



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 the July 1979 issue all pre-assigned LC numbers are announced in the entries. The standard availability of LC cards for pre-assigned numbers is approximately six months after publication date.

Adaptive Processes, Symposium on, see Decision & Control, 18th IEEE Conference on, including the Symposium on Adaptive Processes

Applied Superconductivity Conference, 8th 1978, held Sep 25-28, 1978 in Pittsburgh, PA, sponsored by APS, IEEE, U.S. DoE, et al. Proceedings in *IEEE Transactions on Magnetics*. Vol. MAG-15. No. 1. Jan 1979. ISSN 0018-9464. \$35.00. JH48652. (Not distributed under OOP).

Scope and Sessions: The main goal of this Conference, which began in Brookhaven, N.Y. in 1966, is the promotion of commercial uses of the applications of superconductivity. Papers submitted to the Conference in the past and at present tend to sort themselves into three categories: materials and conductors; electronics; magnet and power applications. Sessions: RF cavities and resonators; magnet and conductor stability; multifilament Nb₃Sn composites; accelerator applications, magnets, and systems; superconducting power transmission and switching; conductor losses; sub-microwatt devices and applications; MHD and energy storage magnets; multifilament V₃Ga, NbTi, and Nb₃Sn; emerging materials; fusion magnets and systems; high energy physics applications; superconducting machinery; magnets, conductor stability, and material properties; large scale conductors; utility applications; fusion magnets and quench protection; invited papers.

Computer Applications in Radiology, 6th Conference on, and Computer/Aided Analysis of Radiological Images; held Jun 18-21, 1979 in Long Beach, CA, sponsored by the American College of Radiology and IEEE C. Proceedings. 427p. LC79-89821 (preassigned). \$28.00. 79CH1404-3C. OOP 1E.

Scope and Contents: The aim of this Conference is the discussion of recent advances in the use of computers in the analysis of medical radiographs. Topics covered: current applications in radiology; emerging software and hardware technologies; cost and benefit in radiological imaging; radiology and thermography; nuclear medicine—display technique; computed tomography; ultrasound; radiology information. The conference Computer/Aided Analysis of

Radiological Images was previously titled Symposium on Computer Aided Diagnosis of Medical Images and was held once in 1976. Computer Applications in Radiology has always maintained that title.

Computers in Ophthalmology, 1st, held Apr 5-6, 1979 (1978 printed in error on the title page and on the cover) in St. Louis, MO; sponsored by IEEE C. Proceedings. 273p. LC79-90982 (preassigned). \$20.00 79CH1517-2C. OOP 1E.

Coverage: Computers are being employed in the practice of medicine with increasing frequency as the progress in mini- and microcomputers continues to make the computer a more accessible tool for health professionals. This first Computers in Ophthalmology conference deals with the application of computers to ophthalmology in both patient care and in research. The program is divided into eight sessions with a tutorial beginning each session. In fact, the conference was designed "to be highly tutorial in nature." Sessions: ophthalmology; computers in the ophthalmologist's office; ophthalmic data bases; understanding from data; ophthalmic imaging; visual field testing; ophthalmic testing; aids for the visually handicapped.

Consumer Electronics, 20th Chicago Spring Conference on, held Jun 4-5, 1979 in Chicago, IL; sponsored by IEEE BCCE and IEEE Chicago Section. *IEEE Transactions on Consumer Electronics*. Vol. CE-25. Nos. 4 and 5. Aug and Nov 1979. ISSN 0098-3063. \$10.00 each. JH47845 and JH50070. (Not distributed under OOP). See Oct 1979 bulletin for special issue on Consumer Text Display Systems (Teletext and Viewdata).

Scope: Television; radio; audio; electronic/video games; projection TV; personal products/watches/calculators; microprocessor controlled products; automated production; semiconductors for consumer products; passive components; design for reliability/producibility. Some specific technical paper subjects: electron guns for color TV; compact TV set with low power consumption; chrome processing integrated circuit; microprocessor controlled memory tuning system; universal video interface; innovative add-on TV products. November issue also contains the 1979 Index to this *Transactions*.

Decision & Control, 18th IEEE Conference on, including the Symposium on Adaptive Processes, held Dec 12-14, 1979 in Fort Lauderdale, FL; sponsored by IEEE CS. Proceedings. 2v. 1078p. LC79-640961 (serials entry). \$60.00 79CH1486-0CS. OOP1A.

Scope and Sessions. The Conference features a slight alteration in title (see IEEE Publications Bulletin Supplement 1: Library Information Update, April 1980). The numbering of the Symposium on Adaptive Processes is now applied to both. The program for this meeting features topics in control theory and application such as linear systems, feedback design, communications, reliable control systems, and stochastic control. Sessions: Control of large structures; systems—linear, reliable control, manufacturing, large scale, electric power; feedback design; statistical models of images; automotive fuel economy; communications; stochastic processes, systems, control; adaptive control—approaches, global outlook, applications; structure control in space; robots,

manipulators, and prostheses; utility load modeling and management; optical tracking; entire eigenstructure control; multi-target tracking and data association; inflation, macroeconomic activity and control; energy conservation—aircraft applications, role of automatic control; mathematical programming and control; stability; robust detection and estimation; estimation, smoothing and identification; aerospace applications; weather dynamics and modification; algebraic and geometric methods in system theory; fuzzy set theory and applications; pattern recognition applications; microprocessors and digital implementation; observers and model reduction; power systems and process control; solar heating and cooling; system identification; differential games; human decision and control in stressful environments.

Device Research Conference, 37th, held Jun 25–27, 1979 in Boulder, CO; sponsored by IEEE ED. Abstracts in *IEEE Transactions on Electron Devices*. Vol. ED-26. No. 11. Nov. 1979. ISSN 0018-9383. \$10.00. JH48256. (Not distributed under OOP)

Sessions: High-speed devices; MOS devices; beam processing; optical devices; solar cells and heterojunctions; infrared devices; 1.0–1.6- μm sources and detectors for fiber optics; silicon devices; III-V materials; novel devices.

