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FOR THE COMMANDER

Thomas J. Alpert, Major, USAF
Chief, ESD Lincoln Laboratory Project Office

FOREWORD

Volume 9 of Unclassified Publications of Lincoln Laboratory lists reports published from 15 December 1981 to 15 December 1983, as well as updated information on earlier publications.

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577	A High Pressure Mercury Turbine Cycle for Use in Spacecraft and Terrestrial Power Plants	R.M. Lerner	22 Mar. 1983	AD-A129016/2
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587	Exposing Objects Under Light Cloud Cover by Adaptive Homomorphic Filtering	T. Peli T.F. Quatieri	6 Jan. 1982	AD-A112338/9
590	A Comparative Study of Narrowband Vocoder Algorithms in Air Force Operational Environments Using the Diagnostic Rhyme Test	E. Singer	6 Jan. 1982	AD-A112053/4
592	Dielectric Lens Antenna for EHF Airborne Satellite Communication Terminals	W. Rotman J.C. Lee	16 Feb. 1982	AD-A113250/5
596	A Catalogue of Spreading Modulation Spectra	E.J. Kelly	20 Sep. 1983	AD-A134850/7
597	Geometry of Earthshine Reflection from a Spherical Target	M.P. Jordan	29 Jan. 1982	AD-A112446/0
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602	Maximum Likelihood Spectral Estimation and Its Application to Narrowband Speech Coding	R.J. McAulay	5 Feb. 1982	AD-A114070/6
603	The Programmable Matched Filter: A Design Study	A.E. Filip J.D. Drinan A.H. Huntoon J.D. Kurtze D. Malpass	1 Apr. 1982	AD-A115026/7
604	Interference Sources and Degrees of Freedom in Adaptive Nulling Antennas	A.J. Fenn	12 May 1982	AD-A116583/6
607	Multiple Resource Replenishment with Multi-Mission Satellite Applications	S.L. Bernstein	2 Sep. 1982	AD-A121009
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609	Consumption of Degrees of Freedom in Adaptive Nulling Array Antennas	A.J. Fenn	12 Oct. 1982	AD-A122389
610	Equatorial Motion About an Oblate Primary	L.G. Taff	1 June 1982	AD-A117641/1
611	A Functional Model for the Closely Spaced Object Resolution Process	C.B. Chang K.P. Dunn	20 May 1982	AD-A116890/5
612	A Multiport Buffer Memory for an Internet Packet Voice/Data Gateway	V.J. Sferrino	14 July 1982	AD-A119157

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632	Object Detection by Two-Dimensional Linear Prediction	T.F. Quatieri	28 Jan. 1983	AD-A126340/9
633	Steady State Performance of Survivable Routing Procedures for Circuit-Switched Mixed-Media Networks	R.P. Lippmann	29 Dec. 1982	AD-A126213/8

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635	A Compilation Catalog in the Direction of the Galactic Center	L.G. Taff S.A. Stansfield	18 Jan. 1983	AD-A126175/9
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643	An Algorithm for Multiple Target Tracking and Data Correlation	C.B. Chang L.C. Youens	13 June 1983	AD-A131313/9
644	Close Approaches Between Satellites in Circular Orbits	T.S. Seay	25 Aug. 1983	AD-A133779/9
645	A Compact Q-/K-Band Dual Frequency Feed Horn	J.C. Lee	3 May 1983	AD-A130258/7
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647	The Performance of an Isolated Word Recognizer Using Noisy Speech	G. Neben	13 Apr. 1983	AD-A128983/4
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652	Durable Copper Polyimide Adhesive Bonds	E.B. Murphy A.E. Mason E.S. Wainwright	24 May 1983	AD-A130221/5

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653	A Programmable Voice Processor for Fighter Aircraft Applications	E.M. Hofstetter E. Singer J. Tierney	18 Aug. 1983	AD-A133780 7
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5059	Stoichiometric Lasers	S.R. Chinn	In *CRC Handbook of Laser Science and Technology, Volume I. Lasers and Masers*, M.J. Weber, Ed. (CRC Press, Boca Raton, Florida, 1982), Sec. 2, pp. 147-169
5090	Long Wavelength Semiconductor Diode Lasers	I. Melngailis	In *McGraw-Hill 1981 Yearbook of Science and Technology* (McGraw-Hill, New York, 1981), pp. 216-221
5099	Differential Correction for Near-Stationary Satellites	L.G. Taff J.M. Sorvari	Celes. Mech. **26**, 423 (1982)
5113	Experimental Study of Nonlinear Interactions for Noncollinear Surface Acoustic Waves	N.P. Vlannes	J.Appl. Phys. **53**, 385 (1982), DTIC AD-A114559/8
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5158	Coding for the Turbulent Atmospheric Optical Channel	V.W.S. Chan	IEEE Trans. Commun. **COM-30**, 269 (1982), DTIC AD-A125053/9
5184	The Nature of the Initial Transient in the Rate of Formation of Nickel Carbonyl	H. Mazurek R.S. Mehta M.S. Dresselhaus G. Dresselhaus H.J. Zeiger	Surf. Sci. **118**, 530 (1982)

