

# 42nd Annual Device Research Conference

June 18-20, 1984, University of California, Santa Barbara, CA

## PROGRAM

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# 1984 Index

## IEEE Transactions on Electron Devices

### Vol. ED-31

This index covers all items—papers, correspondence, reviews, etc.—that appeared in this periodical during 1984, and items from prior years that were commented upon or corrected in 1984. The index is divided into an Author Index and a Subject Index, both arranged alphabetically.

The *Author Index* contains the primary entry for each item; this entry is listed under the name of the first author and includes coauthor names, title, location of the item, and notice of corrections and comments if any. Cross-references are given from each coauthor name to the name of the corresponding first author. The location of the item is specified by the journal name (abbreviated), year, month, and inclusive pages.

The *Subject Index* contains several entries for each item, each consisting of a subject heading, modifying phrase(s), first author's name—followed by + if the paper has coauthors—and enough information to locate the item. For coauthors, title, comments, and corrections if any, etc., it is necessary to refer to the primary entry in the Author Index. Subject cross-references are provided as required by the subject matter. Also provided whenever appropriate are listings under generic headings such as *Bibliographies* (for any paper with at least 50 references, as well as papers that are exclusively bibliographies), *Book reviews*, and *Special issues*.

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- selective epitaxial growth for fabrication of CMOS integrated circuits. *Ipri, Alfred C.*, +, *T-ED Dec 84* 1741–1748
- sensitivity of SPICE simulations to input parameter variations. *Cassard, Janet M.*, *T-ED Feb 84* 264–269
- study of latch-up phenomena in CMOS structures. *Hu, Genda J.*, *T-ED Jan 84* 62–67
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- transient effects caused by floating body of thin-film Si-on-SiO<sub>2</sub> MOSFETs. *Lim, Hyung Kyu, +, T-ED Sep 84 1251-1258*
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- CMOS integrated circuits; cf. CMOSFETs**
- CMOS integrated circuits, analog**
- analog CMOS building blocks for custom and semicustom LSI and VLSI. *Stone, Dona C., +, T-ED Feb 84 189-195*
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- CMOSFETs; cf. CMOS integrated circuits**
- Color TV; cf. TV**
- Communication switching**
- I<sup>2</sup>L/emitter function logic data interface designed in OXIL technology for VLSI. *Baumert, Robert J., +, T-ED Feb 84 160-165*
- Complementary MOS; cf. CMOS**
- Component reliability; cf. Integrated-circuit reliability; Semiconductor device reliability**
- Computer arithmetic; cf. Arithmetic**
- Contacts; cf. Ohmic contacts; Semiconductor device metallization**
- Counting circuits**
- Si monolithic microwave prescaler IC with toggle frequency of 3.9 GHz. *Watanabe, Satoru, +, T-ED Dec 84 1921-1925*
- Couplers; cf. Optical couplers**
- Coupling; cf. Electromagnetic coupling**
- Crossed-field devices**
- magnetron and crossed-field device development from World War II years to present. *Brown, William C., T-ED Nov 84 1595-1605*
- Crosstalk**
- analysis of crosstalk in very-high-speed LSI/VLSI using multiconductor MIS microstrip line model. *Seki, Shouhei, +, T-ED Dec 84 1498-1953*
- CRTs; cf. Cathode-ray tubes**
- Cryogenic materials/devices**
- collapse of drain  $I-V$  characteristics of modulation-doped field-effect transistors at cryogenic temperatures. *Fischer, Russell J., +, T-ED Aug 84 1028-1032*
- $I-V$  and  $C-V$  characteristics of Al-undoped AlGaAs/GaAs capacitors as function of temperature in 300 - 77 K range; MISFETs for operation at 77 K. *Drummond, Timothy J., +, T-ED Sep 84 1164-1168*
- CW lasers**
- InGaAsP CW ridge waveguide distributed feedback lasers operating at 1.5  $\mu$ m (Abstr.). *Nelson, A. W., +, T-ED Dec 84 1974*
- Cyclotron radiation; cf. Gyrotrons**