Electrical and Electronic Measurement and Test Instrument Conference (EEMTIC), 1979, held May 15–17, 1979 in Ottawa, Ontario, Canada; sponsored by IEEE IM and IEEE Ottawa Section. Papers in *IEEE Transactions on Instrumentation and Measurement*. Vol. IM-28. No. 4. Dec 1979. ISSN 0018-9456. \$10.00. JH48587. (Not distributed under OOP.)

Coverage: This Conference, last held in 1975, is normally biennial but was interrupted due to the omission of the Conference in 1977. The prominence of the microprocessor is obvious from the number of papers dealing with microprocessor-based instruments. The Conference is considered "applications-oriented." Medicine is one important application. The technical papers fall under eight categories: automated measurement; microprocessors in biological and medical instrumentation; microprocessor-controlled scientific instruments; measurements of dielectric properties; microcomputer-based instruments; microprocessor-controlled instrumentation systems; microprocessors in industrial instrumentation; frequency and time measurements. Issue also contains 1979 Index to this *Transactions*.

Electrical, Electronics Conference and Exposition, International, held Oct 2–4, 1979 in Toronto, Canada; sponsored by IEEE Canadian Region. *Conf. Digest*. 215p. LC79-90130 (preassigned). \$25.00 79CH1473-8 REG 7. OOP IH.

Scope and Sessions: This biennial Conference is concerned with recent developments in electronic methods and machinery. The theme of this year's meeting is applications for the 1980's. The papers fall into five categories: communications, power systems, biomedical engineering, computers, and electronics. Sessions: power system—planning, operation, and dynamics control; computer software, hardware, and control; alternate energy systems; communications—optical, satellite, digital; traffic electronics & control; transformers and transmission lines; biomedical—engineering, instrumentation, data bases and information systems; electronic packaging; microcomputer applications; rotating machines; high voltage insulation & protection; electronic circuits & systems; rehabilitation aids; antennae and microwave; student papers.

Electromagnetic Compatibility, IEEE [21st] International Symposium on (announced in error as 22nd Symposium in Publication), held Oct 9–11, 1979 in San Diego, CA; sponsored by IEEE EMC. *Conf. Record: EMC Technology—A Legacy For the 1980's*. 451p. LC78-15514. \$35.00 79CH1383-9 EMC. OOP IC.

Scope and sessions: The technical papers presented at this Symposium emphasize the multi-disciplinary progress being made today as well as the many challenges of the next decade. EMC was essentially a DoD-oriented group dealing

with weapons and communication systems. Now electronics is entering our everyday lives in the form of television, microwave ovens, home computers, microprocessors for our automobiles, and bio-medical instruments used by doctors. During this transitional period, and beyond, the list of major segments of industry and markets continues to broaden, posing an ever-increasing challenge to the EMC engineer in terms of the communications needs of the entertainment industry, military and commercial communications, satellites, digital data systems, and other things still in the laboratory. Sessions: electromagnetic pulse, electromagnetic shielding; modelling; lightning; components; advanced composites; EMC design; spectrum compatibility; EM environments; coupling; analysis; communications; spectrum management; measurements; regulations; instrumentation.

Electronic Components Conference, 29th, held May 14–16, 1979 in Cherry Hill, NJ; sponsored by IEEE CHMT and EIA. Selected contributions in *IEEE Transactions on Components, Hybrids, and Manufacturing Technology*. Vol. CHMT-2. Nos. 3 and 4. Sep and Dec 1979. ISSN 0148-6411. \$10.00 each. JH47878 and JH47886. (Not distributed under OOP). See Jul 1979 bulletin for Proceedings.

Coverage: These two Special Issues of the *Transactions* contain the best papers from the Electronic Components Conference. Many topics concerning component, hybrid, and manufacturing technologies are represented. Some of the paper topics: Diamond-Tipped and Other New Thermodes for Device Bonding; Bumped Tape Automated Bonding (BTAB) Practical Application Guidelines; System for Analyzing Contact Resistance; Role of Hybrids in LSI Systems; Soft Errors in VLSI—Present and Future; Extension of High-Temperature Electronics; Thick-Film Fine Pattern Formation by a Photolithographic Process; Performance of the Porcelain-Metal Substrate at Microwaves; Hybrid Compatible Transformer.

Electronics and Aerospace Systems Convention, IEEE (EASCON '79), held Oct 9–11, 1979 in Arlington, VA; sponsored by IEEE Washington Section and IEEE AES. *Record—Spanning the Spectrum: A Revolution in Opportunities*. 3v. 672p. (Check the Table of Contents to note that Vol. 1 ends on p. 96 and Vol. 2 begins on p. 201; Vol. 2 ends on p. 431 and Vol. 3 begins on p. 501.) LC73-159381 (serial entry). \$25.00. 79CH1476-1 AES. OOP IC. (NOTE: The title pages in these volumes contain some incorrect information. The September 1978 conference date is incorrect. The "Contents" is from the 1978 Record. Correct discrepancies in this by comparing headings and page numbers with actual volume in hand. Copyright date on verso of title page should be 1979 instead of 1978.)

Sessions cover topics such as: Satellite communications; communications systems—business and civil; C³ technology; EM systems; non-COMSAT applications; Gigahertz analog and digital signal processing; overview; atmospheric effects; telecommunications and information policy; earth surface effects; integrated electronics and submicrometer dimensions; network architecture; interoperability; air traffic control; acoustic transduction; target/battle environment; towed arrays; multiple access techniques; image processing; geographically distributed networks; high altitude long endurance sensor and communication platforms; office of the near future; optics in sonar; encryption for the public sector; position location. There is an overview of the classified program.

Energy Conversion Engineering Conference, 14th Intersociety, held Aug 5–10, 1979 in Boston, MA; sponsored by IEEE AES, ACS, IEEE ED, et al. *Proceedings*. 2v. 2078p. + 294p. of abstracts of 1976–1979 Conference Papers; 1975–1979 Subject and Author Index. LC79-89629 (preassigned). \$125.00. 79CH1477-9 ENERGY. OOP IC, D.