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5209	Photovoltaic Cells	J.C.C. Fan	In *Kirk-Othmer: Encyclopedia of Chemical Technology*, Vol. 17, Third Edition (Wiley, New York, 1982), pp. 709-732, DTIC AD-A125129/7
5214	Collimator Effects in High Resolution X-Ray Computed Tomography	J.G. Verly	IEEE Trans. Medical Imaging **MI-1**, 122 (1982), DTIC AD-A135091/7
5217	The Reconstruction of a Multidimensional Sequence from the Phase or Magnitude of Its Fourier Transform	M.H. Hayes	IEEE Trans. Acoust., Speech, and Signal Processing **ASSP-30**, 140 (1982)
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5223	Classes of Functions with Explicit Best Uniform Approximations	H.Z. Ollin I. Gerst	J. Approx. Theory **34**, 264 (1982)
5224	A Propagation Experiment Combining Reflection and Diffraction	M.L. Meeks	IEEE Trans. Antennas Propag. **AP-30**, 318 (1982), DTIC AD-A125031/5
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5248	Comparison of Single- and Dual-Gate FET Frequency Doublers	A. Gopinath A.J. Seeds J.B. Rankin	IEEE Trans. Microwave Theory Tech. **MTT-30**, 919 (1982)
5250	A Calculation of the Capacitance-Voltage Characteristics of p^+-InP n-InP n-InGaAsP Photodiodes	J.P. Donnelly	Solid-State Electron. **25**, 669 (1982)
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5279	Zone-Melting Recrystallization of Encapsulated Silicon Films on SiO_2 — Morphology and Crystallography	M.W. Geis H.I. Smith B-Y. Tsaur J.C.C. Fan E.W. Maby D.A. Antoniadis	Appl. Phys. Lett. **40**, 158 (1982), DTIC AD-A121757
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5282	Stress-Enhanced Carrier Mobility in Zone Melting Recrystallized Polycrystalline Si Films on SiO_2-Coated Substrates	B-Y. Tsaur J.C.C. Fan M.W. Geis	Appl. Phys. Lett. **40**, 322 (1982), DTIC AD-A121756
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5298	Losses in Coplanar Waveguides	A. Gopinath	IEEE Trans. Microwave Theory Tech. **MTT-30**, 1101 (1982)
5301	Sidelobe Control in Cylindrical Arrays	J-C. Sureau K.J. Keeping	IEEE Trans. Antennas Propag. **AP-30**, 1027 (1982)
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5311	An Etch Pit Technique for Analyzing Crystallographic Orientation in Si Films	K.A. Bezjian H.I. Smith J.M. Carter M.W. Geis	J. Electrochem. Soc. **129**, 1848 (1982), DTIC AD-A122129
5312	4-Bit 828-Megasample/s Electro-optic Guided-Wave Analog-to-Digital Converter	F.J. Leonberger C.E. Woodward R.A. Becker	Appl. Phys. Lett. **40**, 565 (1982), DTIC AD-A121743
5313	Transient Annealing of Selenium-Implanted Gallium Arsenide Using a Graphite Strip Heater	R.L. Chapman J.C.C. Fan J.P. Donnelly B-Y. Tsaur	Appl. Phys. Lett. **40**, 805 (1982)
5314	Laser Remote Sensing of Hydrazine, MMH, and UDMH Using a Differential-Absorption CO_2 Lidar	N. Menyuk D.K. Killinger W.E. DeFeo	Appl. Opt. **21**, 2275 (1982)
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5317	Lateral Epitaxial Overgrowth of Silicon on SiO_2	D.D. Rathman D.J. Silversmith J.A. Burns	J. Electrochem. Soc. **129**, 2303 (1982)

