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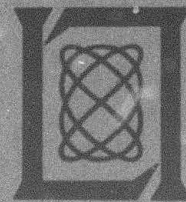
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FOR THE COMMANDER

*Raymond L. Loiseau*

Raymond L. Loiseau, Lt. Col., USAF  
Chief, ESD Lincoln Laboratory Project Office

**FOREWORD**

Volume 6 of Unclassified Publications of Lincoln Laboratory lists reports published from 15 December 1975 to 15 December 1977, as well as updated information on earlier publications.

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15 February 1976	AD-A023869/1	15 February 1977	AD-A040124/0
15 May 1976	AD-A028041/2	15 May 1977	AD-A043276/5
15 August 1976	AD-A032343/6	15 August 1977	AD-A047274
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1 July 1976		1 July 1977	AD-A046580/7
1 October 1976	AD-A035104/9	1 October 1977	AD-A048247/1

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15 January 1976	AD-B010608-L	15 January 1977	AD-B018632-L
15 April 1976	AD-B011597-L	15 April 1977	AD-B020830-L
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31 December 1975	AD-A022199/4	30 June 1976	AD-A032342/8

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30 June 1975	AD-A021239/9	30 September 1976	AD-A045455/3
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	<u>DDC No.</u>		<u>DDC No.</u>
15 September 1966	AD-803845	15 December 1973	AD-778085/1
15 September 1969	AD-863034	15 December 1975	AD-A028523/9
15 September 1971	AD-734038		

TECHNICAL REPORTS

<u>TR No.</u>				<u>DDC No.</u>
516	Random Variables as a Data Type	A. G. Nemeth	13 May 1976	AD-A026452/3
517	The Application of Linear Prediction to Sequential Classification of Radar Target Signatures	C. W. Therrien	25 Mar. 1976	AD-A026695/7
518	Low Elevation Angle Measurement Limitations Imposed by the Troposphere: An Analysis of Scintillation Observations Made at Haystack and Millstone	R. K. Crane	18 May 1976	AD-A031575/4
522	Millstone Hill Thomson Scatter Results for 1970	J. V. Evans J. M. Holt	11 May 1976	
523	Acoustic Characteristics of Stop Consonants: A Controlled Study	V. W. Zue	17 May 1976	AD-A034600/7
524	Theory and Operating Characteristics of TRAPATT Amplifiers	R. W. Laton G. I. Haddad M. I. Grace	26 Jan. 1977	AD-B020021-L
525	Store-and-Forward Computer Communications Over Noisy Channels	D. J. Leinweber	2 Dec. 1977	AD-A051053

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1976-1	Second Order Detection Statistics for Fluctuating Targets	D. H. Pruslin	30 Jan. 1976	AD-B009986-L
1976-2	Mechanics of Proposed UHF Antenna System Towed in Various Sea States	E. C. Kern S. E. Forman	12 Jan. 1976	AD-B009419-L
1976-3	Radar Observations of the Deployment of LES-8 and 9	G. P. Banner G. L. Guernsey A. F. Pensa C. B. Slade L. B. Spence R. Sridharan	1 Dec. 1976	AD-B016602-L
1976-4	DVT Diagnostic System	R. I. Tucker M. Daniel	19 July 1976	AD-A029413/2
1976-5	A Slender Resonator-Slot UHF Antenna Capable of Integration into a Submarine-Towed Cable	J. C. Lee	7 Jan. 1976	AD-B009034-L
1976-6	Robust Speech Processing	B. Gold	27 Jan. 1976	AD-A021899/0
1976-7	Optimum Classification of Voiced Speech, Unvoiced Speech and Silence in the Presence of Noise and Interference	R. J. McAulay	3 June 1976	AD-A028518/9
1976-8	Note on Cumulant Expansions in Rummier Processing of Radar Returns	R. W. Davies N. E. Lindgren	14 July 1976	AD-A029883/6
1976-9	Predicted and Measured Detection Capabilities of the Lincoln ETS, Photon-Noise-Limited, Electro-Optical Systems	R. Weber	26 Apr. 1976	AD-A025859/0
1976-10	Simulation of a Narrow Bandpass-Limited Satellite Channel	B. E. White	28 July 1976	AD-A030411
1976-11	Optimum Elevation Angle Estimation in the Presence of Ground Reflection Multipath	R. J. McAulay	9 Feb. 1976	AD-A023247/0
1976-12	The Handling of Star Catalogs: The Transformations of Positions and Proper Motions	L. G. Taff	17 Feb. 1976	AD-A023248/8
1976-13	The Detection Capabilities of Gallium Arsenide and S-20 Photo-Multiplier Tubes to GO-Type, Point-Source, Signals	R. Weber	3 Mar. 1976	AD-A023818/8

