PC00448,** which was originally conceived as a companion volume to *Digital Signal Processing,* edited by Lawrence R. Rabiner, Bell Laboratories and Charles M. Rader, M.I.T., ©1972, IEEE Press, **ISBN Clothbound: 0-87942-017-0, ISBN Paperbound: 0-87942-018-9, LC72-90358,** $19.95, **PC00174** and *Selected Papers in Digital Signal Processing II,* edited by the Digital Signal Processing Committee of the IEEE ASSP, ©1976, IEEE Press, **ISBN Clothbound: 0-87942-059-6, ISBN Paperbound: 0-87942-060-X, LC 75-22925,** $21.95, **PC00562.**

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