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5319	Microsecond Carrier Lifetimes in Si Films Prepared on SiO_2-Coated Si Substrates by Zone-Melting Recrystallization and by Subsequent Epitaxial Growth	B-Y. Tsaur J.C.C. Fan M.W. Geis	Appl. Phys. Lett. **41**, 83 (1982)
5320	Observation of Linewidth Broadening in (GaAl)As Diode Lasers Due to Electron Number Fluctuations	D. Welford A. Mooradian	Appl. Phys. Lett. **40**, 560 (1982), DTIC AD-A121778
5321	Fabrication of Through-Wafer Via Conductors in Si by Laser Photochemical Processing	D.J. Ehrlich D.J. Silversmith R.W. Mountain J. Tsao	IEEE Trans. Components, Hybrids, and Manufacturing Technology **CHMT-5**, 520 (1982)
5322	The SAOC and the AGK3	L.G. Taff S.A. Stansfield	Astron. J. **87**, 1884 (1982)
5324	Status of CO_2 Isotope Lasers and Their Applications in Tunable Laser Spectroscopy	C. Freed	IEEE J. Quantum Electron. **QE-18**, 1220 (1982)
5325	Integrated Optical Temperature Sensor	L.M. Johnson F.J. Leonberger G.W. Pratt, Jr.	Appl. Phys. Lett. **41**, 134 (1982)
5326	Efficient GaAs Solar Cells Formed by UV Laser Chemical Doping	T.F. Deutsch J.C.C. Fan D.J. Ehrlich G.W. Turner R.L. Chapman R.P. Gale	Appl. Phys. Lett. **40**, 722 (1982)
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5329	LPC Synthesis with Simplified Spectrum Flattening of the Excitation Function	B. Gold J. Tierney	J. Acoust. Soc. Am. **72**, 1306 (1982)
5330	Zone-Melting Recrystallization of 3-in.-diam Si Films on SiO_2-Coated Si Substrates	J.C.C. Fan B-Y. Tsaur R.L. Chapman M.W. Geis	Appl. Phys. Lett. **41**, 186 (1982)
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5332	VHF Propagation over Hilly, Forested Terrain	M.L. Meeks	IEEE Trans. Antennas Propag. **AP-31**, 483 (1983), DTIC AD-A135206/1
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5357	A Two-Stage Monolithic IF Amplifier Utilizing a Ta_2O_5 Capacitor	A. Chu L.J. Mahoney M.E. Elta W.E. Courtney M.C. Finn W.J. Piacentini J.P. Donnelly	Joint special issue on Monolithic Microwave IC's: IEEE Trans. Microwave Theory Tech. **MTT-31**, 21 (1983), DTIC AD-A135098/2; and IEEE Trans. Electron Devices **ED-30**, 21 (1983)
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5367	Zone-Melting Recrystallization of Si Films with a Moveable-Strip-Heater Oven	M.W. Geis H.I. Smith B-Y. Tsaur J.C.C. Fan D.J. Silversmith R.W. Mountain	J. Electrochem. Soc. **129**, 2812 (1982)
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5369	Spatial Light Modulation Using Electroabsorption in a GaAs Charge-Coupled Device	R.H. Kingston B.E. Burke K.B. Nichols F.J. Leonberger	Appl. Phys. Lett. **41**, 413 (1982)
5370	Lateral Epitaxial Overgrowth of GaAs by Organometallic Chemical Vapor Deposition	R.P. Gale R.W. McClelland J.C.C. Fan C.O. Bozler	Appl. Phys. Lett. **41**, 545 (1982)
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5378	2-Bit 1 Gsample s Electrooptic Guided-Wave Analog-to-Digital Converter	R.A. Becker F.J. Leonberger	IEEE J. Quantum Electron. **QE-18**, 1411 (1982)
5379	Holographic Local-Oscillator Beam Multiplexing for Array Heterodyne Detection	W.B. Veldkamp	Appl. Opt. **22**, 891 (1983), DTIC AD-A135036 2
5381	Reflectometric Spectroscopy of Adsorbed Molecular Layers	V. Daneu D.J. Ehrlich R.M. Osgood, Jr.	Opt. Lett. **8**, 151 (1983), DTIC AD-A135027 1
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5391	Signal Averaging Limitations in Heterodyne- and Direct-Detection Laser Remote Sensing Measurements	N. Menyuk D.K. Killinger C.R. Menyuk	In *Optical and Laser Remote Sensing*, edited by D.K. Killinger and A. Mooradian (Springer-Verlag, New York, 1983), p. 185
5392	Rate of Ethylene Hydrogenation on $Ni_{1-x}Cu_x$ Catalysts — Effect of Magnetic Ordering	H.J. Zeiger B. Wasserman M.S. Dresselhaus G. Dresselhaus	Surf. Sci. **124**, 583 (1983)
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5396	High Resolution Ion Beam Lithography at Large Gaps Using Stencil Masks	J.N. Randall D.C. Flanders N.P. Economou J.P. Donnelly E.I. Bromley	Appl. Phys. Lett. **42**, 457 (1983), DTIC AD-A135035/4
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5402	Solidification-Front Modulation to Entrain Subboundaries in Zone-Melting Recrystallization of Si on SiO_2	M.W. Geis H.I. Smith D.J. Silversmith R.W. Mountain C.V. Thompson	J. Electrochem. Soc. **130**, 1178 (1983)
5403	Experimental Comparison of Heterodyne and Direct Detection for Pulsed Differential Absorption CO_2 Lidar	D.K. Killinger N. Menyuk W.E. DeFeo	Appl. Opt. **22**, 682 (1983), DTIC AD-A135054/5
5405	Transmission Electron Microscopy of GaAs Permeable Base Transistor Structures Grown by Vapor Phase Epitaxy	B.A. Vojak J.P. Salerno D.C. Flanders G.D. Alley C.O. Bozler K.B. Nichols R.W. McClelland N.P. Economou G.A. Lincoln R.A. Murphy W.T. Lindley G.D. Johnson	J. Appl. Phys. **54**, 3554 (1983)
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5422	On the Relation Between Triangular Matrix Decomposition and Linear Prediction	C.W. Therrien	Proc. IEEE **71**, 1459 (1983)
5423	UV Laser Photopolymerization of Volatile Surface-Adsorbed Methyl Methacrylate	J.Y. Tsao D.J. Ehrlich	Appl. Phys. Lett. **42**, 997 (1983)
5424	Silicon-on-Insulator by Graphoepitaxy and Zone-Melting Recrystallization of Patterned Films	H.I. Smith M.W. Geis C.V. Thompson H.A. Atwater	J. Cryst. Growth **63**, 527 (1983)
5426	Photodeposition of Ti and Application to Direct Writing of Ti:$LiNbO_3$ Waveguides	J.Y. Tsao R.A. Becker D.J. Ehrlich F.J. Leonberger	Appl. Phys. Lett. **42**, 559 (1983), DTIC AD-A135047/9
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5439	Integrated Optics Wave Front Measurement Sensor	R.H. Rediker T.A. Lind F.J. Leonberger	Appl. Phys. Lett. **42**, 647 (1983)
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5445	Fourier Transformation Using an Electroabsorptive CCD Spatial Light Modulator	R.H. Kingston F.J. Leonberger	IEEE J. Quantum Electron. **QE-19**, 1443 (1983)
5447	An Investigation of GaAs Films Grown by MBE at Low Substrate Temperatures and Growth Rates	G.M. Metze A.R. Calawa J.G. Mavroides	J. Vac. Sci. Technol. B **1**, 166 (1983)
5448	Monolithic Circuits for Millimetre-Wave Systems	A. Chu W.E. Courtney L.J. Mahoney	Microwave J. **26**, 28 (1983)
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5451	The Design of Masking Processes by the Method of Minimal Divergence	P.M. Fishman L.K. Jones C.W. Therrien	IEEE Trans. Inf. Theory **IT-29**, 245 (1983), DTIC AD-A135030/5
5453	2-Bit 1-Gsample/s Electro-Optic Guided-Wave Analogue-to-Digital Convertor System	R.A. Becker C.E. Woodward F.J. Leonberger	Electron. Lett. **19**, 332 (1983)
5455	Further Projections on the Use of Microwave Monolithics	D.H. Temme	Microwave J. **26**, 22 (1983)
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5473	Impact Ionization in (100)-, (110)-, and (111)-Oriented InP Avalanche Photodiodes	C.A. Armiento S.H. Groves	Appl. Phys. Lett. **43**, 198 (1983)
5474	Effect of Magnetic Transition on the H-D Exchange Reaction on $Ni_{1-x}Cu_x$ Alloys	H.J. Zeiger B. Wasserman M.S. Dresselhaus G. Dresselhaus	Phys. Rev. B **28**, 317 (1983)
5475	Graphite-Strip-Heater Zone-Melting Recrystallization of Si Films	J.C.C. Fan B-Y. Tsaur M.W. Geis	J. Cryst. Growth **63**, 453 (1983)
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5480	Dual Ion Implantation Technique for Formation of Shallow p^+/n Junctions in Silicon	B-Y. Tsaur C.H. Anderson, Jr.	J. Appl. Phys. **54**, 6336 (1983)
5481	Assessment of Relative Error Sources in IR DIAL Measurement Accuracy	N. Menyuk D.K. Killinger	Appl. Opt. **22**, 2690 (1983)
5482	A Technique for the Determination of Stress in Thin Films	E.I. Bromley J.N. Randall D.C. Flanders R.W. Mountain	J. Vac. Sci. Technol. B **1**, 1364 (1983)
5483	New Developments in Solid-State Lasers	P.F. Moulton	Laser Focus **19**, 83 (1983)
5484	Laser-Controlled Chemical Etching of Aluminum	J.Y. Tsao D.J. Ehrlich	Appl. Phys. Lett. **43**, 146 (1983)
5485	Frequency Sampling of the Short-Time Fourier-Transform Magnitude for Signal Reconstruction	T.F. Quatieri S.H. Nawab J.S. Lim	J. Opt. Soc. Am. **73**, 1523 (1983)
5486	InP Optoelectronic Switches	A.G. Foyt F.J. Leonberger	Accepted as Chapter in *Picosecond Optoelectronic Devices*, C.H. Lee, Ed. (Academic Press, New York)
5488	Experience with Speech Communications in Packet Networks	C.J. Weinstein J.W. Forgie	Accepted IEEE Trans. Commun.
5489	Laser Direct Writing for VLSI	D.J. Ehrlich J.Y. Tsao	Accepted as Chapter in *VLSI Electronics* (Academic Press, New York)