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- Delay distortion**
- analysis of interconnection delay on very-high-speed LSI/VLSI chips using MIS microstrip line model. *Hasegawa, Hideki, +, T-ED Dec 84 1954-1960*
- test structures for propagation delay measurements on high-speed integrated circuits. *Long, Stephen I., T-ED Aug 84 1072-1076*
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- Detectors; cf. Optical detectors**
- Deuterium**
- stripe geometry InP/InGaAsP lasers fabricated with deuterium bombardment. *Schwartz, B., +, T-ED Jun 84 841-843*
- Deuterium; cf. Specific topic**
- Device Research Conference, 42nd (1984) Annual**
- abstracts. *T-ED Dec 84 1961-1988*
- Dielectric breakdown**
- breakdown voltage of rectangular planar diffused junction with rounded corners. *Akhtar, J., +, T-ED Dec 84 1781-1783*
- MoSi<sub>2</sub>/thin poly-Si gate process technology without dielectric degradation of gate oxide. *Fukumoto, Masanori, +, T-ED Oct 84 1432-1439*
- Dielectric films**
- conduction mechanism of silicon nitride films. *Liou, Fu-Tai, +, T-ED Dec 84 1736-1741*
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- Dielectric films; cf. Thin-film ...**
- Dielectric materials/devices**
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- Dielectric materials/devices; cf. Capacitors**
- Dielectric measurements; cf. Capacitance measurement**
- Difference methods; cf. Finite-difference methods**
- Differential amplifiers**
- double-diffused differential-amplification magnetic sensor with good magnetic sensitivity which can be easily fabricated with bipolar IC technology. *Huang, Rei-Min, +, T-ED Jul 84 1001-1004*
- Diffusion processes; cf. Specific topic**
- Digital - analog conversion**
- high-speed monolithic 8-, 10-, and 12-bit digital-to-analog converters produced on standard high-speed digital bipolar process without post-process trimming. *Saul, Peter, +, T-ED Feb 84 196-202*
- Digital arithmetic; cf. Arithmetic**
- Digital integrated circuits; cf. Bipolar integrated circuits; CMOS integrated circuits; FET integrated circuits; Integrated circuits; Logic arrays; MOS integrated circuits; Schottky-barrier FET logic circuits; Very high-speed integrated circuits; Very large-scale integration**
- Digital switching (communication systems); cf. Communication switching**
- Diode lasers; cf. Semiconductor lasers**
- Diodes; cf. Semiconductor diodes**
- Displays**
- history of thin-film transistors; development and use in TFT-addressed displays. *Brody, T. Peter, T-ED Nov 84 1614-1628*
- Displays; cf. Electroluminescent materials/devices; Plasma displays**
- Distortion**
- coupling effects in time domain for interconnecting bus in high-speed GaAs logic circuits. *Chilo, Jean, +, T-ED Mar 84 347-352*
- Distortion; cf. Crosstalk; Delay distortion**
- Distributed amplifiers**
- 2 - 18-GHz monolithic distributed amplifier using dual-gate GaAs FETs. *Kennan, Wayne, +, T-ED Dec 84 1926-1930*
- Distributed-feedback lasers**
- InGaAsP CW ridge waveguide distributed feedback lasers operating at 1.5  $\mu$ m (Abstr.). *Nelson, A. W., +, T-ED Dec 84 1974*
- Distribution functions; cf. Probability**
- Doping; cf. Semiconductor device doping**

## E

- ECL; cf. Emitter-coupled logic**
- EEPROM (electrically erasable programmable ROM); cf. Read-only memories**
- EHF (30 - 300 GHz); cf. Millimeter-wave**
- Electric variables measurement; cf. Capacitance measurement; Integrated-circuit measurements; Resistance measurement; Semiconductor device measurements**
- Electrodes**
- temperature measurement of coated-particle cathode of spherical geometry using retarding field method. *Dallos, Andras, +, T-ED Mar 84 379-381*
- Electroluminescent materials/devices**
- evaluation of conventional and composite dielectrics for use in ac thin-film electroluminescent displays. *Tiku, Shiban K., +, T-ED Jan 84 105-108*
- staggered line-up (Al,In)As/InP heterojunctions as sources of tunable below-gap radiation; experimental verification (Abstr.). *Caine, E. J., +, T-ED Dec 84 1984*
- Electromagnetic coupling**
- coupling effects in time domain for interconnecting bus in high-speed GaAs logic circuits. *Chilo, Jean, +, T-ED Mar 84 347-352*
- input/output coupling in reflection-type tapered gyrotron traveling-wave amplifier. *Lau, Y. Y., +, T-ED Mar 84 337 (347)*
- Electromagnetic propagation, absorbing media; cf. Optical propagation, absorbing media**
- Electron-beam focusing**
- methods for gridded Pierce electron guns with periodic permanent magnet focusing. *True, Richard, T-ED Mar 84 353-362*