Coverage: This Conference brings together experts in many scientific disciplines to discuss the topic of energy sources and what technology is needed to convert these sources for our use. The program has always been concerned with the less traditional energy conversion methods and continues to

feature sessions on solar and conservation technologies plus adding new areas such as biomass, heat pumps, and desiccant cooling. Nuclear reactor safety is discussed along with a special session devoted to the technology of energy conversion in Japan. That nation has, in the past years, shown itself to be a major source of new technology in the field of energy conversion. Examples of session topics: terrestrial photovoltaic; thermal; magnetic; electric vehicles; coal; fluidized bed processing; geothermal energy. The Proceedings also features abstracts of conference papers from 1976–1979 and a subject and author index that covers 1975–1979. These additions make the volume a valuable reference tool.

Engineering in Medicine and Biology, 32nd Conference on, held Oct 8–10, 1979 in Denver, CO; sponsored by AEMB and IEEE EMB. *Proceedings*. Vol. 21. 294p. ISSN 0589-1019. LC61-24788 (serials no.). \$40.00. 79CH1481-1EMB. OOP 1F. **Coverage:** This Conference began in 1948 as the First Annual Conference on Medical Electronics sponsored by the Instrument Society of America (ISA), the American Institute of Electrical Engineers (AIEE, later to merge with the IRE to become the IEEE), and professionals of the x-ray and radiation instrument field. This year's sessions: microprocessors/microcomputers; patient monitoring/anesthesiology; biomechanics; cardiovascular—assist devices, measurement/defibrillation, dynamics, miscellaneous; health care systems/management; ultrasonics/imaging; models; assistive devices; ultrasonics/instrumentation; hemodynamics—blood flow, shear/leg pressure, occlusive flow/miscellaneous; imaging; respiratory parameters; EEG/EKG; respiratory equipment/telemetry; vision/education; transducers; models/heat; instrumentation; electrical systems (EEG, ECG, pacing, stimulation); biomechanics/biomaterials/devices for disabled; safety/data acquisition. Short courses: pressure on human tissue; microprocessor systems design; clinical engineering—codes, standards, regulations; patent law and product liability. Constituent sessions: medical device standardization; electrical injuries; bioengineering of comfort; automating information in a multi-hospital system.

Infrared and Millimeter Waves and Their Applications, 4th International Conference on (formerly International Conference on Sub-Millimeter Waves and their Applications), held Dec 10–15, 1979 in Miami Beach, FL; sponsored by IEEE MTT, IEEE QEA, and URSI, edited by S. Perkowitz. *Conf. Digest*. 281p. LC79-87985 (preassigned). \$20.00. 79CH1384-7 MTT. OOP 1D. (The *Proceedings* for this Conference will appear in the *Journal of Infrared and Millimeter Waves* (Plenum Publishing Corp.) which is quarterly. The 1st issue is expected in late March, 1980.)

Coverage: Recognition of the importance that understanding propagation in the atmosphere and the different types of guided propagation should not be limited to one wave length prompted changing the title of this Conference to Infrared and Millimeter Waves. The papers segregated themselves into areas similar to previous years with approximately half devoted to sources, especially types of lasers, and to solid-state spectroscopy. More papers were concerned with infrared-millimeter calibration problems and plasma interactions to single out two areas with a noticeable change in volume of contributions. Sessions: semiconductors; plasma interactions; spectroscopy; applications; lasers; calibration standards; Schottky detectors, mixers and receivers; free electron laser; detectors; atmospheric physics and propagation; Tokamak emission diagnostics; submillimeter materials; gyrotron; atmospheric propagation; detectors, mixers, and receivers; astronomy; guided propagation and devices; new applications and directions; spectroscopy of magnetic materials and semiconductors; millimeter sources and devices. A series of nine books dealing with review topics in the area of infrared and millimeter waves is scheduled for publication by Academic Press. See p.iii of this Conf. Digest for further information.

Magnetics Conference (INTERMAG), 24th International and 25th Conference on Magnetism and Magnetics Materials (MMM) held as 2nd Joint INTERMAG-MMM Conference, Jul 17–20,

1979 in New York, NY; sponsored by IEEE MAG and American Institute of Physics. *Proceedings* published in two volumes: INTERMAG papers in *IEEE Transactions on Magnetics*. Vol. MAG-15. No. 6. Nov 1979. ISSN 0018-9464. \$10.00. JH48702. (Not distributed under OOP). MMM papers in the *Journal of Applied Physics*. Vol. 50. No. 11. Pt. II. Nov 1979. Order directly from AIP.

Scope: Amorphous magnetic materials; magnetic—transportation, separation, recording heads, thin films and wires; recording—theory and materials; eddy-currents and field calculations; silicon iron and other alloys; bubble devices—unconventional, ion implantation in, permalloy; microwave materials and devices (microwave, magnetoelastic); hard magnetic materials; power and electronic devices; soft magnetic materials—ferrites; memories—superconducting, bubble, and others. Panel discussion: Impact of Recent Cobalt Supply Situation on Magnetic Materials and Applications. New feature of this Joint Conference was the Photographic Salon, selections of which appear in the two sections of the *Proceedings*. Table of Contents for the *Journal of Applied Physics* issue containing the MMM papers is included. This issue also contains the 1979 Index to this *Transactions*.

Medicine and Biology, 32nd Conference on Engineering in, see Engineering in Medicine and Biology, 32nd Conference on

Micro & Mini Computer Conference, [1st] International, held Nov 14–16, 1979 in Houston, TX; sponsored by IEEE Region 5, IEEE C, and ACM. *Conf. Record*. 332p. \$22.00. 79CH1474-6 MINI. OOP 1E and H.

Coverage: The present uses and possible future developments of mini and micro computers are discussed. Sessions cover these topics: computer terminals and data entry; control, memory, special computer, communication, and educational systems; microprocessors for agricultural production; software engineering methodology; advanced computer systems for digital signal processing; intermediate and high-level languages; arithmetic hardware alternatives; system integration and simulation; disc memories; microprocessor-based medical instrumentation; multi-processor systems—hardware, software, applications; special applications; graphics at Los Alamos Scientific Lab.

Microcomputer, I/O, Peripherals and Software, 2nd IEEE Workshop on, held Apr 10–11, 1979 and **Microcomputer Firmware Workshop**, held Mar 6–7, 1979 both in Laurel, MD; sponsored by IEEE C and Johns Hopkins University. *Proceedings—IEEE Computer Society Micro Computer Firmware and I/O Workshops* (2 sections). 99p; 149p. LC79-90547 (preassigned). \$20.00. TH0065-3. OOP 6.