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5490	Fully Isolated Lateral Bipolar — MOS Transistors Fabricated in Zone-Melting-Recrystallized Si Films on SiO_2	B-Y. Tsaur D.J. Silversmith J.C.C. Fan R.W. Mountain	IEEE Electron Device Lett. **EDL-4**, 269 (1983)
5491	Fundamental Linewidth in Solitary, Ultranarrow Output $PbS_{1-x}Se_x$ Diode Lasers	C. Freed J.W. Bielinski W. Lo	Appl. Phys. Lett. **43**, 629 (1983)
5492	Local-Oscillator Excess-Noise Suppression for Homodyne and Heterodyne Detection	G.L. Abbas V.W.S. Chan T.K. Yee	Opt. Lett. **8**, 419 (1983)
5494	Resonant Tunneling Through Quantum Wells at Frequencies Up to 2.5 THz	T.C.L.G. Sollner W.D. Goodhue P.E. Tannenwald C.D. Parker D.D. Peck	Appl. Phys. Lett. **43**, 588 (1983), DTIC AD-A136442/1
5496	Self-Developing UV Photoresist Using Excimer Laser Exposure	T.F. Deutsch M.W. Geis	J. Appl. Phys. **54**, 7201 (1983)
5499	A CCD Time-Integrating Correlator	B.E. Burke D.L. Smythe	IEEE J. Solid-State Circuits **18**, 736 (1983)
5500	A Review of Laser-Microchemical Processing	D.J. Ehrlich J.Y. Tsao	J. Vac. Sci. Technol. B **1**, 969 (1983)
5501	Deep-UV Spatial-Frequency Doubling by Combining Multilayer Mirrors with Diffraction Gratings	A.M. Hawryluk H.I. Smith D.J. Ehrlich	J. Vac. Sci. Technol. B **1**, 1200 (1983)
5502	Generalized Analysis of Pressure Induced Nonlinear Optical Processes	T.K. Yee J.G. Fujimoto	Accepted Opt. Commun.
5503	Optical Heterodyne Spectroscopy with Frequency-Modulated and Amplitude-Modulated Semiconductor Lasers	W. Lenth	Opt. Lett. **8**, 575 (1983)

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5507	MacPitts: An Approach to Silicon Compilation	J.R. Southard	Computer **16**, 74 (1983)
5508	Orientation Filtering by Growth-Velocity Competition in Zone-Melting Recrystallization of Silicon on SiO_2	H.A. Atwater C.V. Thompson H.I. Smith M.W. Geis	Appl. Phys. Lett. **43**, 1126 (1983)
5509	Optimal Design of Amorphous Single-Junction and Tandem Solar Cells	J.C.C. Fan B.J. Palm	Solar Cells **10**, 81 (1983)
5512	Effects of Dry Etching on GaAs	S.W. Pang G.A. Lincoln R.W. McClelland P.D. DeGraff M.W. Geis W.J. Piacentini	J. Vac. Sci. Technol. B **1**, 1334 (1983)
5513	Read-Only Memory with Electron-Beam Programmable Floating-Gate Transistors	D.C. Shaver	J. Vac. Sci. Technol. B **1**, 1084 (1983)
5514	Low-Loss GaInAsP Buried-Heterostructure Optical Waveguide Branches and Bends	L.M. Johnson Z.L. Liau S.H. Groves	Accepted Appl. Phys. Lett.
5515	Silicon Nitride Stencil Masks for High Resolution Ion Lithography Proximity Printing	J.N. Randall D.C. Flanders N.P. Economou J.P. Donnelly E.I. Bromley	J. Vac. Sci. Technol. B **1**, 1152 (1983)
5517	Nitrocellulose as a Self-Developing Resist with Submicrometer Resolution and Processing Stability	M.W. Geis J.N. Randall T.F. Deutsch N.N. Efremow J.P. Donnelly J.D. Woodhouse	J. Vac. Sci. Technol. B **1**, 1178 (1983)