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**Electron-beam scanning devices;** cf. Cathode-ray tubes  
**Electron beams;** cf. Gyrotrons  
**Electron carriers;** cf. Charge-carrier processes  
**Electron emission**  
 charge emission from interface states at Si grain boundaries by thermal emission and thermionic-field emission; theory. *De Groot, A. W., +, T-ED Oct 84 1365-1369*  
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**Electron radiation effects;** cf. Integrated-circuit fabrication; Semiconductor device fabrication; Semiconductor device radiation effects; Semiconductor/device radiation effects

**Electron tubes;** cf. *Specific topic*

**Electronics industry**  
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**Electrooptic materials/devices**  
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**Electrophotography**  
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**Electrostatic recording;** cf. Electrophotography

**Emitter-coupled logic**  
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**Epitaxial growth**  
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**EPROM (erasable programmable read-only memory);** cf. Read-only memories

**Excimer lasers;** cf. Gas lasers, excimer; Noble-gas lasers, excimer

**Extremely high frequency (30 - 300 GHz);** cf. Millimeter-wave

## F

**Fabrication;** cf. Integrated-circuit fabrication; Materials processing; Semiconductor device fabrication; Thick-film device fabrication

**Feedback amplifiers**  
 monolithic two-stage direct-coupled feedback amplifier with 10+1 dB gain across 0.1 - 12-GHz band. *Moghe, Sanjay B., +, T-ED Dec 84 1931-1937*

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**Feedback lasers;** cf. Distributed-feedback lasers

**FET amplifiers;** cf. Microwave FET amplifiers; MOSFET amplifiers

**FET circuits**  
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**FET integrated circuits**  
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**selectively doped heterostructure transistors for ultrahigh-speed integrated circuits (Abstr.).** *Pei, S. S., +, T-ED Dec 84 1962*

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**1-kbit GaAs static RAM with E/D direct-coupled FET logic.** *Ino, Masayuki, +, T-ED Sep 84 1139-1144*

**FET integrated circuits;** cf. CMOS integrated circuits; FET switches; FETs; MOS integrated circuits; Schottky-barrier FET logic circuits

**FET integrated circuits, analog;** cf. CMOS integrated circuits, analog; Microwave FET integrated circuits; MOS integrated circuits, analog

**FET switches**  
 (AlAs/n-GaAs superlattice)GaAs two-dimensional electron gas FETs with stabilized threshold voltage and extremely high transconductance (Abstr.). *Baba, T., +, T-ED Dec 84 1962*  
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**FET switches;** cf. Power FET switches