Microcomputer, I/O, Peripherals and Software Sessions: I/O Systems; Standards; Software/Systems Development Tools and Techniques; Software/System Technology Trends.

Microcomputer Firmware Sessions: Military Systems; Technology; Software and Algorithms; Industrial Requirements.

Nuclear and Space Radiation Effects, 16th IEEE Conference on, held Jul 17–20, 1979 in Santa Cruz, CA; sponsored by IEEE NPS and the University of California-Santa Cruz. *Proceedings in IEEE Transactions on Nuclear Science*. Vol. NS-26. No. 6. Dec 1979. 476p. + 1979 NS Index. ISSN 0018-9499. \$10.00. JH48884. (Not distributed under OOP).

Technical sessions: Radiation effects in bipolar microcircuits; basic radiation mechanisms in materials and devices; energy deposition and dosimetry; system responses from SGEMP, IEMP, and EMP; basic processes in SGEMP and IEMP; radiation effects in MOS microcircuits; space radiation effects and spacecraft charging. This issue contains the 1979 Index to the *IEEE Transactions on Nuclear Science*.

Ophthalmology, Computers in, see Computers in Ophthalmology

Power Engineering Society Discussions and Closures of Abstracted Papers from the Winter Meeting, 1978 IEEE, held Jan 29–Feb 3, 1978 in New York, NY; sponsored by IEEE PE. Approx. 180p. (LC76-4401 printed in error in this pubn. There is no LC for this volume). \$16.00. 78CH1296-3 PWR. OOP 1G.

See Oct 1978 bulletin for Conf. Record and Abstracts.

Coverage: Written discussion to papers presented at the Winter Meeting and authors' closing statements.

Power Engineering Society Summer Meeting, 1979 IEEE, held Jul 15–20, 1979 in Vancouver, British Columbia, Canada; sponsored by IEEE PE. *Text of "A" Papers*. Approx. 1200p. \$45.00 79CH1458-9 PWR. OOP 1G. 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, 79CH1459-7 PWR, by April, 1980.

Subject areas: Insulated conductors; energy development; control room design; load modelling; power systems—operation and training, communications, relaying, computational aspects of analyses, international planning practices, stability studies; reliability; DC insulator studies; aeolian vibration; distribution systems; microprocessors; solar energy systems; nuclear energy; system planning; system dynamic performance; surge protective devices; waked-induced oscillations and galloping; adaptive controls of excitation systems; lightning and switching impulse; dynamic analysis of AC/DC systems; security assessment and dispatch; superconducting generators; switchgear; data acquisition and grounding in substations; national energy-electricity forecasts; synchronous, induction, and rotating machinery; general systems; transmission electric and magnetic fields; power engineering education; computer relaying; transient performance and analysis; load management systems; scheduling and dispatching; turbine generator shaft torsional analysis; high-voltage measurement techniques; HVDC lines; live line maintenance; transmission line design; power generation; electro-mechanical interactions; power and resistance measurement; transformers; interference of AC lines.

Pulsed Power Conference, 2nd IEEE-International, held Jun 12–14, 1979 in Lubbock, TX; sponsored by IEEE South Plains Section, U.S. Air Force Office of Scientific Research, U.S. Army, et al., edited by A.H. Guenther and M. Kristiansen. *Digest of Technical Papers*. 508p. LC79-90330 (preassigned). \$60.00. 79CH1505-7. OOP 1H.

Coverage: Pulsed power research and development has, for the most part, been related to the areas of defense and energy. Now it is being applied in new ways and this growth in importance has led to the Pulsed Power Conferences. Sessions: electron and ion diodes; magnetic components; power conditioning; breakdown mechanisms; novel applications; switching; accelerators; applications; inductive and capacitive energy storage systems; electro-mechanical energy storage systems; diagnostics and miscellaneous; vacuum power flow.

Radiology, 6th Conference on Computer Applications in, see Computer Applications in Radiology, 6th Conference on . . .

Superconductivity Conference, 8th 1978 Applied, see Applied Superconductivity Conference, 8th 1978

Telecommunications Energy Conference (INTELEC 79), International, held Nov 26–29, 1979 in Washington, DC; sponsored by IEEE C. *Proceedings*. 491p. LC79-90286 (preassigned). \$25.00 79CH1502-4. OOP 1C.

Scope and Sessions: New developments in the area of telephone energy systems are explored in this Conference. Some of the topics covered in the sessions include DC and AC power plants, UPS (uninterruptible power service), power conversion circuits, prime power and energy storage, energy economics, building and environmental systems, power semiconductors, components and magnetic devices, and auditory components. The Conference is aimed at equipment designers, design operation managers, and equipment users. Sessions: international trends; testing and equipment standards; components and devices; protected AC systems; solar energy; prime and standby power; batteries; DC-DC converters; energy conservation and management; protected AC equipment; DC power plants; wind energy; ringing, tone, and cadence.

Ultrasonics Symposium, 1978 IEEE, held Sep 25–27, 1978 in Cherry Hill, NJ; sponsored by IEEE SU. Abstracts in *IEEE Transactions on Sonics and Ultrasonics*. Vol. SU-26. No. 2. Mar 1979. ISSN 0018-9537. \$10.00. JH49494. (Not distributed under OOP). See Jul 1979 bulletin for Proceedings.

Vehicular Technology Conference, 29th IEEE, held Mar 27–30, 1979 in Arlington Heights, IL; sponsored by IEEE VT and IEEE Chicago Section. Abstracts in *IEEE Transactions on Vehicular Technology*. Vol. VT-28, No. 3. Aug 1979. ISSN 0018-9545. \$10.00. JH49569. (Not distributed under OOP). See Jul 1979 bulletin for Conf. Record.

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.

Analog Circuits; IEEE Journal of Solid-State Circuits. Vol. SC-14. No. 6., Dec 1979. ISSN 0018-9200. \$10.00. JH49296.