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5521	Synthesis of Metastable, Semiconducting Ge-Sn Alloys by Pulsed UV Laser Recrystallization	S. Oguz W. Paul T.F. Deutsch B-Y. Tsaur D.V. Murphy	Appl. Phys. Lett. **43**, 848 (1983)
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5527	Zone Melting Recrystallization of Thick Silicon on Insulator Films	H.A. Atwater H.I. Smith C.V. Thompson M.W. Geis	Accepted Mater. Lett.
5528	Optimal Design of Amorphous/ Crystalline Tandem Cells	J.C.C. Fan B.J. Palm	Accepted Solar Cells
5534	Structural Characterization by Transmission Electron Microscopy of Silicon Grown Over Submicrometer-Period Gratings of Deposited Tungsten	B.A. Vojak D.D. Rathman J.A. Burns S.M. Cabral N.N. Efremow	Accepted Appl. Phys. Lett.
5536	Monolithic Silicon Bolometers	P.M. Downey A.D. Jeffries S.S. Meyer R.W. Weiss F.J. Bachner J.P. Donnelly W.T. Lindley R.W. Mountain D.J. Silversmith	Accepted Appl. Opt.

Journal Articles

JA No.			
5539	Nonreciprocal Laser-Microchemical Processing: Spatial Resolution Limits and Demonstration of 0.2-μm Linewidths	D.J. Ehrlich J.Y. Tsao	Accepted Appl. Phys. Lett.
5549	Dry Etching Induced Damage in Si and GaAs	S.W. Pang	Accepted Solid State Technol.
5552	Frequency-Modulation (FM) Spectroscopy — Theory of Lineshapes and Signal-to-Noise Analysis	G.C. Bjorklund M.D. Levenson W. Lenth C. Ortiz	Appl. Phys. B **32**, 145 (1983)
5553	Linewidth Measurements of a (GaAl)As Diode Laser with a High Reflectivity Coating	W. Lenth	Accepted Appl. Phys. Lett.
5556	Laser Microchemical Processing: Spatial Resolution and Rate Limits of Optical Direct-Writing Techniques	D.J. Ehrlich J.Y. Tsao	Accepted as Book Chapter (Academic Press, Orlando, Florida)

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MS No.			
4937G	Some Factors that Influence EHF SATCOM Systems	L.J. Ricardi	*Millimeter Wave Technology II*, J.C. Wiltse, Ed., SPIE **423**, 106-112 (1983)
5520	Operating Experience with the Natural Bridges National Monument Photovoltaic Power System	F.J. Solman B.L. Grossman	Proc. Fifteenth IEEE Photovoltaic Specialists Conference - 1981, Orlando, Florida, 12-15 May 1981, pp. 1231-1236
5609B	Advances in Divalent Transition-Metal Lasers	P.F. Moulton	*Proceedings of the International Conference on Lasers '81*, edited by C.B. Collins (STS Press, McLean, Virginia, 1981), p. 359
5614A	Point Image Focus Sensing Using an Automated Foucault Test	D.G. Kocher	*Wavefront Sensing*, N. Bareket and C.L. Koliopoulos, Eds., Proc. SPIE **351**, 148-154 (1982)
5618	Lateral Growth of Single-Crystal InP Over Dielectric Films by Orientation-Dependent VPE	P. Vohl C.O. Bozler R.W. McClelland A. Chu A.J. Strauss	J. Cryst. Growth **56**, 410 (1982), DTIC AD-A113266 1
5650	The Effect of Grooves in Amorphous Substrates on the Orientation of Metal Deposits	R. Anton H. Poppa D.C. Flanders	J. Cryst. Growth **56**, 433 (1982)
5653C	Frequency Stability and Control Characteristics of (GaAl)As Semiconductor Lasers	A. Mooradian D. Welford	Proc. Symposium on Frequency Control, Philadelphia, Pennsylvania, 2-4 June 1982, pp. 338-339, DTIC AD-A130811
5660	Parallel Signal Processing for Optical Satellite Detection	G.J. Mayer M.J. MacDonald	*Real-time Signal Processing IV*, Proc. SPIE **298**, 173-183 (1982)

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5679	Liquid Phase Epitaxial Growth of $Hg_{1-x}Cd_xTe$ Using a Horizontal Slider Technique	T.C. Harman	Proc. Meeting of the IRIS Specialty Group on Infrared Detectors - Volume 1, Syracuse, New York, 2-4 June 1981, pp. 377-391
5707C	Summary Abstract: Photodeposition of Metal Films with Ultraviolet Laser Light	D.J. Ehrlich R.M. Osgood, Jr. T.F. Deutsch	J. Vac. Sci. Technol. **20,** 738 (1982)
5707I	Laser Fabrication of Microstructures: Effect of Geometrical Scaling on Chemical Reaction Rates	D.J. Ehrlich J.Y. Tsao	In *Laser Diagnostics and Photochemical Processing for Semiconductor Devices,* edited by R.M. Osgood, S.R.J. Brueck, and H.R. Schlossberg (North-Holland, New York, 1983), Vol. 17, p. 3
5710	EHF System Concepts For Serving Mobile Users	D.R. McElroy	Proc. AIAA 9th Communications Satellite Systems Conf., San Diego, California, 7-11 March 1982, pp. 263-268, DTIC AD-A125127/1
5734	Multiple Beam EHF Antenna/Receiver Configuration for Unified Satellite Communications Uplink Coverage	R.E. Eaves D.P. Kolba	Proc. AIAA 9th Communications Satellite Systems Conf., San Diego, California, 7-11 March 1982, pp. 248-254, DTIC AD-A125222/0
5742	Generalized Control and Networking for EHF Satellite Communication Systems	D.P. Kolba	Proc. AIAA 9th Communications Satellite Systems Conf., San Diego, California, 7-11 March 1982, pp. 269-275, DTIC AD-A125128/9