**FETs**  
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- extended 'end' resistance measurement technique to determine series source and drain resistance of modulation-doped FET. *Lee, Kwyro, +, T-ED Oct 84 1394-1398*
- I-V and C-V characteristics of Al-undoped AlGaAs/GaAs capacitors as function of temperature in 300 - 77 K range; MISFETs for operation at 77 K. Drummond, Timothy J., +, T-ED Sep 84 1164-1168*
- instabilities in MODFETs and MODFET circuits. *Duh, K. H., +, T-ED Sep 84 1345-1346*
- materials dependence of low-frequency oscillations in GaAs FETs (Abstr.). *Miller, Daniel, +, T-ED Dec 84 1985-1986*
- piezoelectric effects in GaAs FETs and their role in orientation-dependent device characteristics. *Asbeck, Peter M., +, T-ED Oct 84 1377-1380*
- separation of generation - recombination and  $1/f$  noise components in GaAs FETs (Abstr.). *Forbes, L., +, T-ED Dec 84 1986*
- submicrometer-gate self-aligned GaAs FET with p-type barrier fabricated by ion implantation (Abstr.). *Matsumoto, K., +, T-ED Dec 84 1987*
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- transient capless annealing of ion-implanted GaAs. *Clarke, R. Chris, +, T-ED Aug 84 1077-1082*
- FETs; cf. CMOSFETs; FET integrated circuits; JFETs; Microwave FETs; Millimeter-wave FETs; Power FETs; Schottky-barrier FETs**
- Field-effect transistors; cf. FET ...**
- Films; cf. Dielectric films**
- Filters; cf. Bandpass filters; Charge-transfer filters; Optical filters**
- Finite-difference methods**
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- III-V compound semiconductor processing (special issue). *T-ED Aug 84 1013-1103*
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- InGaAsP amplifier-modulator integrated with cleaved-coupled-cavity single-frequency laser (Abstr.). *Lee, T. P., +, T-ED Dec 84 1974*
- InGaAsP CW ridge waveguide distributed feedback lasers operating at  $1.5 \mu\text{m}$  (Abstr.). *Nelson, A. W., +, T-ED Dec 84 1974*
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- Gas-discharge displays; cf. Plasma displays**
- Gas lasers, excimer**
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- Gas lasers, excimer; cf. Noble-gas lasers, excimer**
- Gas switches; cf. Thyratrons**
- Geometry**
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- optimization of on-resistance in vertical DMOS power FETs with linear and hexagonal surface geometries. *Board, Kenneth, +, T-ED Jan 84 75-80*
- Germanium materials/devices; cf. Specific topic**
- Gunn device oscillators**
- dc magnetic field effects on AlGaAs/GaAs real space transfer heterojunction oscillator. *Coleman, Paul D., +, T-ED Sep 84 1145-1148*
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- input/output coupling in reflection-type tapered gyrotron traveling-wave amplifier. *Lau, Y. Y., +, T-ED Mar 84 337 (347)*
- large-signal theory of two-stage tapered gyro-TWT. *Ganguly, Achintya K., +, T-ED Apr 84 474-480*
- lasing in fast-wave devices due to ac space-charge effects. *Döhler, G., T-ED Mar 84 386-389*
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- magnetron development work in years 1929 to 1938. *Kilgore, G. Ross, T-ED Nov 84 1593-1595*
- path to conception of junction transistor. *Shockley, William, T-ED Nov 84 1523-1546*
- semiconductor industry in Japan; past and present. *Watanabe, Makoto, T-ED Nov 84 1562-1570*
- thin cathode-ray tube development. *Aiken, W. Ross, T-ED Nov 84 1605-1608*
- Hole carriers; cf. Charge-carrier processes**
- Hybrid integrated circuits**
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**Image sensors; cf.** Charge-injection image sensors; Charge-transfer image sensors; Infrared image sensors; TV image sensors

**IMPATT diode oscillators**

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**IMPATT diodes**

effects of transient carrier transport in millimeter-wave GaAs diodes. *Grondin, R. O., +, T-ED Jan 84 21-28*

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**Indium materials/devices; cf.** Specific topic

**Inductive transducers; cf.** Magnetic transducers

**Infrared amplifiers**

heterojunction phototransistor with double heterojunction LED integrated onto collector which exhibits light amplification, optical bistability, light-activated switching, and unidirectionality. *Sasaki, Akio, +, T-ED Jun 84 805-811*

**Infrared detectors**

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**Infrared detectors; cf.** Optical fiber receivers

**Infrared image sensors**

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**Infrared lasers**

single-quantum-well PbEuSeTe diode lasers; CW operation up to 174 K (at 4.41  $\mu m$ ) and pulsed operation up to 241 K (at 4.01  $\mu m$ ). (Abstr.). *Partin, D. L., T-ED Dec 84 1975*

**Infrared lasers; cf.** Optical fiber transmitters, lasers

**Infrared modulation/demodulation; cf.** Optical fiber transmitters

**Infrared receivers; cf.** Optical fiber receivers

**Infrared (0.70 - 100  $\mu m$ ); cf.** Submillimeter-wave (300 - 3000 GHz)

**Injection lasers; cf.** Semiconductor lasers

**Innovation; cf.** Technological innovation

**Integral equations**

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**Integrated-circuit design; cf.** Layout, integrated circuits

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**Integrated-circuit fabrication; cf.** Epitaxial growth; Integrated-circuit doping; Integrated-circuit ion implantation; Integrated-circuit metallization; Layout, integrated circuits; Specific topic

**Integrated-circuit interconnections**

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**Integrated-circuit noise**

noise associated with distributed resistance of MOSFET gate structures in integrated circuits. *Jindal, R. P., T-ED Oct 84 1505-1509*

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capacitance coupling memory cell for VLSI which offers small cell area, readout signal gain, and high alpha-particle immunity. *Terada, Kazuo, +, T-ED Sep 84 1319-1324*