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1976-15	Shunt Regulator Design for LES-8/9	A. R. Millner	5 Mar. 1976	AD-A023819/6
1976-16	Estimates of Wake Mean Velocity, Velocity Spread, and Velocity Distribution Asymmetry from Pulse Pair Correlation Measurements	N. E. Lindgren	18 Mar. 1976	AD-B012704-L
1976-18	Adaptive Nulling with Multiple-Beam Antennas	J. T. Mayhan	30 Sept. 1976	AD-A034652/8
1976-19	10.6 $\mu$ m Coherent Monopulse Tracking Interim Results	R. Teoste W. J. Scouler	7 May 1976	AD-A027209/6
1976-20	How to Switch a Beam-Forming Network with Minimum Disturbance to Existing Communication Channels	L. K. DeSize A. J. Simmons	2 Apr. 1976	AD-A025208/0
1976-21	Kalman Filter Configurations for Multiple Radar Systems	D. Willner C. B. Chang K. P. Dunn	14 Apr. 1976	AD-A026367/3
1976-22	Properties of Matched and Mismatched Kalman Filters	M. Athans D. Willner	26 Apr. 1976	AD-A027225/2
1976-24	Performance Evaluation of the Lincoln Laboratory Time Sharing System	J. R. Walton	7 May 1976	AD-A026366/5
1976-25	Computer Software for the Navy K-Band Satellite Communications Terminal	D. A. McNeill	24 May 1976	AD-A027220/3
1976-28	Adaptive Estimation and Parameter Identification Using Multiple Model Estimation Algorithm	M. Athans C. B. Chang	23 June 1976	AD-A028510/6
1976-29	A Terminal Access Control System for FLEETSAT	J. D. Bridwell	22 Nov. 1976	AD-A034813/6
1976-31	Post-Launch RTG Performance Aboard LES-8/9	E. E. Landsman	20 July 1976	AD-B012828-L
1976-32	A Numerical Study of Eigenvalue Computation	I. T. Young	18 Nov. 1976	AD-A036716/9
1976-33	A Class of Threshold Decodable Block Codes	B. Reiffen	23 July 1976	AD-A029895/0
1976-34	Circular Polarization Scattering Coefficients for the Bistatic Scattering of Electromagnetic Waves from Perfectly Conducting Spheres	R. A. Ross G. N. Cohen	27 July 1976	AD-A030043/4