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5744	A Compact Digital Channel Vocoder Using Commercial Devices	J.A. Feldman	Proc. IEEE Intl. Conf. on Acoustics, Speech, and Signal Processing, Paris, France, 3-5 May 1982, pp. 1960-1963
5748	Oxide Barriers to the Formation of Refractory Silicides	D.J. Silversmith D.D. Rathman R.W. Mountain	Thin Solid Films **93**, 413 (1982)
5757	High Resolution Angular Spectrum Estimation Techniques for Terrain Scattering Analysis and Angle of Arrival Estimation	J.E. Evans J.R. Johnson D.F. Sun	Proc. First ASSP Workshop on Spectral Estimation, Hamilton, Ontario, Canada, 17-18 August 1981, Vol. 2, pp. 5.3.1-5.3.10
5759A	Laser Radar Beam Control with Holographic Diffraction Gratings	W.B. Veldkamp	*International Conference on Computer-generated Holography*, S.H. Lee, Ed., Proc. SPIE **437**, 197-204 (1983)
5760	Transient Heating with Graphite Heaters for Semiconductor Processing	J.C.C. Fan B-Y. Tsaur M.W. Geis	In *Laser and Electron-Beam Interactions with Solids*, B.R. Appleton and G.K. Celler, Eds. (Elsevier North Holland, Amsterdam, 1982), pp. 751-758
5763	Preparation of Oriented GaAs Bicrystal Layers by Vapor-Phase Epitaxy Using Lateral Overgrowth	J.P. Salerno R.W. McClelland P. Vohl J.C.C. Fan W. Macropoulos C.O. Bozler A.F. Witt	In *Grain Boundaries in Semiconductors*, H.J. Leamy, G.E. Pike, and C.H. Seager, Eds. (Elsevier North Holland, Amsterdam, 1982), pp. 77-82
5764	Single-Crystal GaAs Films on Amorphous Substrates by the CLEFT Process	C.O. Bozler R.W. McClelland J.P. Salerno J.C.C. Fan	J. Vac. Sci. Technol. **20**, 720 (1982)

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5766	Effects of Interface Structure on the Electrical Characteristics of PtSi-Si Schottky Barrier Contacts	B-Y. Tsaur D.J. Silversmith R.W. Mountain C.H. Anderson, Jr.	Thin Solid Films **93**, 331 (1982)
5767	Silicon-on-Insulator MOSFETs Fabricated in Zone-Melting-Recrystallized Poly-Si Films on SiO_2	B-Y. Tsaur M.W. Geis J.C.C. Fan D.J. Silversmith R.W. Mountain	In *Laser and Electron-Beam Interactions with Solids*, B.R. Appleton and G.K. Celler, Eds. (Elsevier North Holland, Amsterdam, 1982), pp. 585-590
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5782	The Use of Measurements to Detect Electrical Problems in Operational Photovoltaic Arrays	S.E. Forman	Solar Cells **7**, 165 (1982)
5794	Syntactic Analysis of Seismic Waveforms Using Augmented Transition Network Grammars	K.R. Anderson	Geoexploration (Netherlands) **20**, 161 (1982)
5797	Vertical Single-Gate CMOS Inverters on Laser-Processed Multilayer Substrates	G.T. Goeloe E.W. Maby D.J. Silversmith R.W. Mountain D.A. Antoniadis	Proc. IEEE Intl. Electron Devices Mtg., Washington, DC, 7-9 December 1981, pp. 554-556, DTIC AD-A125061/2

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5800	Review of Laser Technology at M.I.T. Lincoln Laboratory	S. Marcus	Proc. Intl. Conf. on Lasers '81, New Orleans, Louisiana, 14-18 December 1981, pp. 628-636
5803	Stress-Enhanced Mobility in MOSFETs Fabricated in Zone-Melting-Recrystallized Poly-Si Films	B-Y. Tsaur J.C.C. Fan M.W. Geis D.J. Silversmith R.W. Mountain	Proc. IEEE Intl. Electron Devices Mtg., Washington, DC, 7-9 December 1981, pp. 232-235, DTIC AD-A125016 6
5806	Some Surprising Results in Studies of Transition-Metal-Doped Crystals	P.F. Moulton	*Proceedings of the International Conference on Lasers '81*, edited by C.B. Collins (STS Press, McLean, Virginia, 1981), p. 789
5808	The Importance of Boundary Conditions in the Phase Retrieval Problem	M.H. Hayes T.F. Quatieri	Proc. ICASSP 82, Paris, France, 3-5 May 1982, Vol. 3, pp. 1545-1548
5809	Theory and Status of High Performance Heterodyne Detectors	D.L. Spears	*Physics and Technology of Coherent Infrared Radar*, Proc. SPIE **300**, 174-184 (1981)
5818	The Application of Dynamic Programming to the Optimal Ordering of Digital Filter Sections	C.M. Rader	Proc. ICASSP 82, Paris, France, 3-5 May 1982, Vol. 1, pp. 73-78
5826	Single-Mode GaInAsP Optical Waveguides	N.L. DeMeo F.J. Leonberger S.H. Groves	Topical Meeting on Integrated and Guided-Wave Optics, Pacific Grove, California, 6-8 January 1982, Digest of Technical Papers, pp. WD7-1 — WD7-3

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5837A	High Speed Charge-Coupled Device (CCD) Two-Dimensional Correlator	B.E. Burke A.M. Chiang W.H. McGonagle G.R. McCully J.F. Melia	*Real Time Signal Processing V*, J. Trimble, Ed., Proc. SPIE **341**, 159-164 (1982)
5840	GaInAsP/InP Double Heterostructure Laser with Monolithically Integrated Passive Waveguide	Z.L. Liau J.N. Walpole	Topical Meeting on Integrated and Guided-Wave Optics, Pacific Grove, California, 6-8 January 1982, Digest of Technical Papers, pp. WB3-1 — WB3-4
5845	4-Bit 275-MS/s Electrooptic A/D Converter	F.J. Leonberger C.E. Woodward R.A. Becker	Topical Meeting on Integrated and Guided-Wave Optics, Pacific Grove, California, 6-8 January 1982, Digest of Technical Papers, pp. WA3-1 — WA3-4
5846	External Cavity Controlled Operation of a Semiconductor Diode Gain Element in Series with an Optical Fiber	R.H. Rediker R.P. Schloss A. Mooradian D. Welford	Topical Meeting on Integrated and Guided-Wave Optics, Pacific Grove, California, 6-8 January 1982, Digest of Technical Papers, pp. ThB2-1 — ThB2-4
5855	The Reliability Function of a Poisson Optical Channel with Block Orthogonal Signaling	V.W.S. Chan	Proc. Intl. Symp. on Information Theory, Les Arcs, France, 21-25 June 1982, pp. 174-175