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- abstracts from 42nd (1984) Annual Device Research Conference (special section). *T-ED Dec 84* 1961–1988
- electron devices history (special Centennial issue). *T-ED Nov 84* 1521–1672

**Integrated circuits; cf. Bipolar integrated circuits; CMOS integrated circuits; FET integrated circuits; Hybrid integrated circuits; Integrated optics; Josephson devices; Large-scale integration; MOS integrated circuits; Very high-speed integrated circuits; Very large-scale integration****Integrated circuits industry; cf. Electronics industry****Integrated injection logic**

- I<sup>2</sup>L/emitter function logic data interface designed in OXIL technology for VLSI. *Baumert, Robert J.*, +, *T-ED Feb 84* 160–165
- measurement of minority-carrier diffusion length and surface recombination velocity in thin semiconductor layers. *Gonzalez, Franklin N.*, +, *T-ED Apr 84* 413–416

**Integrated magnetic devices**

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**Integrated optics**

- beginnings of integrated optoelectronic circuits; personal recollections. *Yariv, Amnon*, *T-ED Nov 84* 1656–1661

**Interchannel interference; cf. Crosstalk****Interconnection networks; cf. Communication switching****Interconnections, integrated circuits; cf. Integrated-circuit interconnections; Layout, integrated circuits****Interpolation; cf. Digital – analog conversion****Ion implantation; cf. Integrated-circuit ion implantation; Semiconductor device ion implantation****Ion radiation effects**

- preparation of clean GaAs(100) surface by Ar argon ion bombardment. *Sinharoy, Samar*, +, *T-ED Aug 84* 1090–1092

**Ion radiation effects; cf. Semiconductor device fabrication****I<sup>2</sup>L; cf. Integrated injection logic**

## J

**Japan**

- semiconductor industry in Japan; past and present. *Watanabe, Makoto*, *T-ED Nov 84* 1562–1570

**JFET integrated circuits; cf. JFETs****JFET integrated circuits, analog**

- micropower monolithic filters realized using bipolar-compatible JFET technology; switched-capacitor and continuous analog filters. *Parpia, Zahir*, +, *T-ED Feb 84* 165–171

**JFETs**

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**Josephson device logic**

- high-speed two-bit dual rail adder using asymmetrical interference device Josephson logic gate. *Yamada, Hajime*, +, *T-ED Mar 84* 307–310
- wide-margin Josephson adder employing high-grain direct-coupled logic gate. *Hohkawa, Kohji*, +, *T-ED Jul 84* 983–987

**Josephson device memories**

- NDRO Josephson quantized loop memory cell with buffer gate. *Miyahara, Kazunori*, +, *T-ED Jul 84* 888–894
- nondestructive readout RAM utilizing two-dimensional array of single-quantum vortices in thin-film type-II superconductor. *Parisi, Jürgen*, +, *T-ED Mar 84* 310–314

**Junction FETs; cf. JFETs****Junction lasers; cf. Semiconductor lasers****Junctions; cf. Semiconductor junctions**

## K

**Klystrons**

- account of personal involvement with electron tubes from 1920s to present. *Preist, Donald H.*, *T-ED Nov 84* 1609–1611

## L

**Large-scale integration; cf. Specific topic; Very large-scale integration****Laser applications; cf. Optical fiber transmitters, lasers****Laser applications, materials processing; cf. Integrated-circuit fabrication; Semiconductor device fabrication****Laser applications, measurement**

- nondestructive measurement of solar cell sheet resistance using laser scanner. *Kowalski, Paul*, +, *T-ED May 84* 566–570

**Laser-beam effects; cf. Laser radiation effects****Laser cavity resonators; cf. Laser resonators****Laser diodes; cf. Semiconductor lasers****Laser measurement; cf. Laser applications, measurement****Laser radiation effects**

- microwave oscillators and optical effects from resonant tunneling quantum well structures (Abstr.). *Sollner, T. C. L. G.*, +, *T-ED Dec 84* 1985

**Laser resonators**

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- InGaAsP amplifier-modulator integrated with cleaved-coupled-cavity single-frequency laser (Abstr.). *Lee, T. P.*, +, *T-ED Dec 84* 1974

**Laser thermal factors**

- single-quantum-well PbEuSeTe diode lasers; CW operation up to 174 K (at 4.41  $\mu\text{m}$ ) and pulsed operation up to 241 K (at 4.01  $\mu\text{m}$ ) (Abstr.). *Partin, D. L.*, *T-ED Dec 84* 1975