Contents: New developments in analog integrated circuits are featured in this Special Issue which contains enlarged versions of selected papers from the 1979 International Solid-State Circuits Conference (see July 1979 Bulletin for Digest of Technical Papers). The content of the papers show some new trends in this area: 1) Less division between analog and digital technologies, and 2) Increased use of MOS technology in precision analog design which was previously the concern of bipolar technology. Many of the papers deal with MOS technology, a reflection of its increased importance. The papers are grouped into these subject areas: A/D and D/A conversion; telecommunication IC's; CCD and SC filters and signal processor concepts and techniques; and amplifier techniques. This issue also contains the 1979 Index to this *Journal*.

Automated Guideway Transit; IEEE Transactions on Vehicular Technology. Vol. VT-28. No. 1. Feb 1979. ISSN 0018-9545. \$10.00. JH49544.

Coverage: In the last 20 years, solving transit problems has been linked to the use of automated transit systems which deploy vehicles operating automatically on exclusive guideways. The term applied for this is AGT (automatd guideway transit) systems. In the early 1960's these first appeared in defense and industrial process control which led to the initial development of urban systems. Problems in operation appeared and it was concluded that research continue in solving these problems in combination with a study of existing systems. A comprehensive governmental research program was initiated to accomplish this along with an urban AGT system development project. The problem of control of automated transit vehicles is highlighted in this issue. Some of the technical paper topics: computer models for AGT system operations studies; hierarchical vehicle management concept; headway safety policy for automated highway operations; a rail-transit people-mover headway comparison; short station ramps for AGT systems; programmable digital vehicle control system.

Brown, William Fuller Jr.; IEEE Transactions on Magnetism. Vol. MAG-15. No. 5. Sep 1979. ISSN 0018-9464. \$10.00. JH48694.

Coverage: This issue of the *Transactions* is dedicated to William Fuller Brown, Jr., a leader in the field of magnetism, celebrating his 75th birthday. His notable contributions to the field of magnetism coupled with his active concern in nurturing the interest of others in this field prompted the creation of this Special Issue. A biography of him is included along with a bibliography of his many written contributions. A recent paper by Brown, "Thermal Fluctuations of Fine Ferromagnetic Particles," is the first of the technical papers. The remaining 21 papers appearing can trace their inspiration from his work. Their diversity is apparent from some of their titles: Micromagnetism in Amorphous Alloys; Hard Magnetic Bubbles; On Maze Domains in Silicon Iron Crystal; Modeling of Fields in Magnetic Drum Separators.

Communications; IEEE Spectrum. Vol. 16. No. 10. Oct 1979. ISSN 0018-9235. \$8.00. JH46961.

Coverage: The term "Information Society," so often heard recently, applies to the realization of a complex network of communications that will aid individuals with their needs for information: accurate easily accessible information. This Special Issue which concentrates on the changes affecting communications has contributions from experts in the field as well as the *Spectrum* staff. The report is divided into five major subject areas with each having subdivisions. Section 1: Satellite Communications—U.S. commercial satellites, switching in space, the Intelsat 5 generation. Section 2: Data Communications—three systems defined, assessing the new services. Section 3: Consumer Telephone—telephones go digital, hardware review, software challenges. Section 4: Home/Office Communications—the wired household, office automation: a challenge. Section 5: Component Technology—optical systems: a review, results in U.S. and Canada, applications in Japan, report from Europe, impact of LSI.

Device Reliability; IEEE Transactions on Electron Devices. Vol. ED-26. No. 1. Jan 1979. ISSN 0018-9383. \$10.00. JH48157.

Coverage: The majority of the papers in this Special Issue on device reliability initially appeared at the 1978 International Reliability Physics Symposium held in San Diego, CA, during April 1978 (See Oct 1978 bulletin for Proceedings). Some of the topics represented in the contributions are: dynamic memories; CCD's; low-power integrated circuits; intermittent opens by spraying components with canned coolants; electromigration of aluminum; component failure due to temperature-humidity accelerated electrolytic conduction. There are 17 papers.

Digital Radio; IEEE Transactions on Communications. Vol. COM-27. No. 12. Dec 1979. ISSN 0090-6778. \$10.00. JH48009.

Coverage: The introduction in France, during the 1930's of microwave systems using digital techniques made communication in digital form a concern of many in the field. Several elements contribute to this interest: dealing with information that is digital in origin; economics; the smaller effect of interference on quality; the increased application of digital switching; and the cycle of influence that new technology creates. This Special Issue is divided into four sections. The first section on digital modulation techniques and system studies discusses this important aspect of digital communication by radio. This area influences the effective employment of the frequency spectrum, interference and its effect on transmission quality, equipment design, and economic advantages. As techniques are used to increase the transmission capacity of the radio channel, interference becomes more of a problem. This is the concern of the second section on propagation impairments on systems. The third and fourth sections deal with specialized digital radio systems and with performance measurements. This issue also contains the 1979 Index to this *Transactions*.

Digital Signal Processing Applications; IEEE Transactions on Acoustics, Speech, and Signal Processing. Vol. ASSP-27. No. 6. Pt. 2. Dec 1979. ISSN 0090-6778. \$10.00. JH50104.

Coverage: Digital signal processing applications have increased over the past ten years as it has evolved from theory to practice. The IEEE Acoustics, Speech, and Signal Processing Society decided that several special issues should be devoted to the applications of digital signal processing. The papers submitted to this 1st special issue represent such a wide variety of applications that it is impossible to group them. Some examples of the papers: analytic signal processing in music computation; microcomputer-based digital filters for EEG processing; speech digitizer at 2400 bits/s; 24-channel transmultiplexer design; microcomputer implementation of an intrusion-detection algorithm. This issue also includes the 1979 Index to this *Transactions*.

Digital Switching; IEEE Transactions on Communications. Vol. COM-27. No. 7. Jul 1979. ISSN 0090-6778. \$10.00. JH47951.

Coverage: This Special Issue devoted to digital switching is timely due to the accelerated use of digital switching and transmission systems in the telecommunications area. The 28 papers in this Issue represent topics such as historical review, technology, architecture, network planning, future trends of digital switching. The five sections break down as follows: Section I—Background; Section II—Technologies and Architecture; Section III—Digital Switches in the Network; Section IV—Digital Switching Systems/Networks of the Future; Section V—Trends.