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5862	Receiver Technology for the Millimeter and Submillimeter Wave Regions	B.J. Clifton	*Integrated Optics and Millimeter and Microwave Integrated Circuits.*, Proc. SPIE **317**, 339-347 (1982)
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5873	Laser Linking Process for Restructurable VLSI	G.H. Chapman J.I. Raffel J.A. Yasaitis S.M. Cheston	Conference on Lasers and Electro-Optics, OSA IEEE, Washington, DC, 14-16 April 1982, Digest of Technical Papers, p. 60
5883	4-Bit 828-Megasamples sec Guided-Wave Electrooptic Analog-to-Digital Converter	F.J. Leonberger C.E. Woodward R.A. Becker	Conference on Lasers and Electro-Optics, OSA IEEE, Washington, DC, 14-16 April 1982, Digest of Technical Papers, p. 114
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5889	EHF Dielectric Lens Antenna for Multiple Beam MILSATCOM Applications	W. Rotman	1982 APS Symposium Digest, Antennas and Propagation, Volume I, University of New Mexico, Albuquerque, 24-28 May 1982, pp. 132-136

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5899	Laser Raman Scattering as a Probe of Si Device Structures	S.R.J. Brueck B-Y. Tsaur D.V. Murphy J.C.C. Fan T.F. Deutsch D.J. Silversmith	Conference on Lasers and Electro-Optics, OSA/IEEE, Washington, DC, 14-16 April 1982, Digest of Technical Papers, p. 40
5901	Two Distance Measure-Based Vocoder Quantization Algorithms for Very-Low Data Rate Applications: Frame-Fill and Spectral Vector Quantization	D.B. Paul P.E. Blankenship	IEEE Intl. Conf. on Communications, Philadelphia, Pennsylvania, 13-17 June 1972, Conf. Record, Vol. 2, pp. 3G.5.1-3G.5.6
5908	Passive Superconducting Microwave Circuits for 2-20 GHz Bandwidth Analog Signal Processing	J.T. Lynch A.C. Anderson R.S. Withers P.V. Wright S.A. Reible	1982 IEEE MTT-S International Microwave Symposium Digest, Dallas, Texas, 15-17 June 1982, pp. 524-526
5911	Automated Step-Frequency Radar Cross-Section Measurements	P.S. Kao	1982 APS Symposium Digest, Antennas and Propagation, Volume I, University of New Mexico, Albuquerque, 24-28 May 1982, pp. 237-240
5922	On Insolation Measurements Using Pyranometers and Solar Cell Devices	M.C. Russell P. Raghuraman G.W. Hart	Proc. 17th Intersociety Energy Conversion Engineering Conf., Los Angeles, California, 8-12 August 1982, Vol. 3, pp. 1517-1524
5925	Heterodyne Experiments from Millimeter Wave to Optical Frequencies Using GaAs MESFETs Above f_T	A. Chu H.R. Fetterman D.D. Peck P.E. Tannenwald	*IEEE 1982 Microwave and Millimeter-Wave Monolithic Circuits Symposium,* Digest of Papers, R.A. Murphy, Ed. (IEEE, New York, 1982), pp. 25-27

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5930	Signal Reconstruction from Short-Time Fourier Transform Magnitude	S.H. Nawab T.F. Quatieri J.S. Lim	IEEE Trans. Acoust., Speech, and Signal Processing **ASSP-31,** 986 (1983), DTIC AD-A137590
5933	The Effect of Attenuation on Seismic Body Waves	V.F. Cormier	Bull. Seismol. Soc. Am. **72,** S169 (1982)
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5937	Applications of Microcomputers in Special Libraries	J.H. Katayama	In *Microcomputers In Libraries*, edited by C. Chen and S.E. Bressler (Neal-Schuman Publishers, New York, 1982), pp. 127-143
5947	The Effect of Operating-Point-Control Strategy on the Annual Energy Production of Degraded Photovoltaic Arrays	H.M. Branz	Proc. Sixteenth IEEE Photovoltaic Specialists Conference — 1982, San Diego, California, 27-30 September 1982, pp. 525-531
5948	Swept Measurement of High Power I-V Curves	C.H. Cox III T.H. Warner	Proc. Sixteenth IEEE Photovoltaic Specialists Conference — 1982, San Diego, California, 27-30 September 1982, pp. 1277-1283
5949	Reduction of Photovoltaic Cell Reverse Breakdown by a Peripheral Bypass Diode	C.H. Cox III D.J. Silversmith R.W. Mountain	Proc. Sixteenth IEEE Photovoltaic Specialists Conference — 1982, San Diego, California, 27-30 September 1982, pp. 834-839