**Laser tuning**

- high-energy ( $\lambda \leq 7300 \text{ \AA}$ ) 300-K operation of single- and multiple-stripe quantum-well heterostructure laser diodes in external grating cavity (Abstr.). *Epler, J. E.*, +, *T-ED Dec 84* 1974–1975

**Lasers**

- lasing in fast-wave devices due to ac space-charge effects. *Döhler, G.*, *T-ED Mar 84* 386–389

**Lasers; cf.** CW lasers; Distributed-feedback lasers; Gas lasers; Pulsed lasers; Semiconductor lasers

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**Layout**  
optimum design of power MOSFETs. *Hu, Chenming, +, T-ED Dec 84* 1693-1700

**Layout, integrated circuits**  
layout and bias considerations for preventing transiently triggered latchup in CMOS circuits. *Troutman, Ronald R., +, T-ED Mar 84* 315-321  
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**Light-activated switches; cf.** Light-triggered switches

**Light-triggered switches**  
heterojunction phototransistor with double heterojunction LED integrated onto collector which exhibits light amplification, optical bistability, light-activated switching, and unidirectionality. *Sasaki, Akio, +, T-ED Jun 84* 805-811

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**Logic circuits; cf.** Addition; Bipolar integrated circuits; CMOS integrated circuits; Emitter-coupled logic; FET integrated circuits; Integrated injection logic; Josephson device logic; Logic arrays; MOS integrated circuits; Schottky-barrier FET logic circuits

**Logic devices; cf.** Josephson device logic

**LSI; cf.** Large-scale integration

**Luminescent materials/devices; cf.** Electroluminescent materials/devices

## M

**Magnetic-field effects; cf.** *Specific topic*

**Magnetic logic devices; cf.** Josephson device logic

**Magnetic materials/devices; cf.** Integrated magnetic devices

**Magnetic transducers**  
double-diffused differential-amplification magnetic sensor with good magnetic sensitivity which can be easily fabricated with bipolar IC technology. *Huang, Rei-Min, +, T-ED Jul 84* 1001-1004  
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**Magnetrons**  
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**Magnets; cf.** Permanent magnets

**Materials processing**  
preparation of clean GaAs(100) surface by Ar argon ion bombardment. *Sinharoy, Samar, +, T-ED Aug 84* 1090-1092

**Measurement; cf.** Integrated-circuit measurements; Laser applications measurement; Semiconductor device measurements

**Memories; cf.** Cache memories; Josephson device memories; NDRM memories; Random-access memories; Read-only memories

**Mercury materials/devices; cf.** *Specific topic*

**MESFETs; cf.** Microwave FETs; Millimeter-wave FETs; Schottky-barrier FETs

**Metal-insulator-semiconductor; cf.** MIS ...

**Metal-oxide-semiconductor; cf.** MOS ...

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**Metal-semiconductor devices; cf.** Schottky-barrier devices

**Metallization; cf.** Integrated-circuit metallization; Semiconductor device metallization

**Microstrip**  
analysis of crosstalk in very-high-speed LSI/VLSI using multiconductor MIS microstrip line model. *Seki, Shouhei, +, T-ED Dec 84* 1498-1953  
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**Microwave amplifiers; cf.** Microwave FET amplifiers

**Microwave amplifiers, power; cf.** Traveling-wave amplifiers

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selected, expanded papers; joint special section with *IEEE Transactions on Microwave Theory and Techniques*, Dec. 1984. *T-ED Dec 84* 1920-1960

**Microwave bipolar integrated circuits**  
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**Microwave bipolar transistors**  
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**Microwave FET integrated circuits; cf.** Microwave FET amplifiers

**Microwave FETs**  
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**Microwave FETs, power**  
drain bias dependence of frequency limit of GaAs FETs. *Lee, Soong Hak, +, T-ED Aug 84* 1068-1071

**Microwave generation; cf.** Microwave oscillators

**Microwave integrated circuits; cf.** Microwave FET integrated circuits

**Microwave oscillators**  
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**Microwave oscillators; cf.** Magnetrons