Emergency Medical Services, Status Report on Implementation of Communications Relating to; IEEE Transactions on Vehicular Technology. Vol. VT-28. No. 4. Nov 1979. ISSN 0018-9545. \$10.00. JH49577.

Coverage: In 1974, the Federal Communications Commission (FCC) established through FCC Docket 19880 an emergency medical communications service referred to as EMS communications service. The November 1976 issue of the *IEEE Transactions on Vehicular Technology* was devoted to discussing the status of FCC Docket 19880. Since several years have passed, a new "status report" was thought necessary. Papers which represent both technological developments in the field and views of the government which is responsible for the discharge of this service fall into four categories: 1. government aspect—a. funding, b. policy; 2. EMS system user comments; 3. comments pertaining to "911" service development and implementation; 4. special applications. There are two appendices provided after the technical papers: I. Federal Communications Commission Rules and Regulations Special Emergency Radio Service; II. Historical, Regulatory, and Litigatory Background of the FCC Docket No. 18262, "An Inquiry Relative to the Future Use of the Frequency Band 806-960 MHz." This issue also contains the 1979 Index to this *Transactions*.

Hybrid Microelectronics; IEEE Transactions on Components, Hybrids, and Manufacturing Technology. Vol. CHMT-2. No. 2. Jun 1979. ISSN 0361-1000. \$10.00. JH47860.

Scope: This Special Issue came about through the efforts of the Technical Committee on Hybrid Microelectronics of the IEEE Components, Hybrids, and Manufacturing Technology Society. The topic of hybrid microelectronics is covered by eleven papers that represent five areas: reliability, low-cost process techniques, design optimization, materials characterization, and device screening.

Integrated and Guided Wave Optical Circuits and Systems; IEEE Transactions on Circuits and Systems. Vol. CAS-26. No. 12. Dec 1979. ISSN 0098-4094. \$10.00. JH47803.

Coverage: With new technological advances, the development of integrated optical circuits seems viable. This Special Issue, however, reflects the present emphasis on optical waveguide devices, which is actually the area of "guided wave optics." The technology of fiber optic communication is closely connected with integrated and guided wave optics. The major difference is the emphasis of the former on multimode fibers and compatible sources and photodetectors, which is the most popular technology today, while the latter is concerned with single-mode fibers and single-mode waveguide components, a technology not widely applied presently. This Issue does discuss some applications areas for this technology. Communications is the most emphasized in research. Other applications include signal processing functions and sensors for rotation rate, electric current, acoustic pressure, and temperature. The technical papers are grouped into these areas: communication technology; waveguides and passive devices; injection lasers; modulators and switches; signal processing applications. This issue also contains the 1979 Index to this *Transactions*.

Public Systems Methodology; IEEE Transactions on Systems, Man, and Cybernetics. Vol. SMC-9. No. 9. Sep 1979. ISSN 0018-9472. \$10.00. JH49445.

Coverage: The relationship between technology and the public is a topic of concern as new developments in technology seem to appear at a startlingly fast rate. This issue concerns

itself with applying systems methodology to problems in the public sector. The papers balance theory and applications. A sample of the range of the 14 contributions: public resources allocation for a Northern Italian metropolitan area; policy analysis in library networks; developing policies to improve technological innovation and productivity in the U.S.; water resources planning; system simulation model for Korean agricultural policy analysis; value oriented social decision analysis; dynamic model of community growth in a metropolitan area.

Radio Meteorology; IEEE Transactions on Geoscience Electronics. Vol. GE-17. No. 4. Oct 1979. ISSN 0018-9413. \$10.00. JH48447.

Coverage: Radio meteorology began in the 1940's with the application of radar to locating rain showers. Presently, new radio technologies are being developed and applied to aid in the meteorological exploration of the atmosphere. This Special Issue is devoted to these developments. One technology being applied more often to radio sensing is Doppler radar which is already being used by the National Weather Service (NWS). Several of the technical papers in this Issue discuss the application of this technology: using Doppler radar near airports for weather detection, thunderstorms observed by Doppler radar, video recorder for coherent Doppler radar, VHF pulsed Doppler radar, and a type of Doppler facility called the RONSARD radars. A sample of other subjects in the technical papers: microwave radiometer for measurement of precipitable water vapor and liquid; wind shear detection radar for airports; high-resolution VHF radar sounding of the troposphere and stratosphere; remote measurements by single-and dual-wavelength meteorological radars; model for the microwave emissivity of the oceans surface. This issue also contains the 1979 Index to this *Transactions*.

RF Interference Effects in Semiconductor Discrete Devices and Integrated Circuits; IEEE Transactions on Electromagnetic Compatibility. Vol. EMC-21. No. 4. Nov 1979. ISSN 0018-9375. \$10.00. JH49627.

Technical paper subjects: Modified Ebers-Moll transistor model for RFI analysis; computer-aided analysis of RFI effects in both digital integrated circuits and operational amplifiers; modeling of low-level-rectification RFI in bipolar circuitry; microwave-rectification RFI response in field-effect transistors; response coefficients of a double-balanced diode mixer. This issue also contains 1979 Index to this *Transactions*.

Satellite Communications; IEEE Transactions on Communications. Vol. COM-27. No. 10. Pt. 1. Oct 1979. ISSN 0090-6778. \$10.00. JH47985.

Coverage: In the past few years, the use of satellites for communications purposes has increased, attracting the attentions of both government and private industry. There will be many factors influencing the future of this medium—technological, sociological, and economic. This special issue provides an introduction and overview of this new communications area written by Frederick E. Bond and Paul Rosen (the Guest Editor of this issue). The remaining papers cover the areas of existing satellite systems; resource allocation; techniques, hardware, and performance; and regulatory policy and procedures.

Semiconductor Memory and Logic; IEEE Journal of Solid-State Circuits. Vol. SC-14. No. 5. Oct 1979. ISSN 0018-9200. \$10.00. JH49288.

Scope: With this Special Issue, the editors hope to make a contribution that "will significantly advance the electronic art." Even though the silicon integrated circuit continues as the primary component in capabilities, the issue contains two contributions featuring non-silicon technology in high-speed logic and in high-speed low power memory. Silicon technology is represented in a group of papers discussing logic applications. The last major area of exploration is progress in bipolar and MOS memory.