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1976-35	Photometric Reductions: Theory and Practice	L. G. Taff	17 Dec. 1976	AD-A035870/5
1976-37	Microprocessor Realization of a Linear Predictive Vocoder	E. M. Hofstetter J. Tierney O. C. Wheeler	30 Sept. 1976	AD-A033686/7
1976-37 Suppl. 1	Microprocessor Realization of a Linear Predictive Vocoder	E. M. Hofstetter J. Tierney O. C. Wheeler	7 Feb. 1977	AD-A038241/6
1976-38	A Summary of Methods for Producing Nulls in an Antenna Radiation Pattern	L. J. Ricardi	2 Sept. 1976	AD-A032340/2
1976-39	Optimum Speech Classifica- tion and Its Application to Adaptive Noise Cancellation	R. J. McAulay	9 Nov. 1976	AD-A036324/2
1976-41, Vol. I	Analysis of UHF MILSATCOM Architecture Alternatives, Volume I: General System Considerations	H. M. Heggstad	26 Oct. 1976	AD-B015281-L
1976-42	Automatic Reporting of Height (AROH) Design and Trade-Off Studies	L. Cartledge M. Labitt C-S. Lin	1 Nov. 1976	AD-A035316/9
1976-45	Behavior of a Link in a PVC Network	A. G. Nemeth	7 Dec. 1976	AD-A036370/5
1977-1	Development of a New ICES Executive for the IBM/370 CMS and VS Operating Systems	B. Schumacker	11 Jan. 1977	AD-A037487/6
1977-2	Astrometry in Small Fields	L. G. Taff	14 June 1977	AD-A043568/5
1977-3	Input Buffer Designs for a Radar Signal Processor	A. H. Huntoon	20 Jan. 1977	AD-A037120/3
1977-4	Satellite-to-Satellite Data Transfer and Control	D. M. Snider D. B. Coomber	19 Jan. 1977	AD-A041323/7
1977-5	Real Time Harmonic Pitch Detector	S. Seneff	26 Jan. 1977	AD-A038542/7
1977-7	Waveform and Clutter Filter Design for a Satellite-Borne Bistatic Radar for Aircraft Detection	R. A. Goundry C. J. Kurys	28 June 1977	AD-A044309/3
1977-8	A Wideband Waveguide Lens	A. R. Dion	2 Feb. 1977	AD-A038541/9
1977-10	The Firepond Kalman Filter	S. F. Catalano	4 Feb. 1977	AD-A040131/5
1977-11	An ECL Gate Array Realiza- tion of a Computer for Real Time Speech Synthesis	R. Berger	7 Mar. 1977	AD-A039179/7

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1977-13	The Lincoln Terminal System (LTS-5) A Brief Description	R. C. Butman	28 Dec. 1977	AD-A048692/8
1977-14	A Survey of Solid-State Microwave Power Devices	P. W. Staecker D. F. Peterson	29 Apr. 1977	AD-A041202/3
1977-15	A Maximum Likelihood Weapon Location Algorithm for Use With Projectile Tracking Radars	M. E. Austin E. T. Bayliss	21 July 1977	AD-B022299-L
1977-16	The Search for Prognoz 4	R. Sridharan	14 Mar. 1977	AD-B017896-L
1977-17	Finite Element Capabilities in M.I.T. Lincoln Laboratory Version of STRUDL	S. S. Britten	30 Sept. 1977	AD-A048605/0
1977-18	Photoemissive and Electro-emissive Surfaces and Sandwiches	R. Weber	25 May 1977	AD-A042431/7
1977-19	Spatial Acquisition in Optical Space Communications	A. A. Braga-Illa H. M. Heggstad E. V. Hoversten J. T. Lynch	6 Sept. 1977	AD-A046581/5
1977-20	A General-Purpose Cross-Assembler for Producing Absolute Binary Object Code	P. R. Kretz	6 Apr. 1977	AD-A040553/0
1977-22	A Time Diversity Coding Experiment for a UHF/VHF Satellite Channel with Scintillation: Equipment Description	D. P. White	1 Sept. 1977	AD-A047102
1977-23	Airborne Radars for Surveillance and Weapon Delivery	C. E. Muehe	15 July 1977	AD-A044069/3
1977-24	Station Magnitude Bias - Its Determination, Causes, and Effects	R. G. North	29 Apr. 1977	AD-A041643/8
1977-25	On the Accuracy of the Positions of Celestial Objects Determined from a Linear Model	L. G. Taff	22 Dec. 1977	AD-A050565
1977-27	The Application of the Cramer-Rao Bound to Estimates of Radar Return Time-of-Arrival for Several Target Configurations	C. B. Chang R. W. Miller	23 May 1977	AD-A042751/8
1977-28	Baseline Link Calculation for Optical Broadcasting Through Water	R. M. Lerner	2 June 1977	AD-A042569/4
1977-29	System Design Study for Infra-red Airborne Radar (IRAR)	R. J. Becherer	18 Oct. 1977	AD-A048979/9