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5952	Photovoltaic Energy Systems: A Project Perspective	E.C. Kern, Jr.	Proc. Sixteenth IEEE Photovoltaic Specialists Conference — 1982, San Diego, California, 27-30 September 1982, pp. 246-252
5955	Prototype Residential Photovoltaic Systems: Evaluation Results	B.E. Nichols M.C. Russell	Proc. Sixteenth IEEE Photovoltaic Specialists Conference — 1982, San Diego, California, 27-30 September 1982, pp. 1344-1349
5970	A Bandwidth Analysis of Baseline Networks	J.M. Frankovich	Proc. 3rd Intl. Conf. on Distributed Computing Systems, Miami, Florida, 18-22 October 1982, pp. 572-578
5972	Growth and Characterization of Oriented GaAs Bicrystal Layers	J.P.Salerno R.W. McClelland J.C.C. Fan P. Vohl C.O. Bozler	Proc. Sixteenth IEEE Photovoltaic Specialists Conference — 1982, San Diego, California, 27-30 September 1982, pp. 1299-1303, DTIC AD-A135026/3
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6008B	High-Efficiency Crystalline Tandem Cells	J.C.C. Fan B-Y. Tsaur B.J. Palm	*Photovoltaics for Solar Energy Applications II*, D. Adler, Ed., Proc. SPIE **407**, 73-87 (1983)
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6012	Solar Photovoltaic Cells	J.C.C. Fan	Proc. First U.S.-China Conf. on Energy, Resources and Environment, Beijing, China, 7-12 November 1982, p. 480
6014	On Linear Estimation with Transformed Measurements	C.B. Chang R.B. Holmes	IEEE Trans. Automat. Contr. **AC-28**, 242 (1983), DTIC AD-A135207/9
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6028	High-Speed, Single Chip Signal Processing Devices for Radar and Sonar	A.M. Chiang C.M. Rader	Digest of Papers, Government Microcircuit Applications Conf., Orlando, Florida, 2-4 November 1982, p. 222
6033	Heterodyne and Direct Detection at 10 μm with High-Temperature p-Type HgCdTe Photodetectors	D.L. Spears	Proc. Mtg. of IRIS Specialty Group on Infrared Detectors, San Diego, California, 27-29 July 1982, Vol. I, pp. 163-177
6036	A Distributed Signal Processing Architecture	A.E. Filip	Proc. 3rd Intl. Conf. on Distributed Computing Systems, Miami, Florida, 18-22 October 1982, pp. 49-55
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6060	Superconductive Convolver	S.A. Reible A.C. Anderson P.V. Wright R.S. Withers R.W. Ralston	IEEE Trans. Magnetics **MAG-19**, Pt. 1, 475 (1983)
6061	Superconductive Tapped Delay Lines for Microwave Analog Signal Processing	R.S. Withers A.C. Anderson P.V. Wright S.A. Reible	IEEE Trans. Magnetics **MAG-19**, Pt. 1, 480 (1983)
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6067	Laser Photochemical Processing for Microelectronics	D.J. Ehrlich T.F. Deutsch R.M. Osgood, Jr. D.J. Silversmith	Jpn. J. Appl. Phys. **22**, 161 (1983)
6069	Total Dose Susceptibility of the SBP-9989 Microprocessor	J.P. Woods J.V. MacPhee	IEEE Trans. Nucl. Sci. **NS-29**, 1740 (1982)
6073	Electronic Properties of Grain Boundaries in GaAs: A Study of Oriented Bicrystals Prepared by Epitaxial Lateral Overgrowth	J.P. Salerno R.W. McClelland J.G. Mavroides J.C.C. Fan A.F. Witt	*Materials Research Society Symposium Proceedings, Vol. 14* (Elsevier, New York, 1983), pp. 375-382
6074	Distributed FFT Algorithms with Data Transfers Overlapping Computation	A. Filip G.L. Kelly D.E. Kirk	IEEE Conf. Record, Sixteenth Asilomar Conference on Circuits, Systems & Computers, Pacific Grove, California, 8-10 November 1982, pp. 417-421
6075	Maximum Likelihood Estimation of Spectral Parameters Using Burst Waveforms	L.M. Novak N.E. Lindgren	IEEE Conf. Record, Sixteenth Asilomar Conference on Circuits, Systems & Computers, Pacific Grove, California, 8-10 November 1982, pp. 450-456
6076	Electrical Characteristics of Zone-Melting-Recrystallized Si Films on Insulators	B-Y. Tsaur J.C.C. Fan M.W. Geis R.L. Chapman S.R.J. Brueck D.J. Silversmith R.W. Mountain	Proc. Materials Research Society Symp., Boston, 1-4 November 1982, Vol. 13, pp. 593-604

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6079	Phase and Frequency Tracking Considerations for Heterodyne Optical Communications	J.E. Kaufmann	Proc. ITC USA '82, San Diego, California, 28-30 September 1982, pp. 123-136
6081	UV Laser-Initiated Formation of Si_3N_4	T.F. Deutsch D.J. Silversmith R.W. Mountain	In *Laser Diagnostics and Photochemical Processing for Semiconductor Devices*, edited by R.M. Osgood, S.R.J. Brueck, and H.R. Schlossberg (North-Holland, New York, 1983), Vol. 17, p. 129, DTIC AD-A135090/9
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6090	Laser-Induced Fluorescence Diagnostics of Carbon Tetra-fluoride Oxygen Hydrogen Plasma Etching	S. Pang S.R.J. Brueck	In *Laser Diagnostics and Photochemical Processing for Semiconductor Devices*, edited by R.M. Osgood, S.R.J. Brueck, and H.R. Schlossberg (North-Holland, New York, 1983), Vol. 17, p. 161
6091	Summary Abstract: Zone-Melting Recrystallization of Si Films with a Movable Strip-Heater Oven	M.W. Geis	J. Vac. Sci. Technol. A **1**, 716 (1983), DTIC AD-A135065 1
6092	Optical Microanalysis of Small Semiconductor Structures	D.V. Murphy S.R.J. Brueck	In *Laser Diagnostics and Photochemical Processing for Semiconductor Devices*, edited by R.M. Osgood, S.R.J. Brueck, and H.R. Schlossberg (North-Holland, New York, 1983), Vol. 17, p. 81, DTIC AD-A135028 9
6095	RF Magnetron Sputtering of ZnO for SAW: Effects of Magnetic Field Strength and Configuration	A.C. Anderson D.E. Oates	*1982 Ultrasonics Symposium Proceedings* (IEEE, New York, 1982), pp. 329-333, DTIC AD-A135045 3

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