Software Science; (special collection, p. 74-128) IEEE Transac-

tions on Software Engineering. Vol. SE-5. No. 2. Mar 1979. ISSN 0098-5589. \$10.00. JH49312.

Coverage: In addition to containing a special section devoted to software science, this issue also functions as a commemorative issue in honor of Dr. Maurice H. Halstead, one of the founders of the field. Software science, as a subject of study, originated about seven years ago and "is a term used to describe an experimental and theoretical discipline concerned with measurable properties of written material as expressed either in computer programs or in prose." The seven contributions all deal with new discoveries in software science: unit increase in problem complexity, measuring program clarity, distribution of operators in PL/I, Halstead and McCabe metrics in measurements of software maintenance, top-down design, evaluating modularity concepts with software science.

Solid-State Sensors, Actuators, and Interface Electronics; IEEE Transactions on Electron Devices. Vol. ED-26. No. 12. Dec 1979. ISSN 0018-9383. \$10.00. JH48264.

Coverage: Not long ago solid-state sensors and actuators were ignored by the electronics industry. However, with the advanced development of signal-processing electronics and the increased need for sensors in systems, the subject is beginning to get the attention it deserves. This Special Issue on Solid-State Sensors, Actuators, and Interface Electronics discusses the present development of this area and encourages further research. The use of silicon technology is one facet highlighted in this Special Issue. The first contribution discusses future sensor development. Areas emphasized in several papers: applications of anisotropic etching in silicon microstructures such as a silicon wafer and pressure sensors; the measurement of ion concentration in solution with solid-state electrodes; photodetection. Some other topics discussed include use of a NO_x sensor in engine control, acoustic transducer arrays, and tantalum-on-sapphire technology in a sensing array. This issue also contains the 1979 Index to this *Transactions*.

Technology '79-An Applications Review; IEEE Spectrum. Vol. 16. No. 1. Jan 1979. ISSN 0018-9235. \$8.00. JH46870.

Coverage: Near-term developments are discussed in the following areas: computers, communications, devices and components, instrumentation, industrial electronics, power/energy, consumer electronics, transportation, aerospace and military, electronics in medicine, technology and society.

IEEE Standards

ANSI/IEEE C37.14-1979 American National Standard IEEE Standard for Low-Voltage DC Power Circuit Breakers Used in Enclosures; Nov 29, 1979. 26p. \$6.00. SH06866. OOP 5.

ANSI/IEEE C37.98-1978 (Formerly designated as IEEE Std 501-1978) IEEE Standard Seismic Testing of Relays; Apr 28, 1978. 20p. \$5.00 SH07161. OOP 5.

ANSI/IEEE Std 416-1978 (Revision of IEEE Std 416-1976 and IEEE Std 416 A-1976) American National Standard-IEEE Standard ATLAS Test Language; Sep 8, 1978. Approx. 400 p. LC79-1750. ISBN 0471 06442 4. \$25.00 SH07518. OOP 5.

IEEE Std 201-1979 (Revision of IEEE Std 201-1955) IEEE Standard Definitions of Terms Relating to Television; Dec 18, 1979. 20 p. \$5.50. SH07302. OOP 5.

IEEE Std 511-1979 IEEE Standard on Video Signal Transmission Measurement of Linear Waveform Distortion; Dec 11, 1979. 32 p. \$6.00. SH07575. OOP 5.

IEEE Std 530-1978 IEEE Standard Specification Format Guide and Test Procedure for Linear, Single-Axis, Digital, Torque-Balance Accelerometer; Dec 29, 1978. 43p. \$17.50. SH07369. OOP 5.

IEEE Std 622-1979 IEEE Recommended Practice for the Design and Installation of Electric Pipe Heating Systems for Nuclear

Power Generating Stations; Nov 19, 1979. 28p. \$5.50. SH07583. OOP 5.

IEEE Std 644-1979 IEEE Recommended Practices for Measurement of Electric and Magnetic Fields from AC Power Lines, Nov 16, 1979. 23p. \$5.00. SH07591. OOP 5.

IEEE Std 650-1979 IEEE Standard for Qualification of Class 1E Static Battery Chargers and Inverters for Nuclear Power Generating Stations; Oct 12, 1979. 28p. \$6.00. SH07674. OOP 5.

IEEE Std 661-1979 IEEE Standard Method for Determining Objective Loudness Ratings of Telephone Connections; Nov 29, 1979. 20p. \$5.00. SH07419. OOP 5.

IEEE Press

Frequency-Response Methods in Control Systems, edited by Alistair G. J. MacFarlane, University of Cambridge. ©1979. 523p. ISBN Clothbound: 0-87942-125-8. ISBN Paperbound: 0-87942-126-6. LC79-90572 (preassigned). \$39.95. PC01206 (clothbound only). OOP 2. A Book of Selected Reprints. Also distributed through John Wiley & Sons, Inc. Wiley Order Numbers Clothbound: 0-471-06486-6 and Paperbound 0-471-06426-2.

Contents: Development of Frequency-Response Methods in Automatic Control; Classical Frequency-Response Techniques; Extensions to Nonlinear, Time-Varying and Stochastic Systems; Multivariable Systems; Multidimensional Systems; Bibliography. A total of 42 reprinted papers.

Satellite Communications, edited by Harry L. Van Trees, U.S. Dept. of Defense. ©1979. 665p. ISBN Clothbound: 0-87942-121-5. ISBN Paperbound: 0-87942-122-3. LC78-65704 (preassigned). \$42.95. PC01222 (clothbound only). OOP 2. A Book of Selected Reprints. Also distributed through John Wiley & Sons, Inc. Wiley Order Numbers Clothbound: 0-471-06101-8 and Paperbound: 0-471-06100-X.