**Microwave phase shifters; cf.** Phase shifters

**Microwave transistors; cf.** Microwave bipolar transistors; Microwave FETs

**Microwave (3 - 30 GHz); cf.** Millimeter-wave (30 - 300 GHz)

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- Millimeter-wave amplifiers**  
input/output coupling in reflection-type tapered gyrotron traveling-wave amplifier. *Lau, Y. Y., +, T-ED Mar 84 337 (347)*
- Millimeter-wave bipolar transistors**  
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- Millimeter-wave diodes**  
effects of transient carrier transport in millimeter-wave GaAs diodes. *Grondin, R. O., +, T-ED Jan 84 21-28*
- Millimeter-wave diodes; cf. IMPATT diodes; Millimeter-wave mixers**
- Millimeter-wave FETs**  
dc and microwave models for  $Al_xGa_{1-x}As/GaAs$  high electron mobility transistors. *Weiler, Margaret H., +, T-ED Dec 84 1854-1861*  
improved short-channel GaAs MESFETs through use of higher doping concentrations. *Daembkes, Heinrich, +, T-ED Aug 84 1032-1037*  
microwave characterization of (Al,Ga)As/GaAs modulation-doped FETs; bias dependence of small-signal parameters. *Arnold, Douglas J., +, T-ED Oct 84 1399-1402*  
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- Millimeter-wave frequency conversion; cf. Millimeter-wave mixers**
- Millimeter-wave generation; cf. Millimeter-wave oscillators**
- Millimeter-wave mixers**  
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- nondestructive readout RAM utilizing two-dimensional array of single-quantum vortices in thin-film type-II superconductor. *Parisi, Jürgen, +, T-ED Mar 84 310-314*

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- light detector based on negative resistance characteristic of phototransistor-type optocoupler. *Takahashi, Haruo, +, T-ED Jul 84 951-954*
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- optically controlled amorphous Si photosensitive device. *Maruska, H. Paul, +, T-ED Sep 84 1343-1345*

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- heterojunction phototransistor with double heterojunction LED integrated onto collector which exhibits light amplification, optical bistability, light-activated switching, and unidirectionality. *Sasaki, Akio, +, T-ED Jun 84 805-811*

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**Optical detectors**

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**Power bipolar transistors**

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**Power electronics; cf. Power semiconductor devices****Power FET switches**

- large-area power MOSFET with small conduction loss suitable for use as synchronous rectifier or as power switch. *Love, Robert P., + , T-ED Jun 84 817-820*

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Quantum theory; cf. *Specific topic*  
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Radiation detectors; cf. Photodetectors

Radiation effects; cf. Integrated-circuit radiation effects; Ion radiation effects; Laser radiation effects; Photovoltaic power cell radiation effects; Semiconductor device radiation effects; Ultraviolet radiation effects

RAM; cf. Random-access memories

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Rectifiers; cf. Power conversion, ac - dc

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Resonators; cf. Laser resonators

Ridge waveguides; cf. Optical strip waveguides

ROM; cf. Read-only memories

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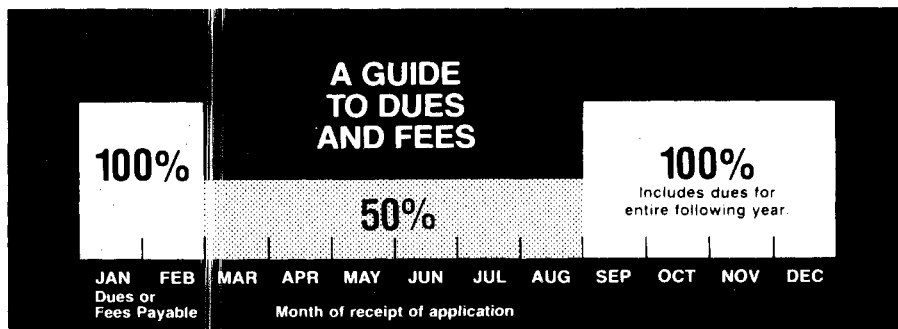
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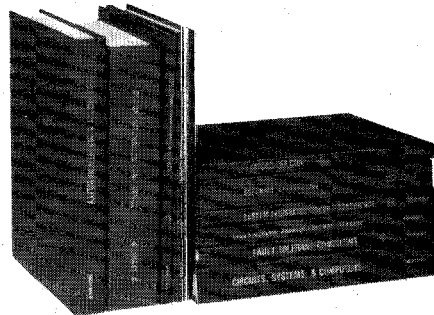
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