Contents: General; Systems; Communications System; Source Coding, Analog Modulation, Digital Modulation, Error Control, Terrestrial Interface, Multiple Access—General, Frequency Division Multiple Access, Time Division Multiple Access, Code Division Multiple Access Spread Spectrum, Demand Assignment, On-Board Processing, Intersatellite Links; Spacecraft Design and Technology; Spacecraft Designs, Antennas, Communications Satellite Receiver and Transmitter Technology, Filters and Multiplexers; Propagation; Earth Stations; Future, Regulatory, Political, Legal and Economic Issues; Bibliography. A total of 48 reprinted papers.

Miscellaneous Publications

Automated Tools for Software Engineering, Tutorial: Initially presented at IEEE Computer Society's 3rd International Computer Software & Applications Conference (COMPSAC 79), Nov 5; Tutorial; Nov 6–8, 1979; Conference in Chicago, IL, edited by Edward Miller. *Tutorial*. 262p. LC79-91320 (preassigned). \$16.00. EH0150-3. OOP 8. See Jan 1980 Bulletin for Proceedings.

Scope and Contents: The papers appearing in this volume reflect automation of function as opposed to methodology or automatable function during the five general phases of the software life cycle: requirements/specification; software design; software implementation (programming); software quality assurance; and maintenance. The tools dealt with in the papers are either working models or field-proven tools. Each section begins with an introductory paper discussing the automated tools in that specific area and is followed by a group of reprints on specific tools. Two types of tools are excluded: 1. Tools universally available to all computer systems, and 2. Tools not generally devoted to producing programs. The first section is an Introduction. The other sections cover tools in the software life cycle phases delin-

eated above. There is an appendix that consists of an automated tool index.

Centralized and Distributed Data Base Systems, Tutorial: Initially presented at the 1st International Conference on Distributed Computing Systems, Oct 1–4, 1979 in Huntsville, AL; edited by Wesley W. Chu and Peter P. Chen. *Tutorial*. 662p. LC79-89472 (preassigned). \$25.00. EH0154-5. OOP 8. See Jan 1980 Bulletin for Proceedings.

Coverage: The information explosion is one highly visible phenomenon of the modern era. As more data is produced, the use of the computer in organizing this information becomes both desirable and necessary. Data base management systems have developed out of this need and distributed systems have evolved with advances in computer networking and multiprocessor technologies. For the past two years, a graduate course at UCLA has used the majority of the papers in this volume. However, people in the field felt the need for a collection of papers in the data base field and this volume is a response to that need. The book is divided into two main parts: centralized data bases and distributed data bases. The chapters cover these areas: DBTG (network), hierarchical, and relational data model; entity-relationship model and data systems; data base design and performance tools; data base machines; issues in distributed data base architecture; file allocation and directory systems for distributed data bases; intercommunications among heterogeneous data bases; deadlock prevention and detection; synchronization and concurrency control of multiple copy data bases; query optimization policy; fault tolerance and recovery; references for additional reading.

Distributed Control, Tutorial: Initially presented at the 1st International Conference on Distributed Computing Systems, Oct 1–4, 1979 in Huntsville, AL; edited by Robert E. Larson. *Tutorial*. 373p. LC79-89473 (preassigned). \$20.00. EH0153-7. OOP 8. See Jan 1980 Bulletin for Proceedings.

Scope and Contents: The application of decentralized control to distributed computing systems is the theme of this tutorial. For the most part, a person with a background in calculus, linear algebra, and differential equations will be able to understand this volume. There are some papers of increased complexity. Chapters survey optimization techniques and discuss the principle of optimality and dynamic programming processes. Basic procedures of dynamic programming computation are illustrated. There are three chapters devoted to control—distributed; adaptive and stochastic.

Distributed Processor Communication Architecture, Tutorial: Initially presented at the 1st International Conference on Distributed Computing Systems, Oct 1–4, 1979 in Huntsville, AL; edited by Kenneth J. Thurber. *Tutorial*. 517p. LC79-89474 (preassigned). \$20.00. EH0152-9. OOP 8. See Jan 1980 Bulletin for Proceedings.

Coverage: The purpose of this design-oriented tutorial is the discussion of switches, paths, and their system implications as they relate to digital-path and interconnection-switch design for communications between computers. The volume resulted from seminars taught by the Computer Science Department of the University of Minnesota and a book titled *Distributed-Processor Communication Architecture* by K. J. Thurber and G. M. Masson, published in August 1979 by Lexington Books. Section 1 discusses distributed processors. Sections 2, 3, and 4 deal with packet, circuit switch, and bus technologies.

Distributed System Design, Tutorial: Initially presented at the First International Conference on Distributed Computing Systems, Oct 1–4, 1979 in Huntsville, AL; edited by Michael P. Mariani and David F. Palmer. *Tutorial*. 409p. LC79-89494 (preassigned). \$20.00. EH0151-1. OOP 8. See Jan 1980 Bulletin for Proceedings.

Scope and Contents: The subject of this tutorial is the design of distributed computing systems. This type of computing system is characterized by multiple processing and memory components synchronized for a single operation. There are several reasons for an interest in distributed computing

systems—the process is quicker and accommodates larger amounts of data, modification is not as expensive, and the reliability and fault tolerance is better due to the decentralized status of control and data base. The tutorial is divided into five sections. The first offers an introduction to distributed system design. The remaining four sections relate to baseline design activities. Analysis—requirements identification, representation, elaboration, operational requirements accommodation, and verification. Partitioning—criteria selection, relationships quantification, partition generation, evaluation, and verification. Allocation—relating characteristics of partitions to characteristics of resources. Synthesis—data base and control considerations, topology and protocol specification, performance requirements, network interface specification, performance evaluation, and verification.

Microprocessors & Microcomputers, edited by Portia Isaacson. Selected reprints from *Computer*. 2nd edition. ©1979. 298p. LC79-88282 (preassigned). \$12.00. TH0662-0. OOP 6.
Scope: This volume, revised and enlarged in 1979, contains reprints of recent articles from *Computer* that provide needed information on microprocessors and microcomputers. The need for this information is generated by the increase of microprocessor applications in areas such as airplanes, communications satellites, and automobiles and by the displacement of the minicomputer by the microcomputer. The volume is divided into three major areas: architecture, software, and applications. Subjects covered by these areas include technology projections, microprocessor architectures, multimicroprocessor networks, microprocessor software management, assembler design, a higher-level language, example applications, and personal computing.

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