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1977-30	An Attitude Control System for a Large Geosynchronous Earth-Pointing Satellite	J. R. Vernau	5 July 1977	AD-A044822
1977-31	The Amplitude Effect of Point-Source Blooming as a Function of Background Level in Ebsicon-Type Camera Tubes	R. Weber	16 June 1977	AD-A043277/3
1977-32	An Electro Optical MTI System for the Detection of Artificial Satellites (the NITH Finder)	G. T. Flynn	27 June 1977	AD-A048055/8
1977-33	A Digital Microprocessor Channel Vocoder	J. Gorski-Popiel	10 Aug. 1977	AD-A045079/1
1977-34	Theory of the Effects of Pulsed RFI on Coded Communication	S. L. Bernstein	22 July 1977	AD-A044070/1
1977-35	Design, Test and Performance of a UHF Floating Slender-Slot Antenna	J. C. Lee L. S. Metzger	30 Dec. 1977	AD-B025257-L
1977-36	Orbital Element Sorting for 12 Hour Payloads	G. L. Guernsey	30 Aug. 1977	AD-B021774-L
1977-37	Measurements of Voice and Data Queue Behavior in a PVC Network Link	P. Demko	25 Aug. 1977	AD-A047101
1977-39	Design for High Accuracy Critical-Angle Sun Transit Sensor	N. R. Trudeau B. Howland	20 Oct. 1977	AD-A048287/7
1977-40	Catalog of Non-Stellar Objects	L. G. Taff	12 Sept. 1977	AD-A046485/9
1977-43	Orbit Prediction Errors Resulting from Vertical Misalignment of a Radar Antenna	A. Freed	15 Dec. 1977	AD-A050161
1977-45	High-Power, High-Efficiency UHF Amplifier Design	M. L. Stevens	18 Nov. 1977	AD-A049289/2
1977-48, Vol. 2	LES-8/9 Antenna Systems Volume 2: S-Band Telemetry	C. A. Lindberg J. C. Lee A. J. Simmons	30 Dec. 1977	AD-B026730-L
1977-48, Vol. 3	LES-8/9 Antenna Systems Volume 3: K-Band	A. R. Dion J. C. Lee C. A. Lindberg A. J. Simmons	30 Dec. 1977	AD-B026789-L
1977-49	A Comparison of the Use of Deterministic and Random Signals for Impulse Response Determination	D. H. Pruslin	27 Dec. 1977	AD-A051321

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2082	Sketchpad, A Man-Machine Graphical Communication System	I. E. Sutherland	Proc. Spring Joint Computer Conf., Vol. 23, Detroit, Michigan, 21-23 May 1963, pp. 329-346
4036	Ferromagnetism	J. B. Goodenough	Estratto dal Vol. V della <u>Enciclopedia della Chimica</u> (Uses Edizioni Scientifiche, Firenze, 1976), p. 357
4150	Analysis of Microseismic Noise at LASA, NORSAR and ALPA	J. Capon	Geophys. J. R. Astr. Soc. 35, 39 (1973), DDC AD-A030982/3
4201	P-Wave Travel Times from Deep Earthquakes	M. K. Sengupta B. R. Julian	Bull. Seismol. Soc. Am. 66, 1555 (1976), DDC AD-A042240/2
4230	Tunable Lasers in the Infrared	E. D. Hinkley K. W. Nill F. A. Blum	Laser Focus 12, 47 (1976); chapter in <u>Topics in Applied Physics, Laser Spectroscopy of Atoms and Molecules</u> , H. Walther, Ed. (Springer-Verlag, Berlin, 1974), Vol. 2, p. 125
4336	Hardware Realization of a Fermat Number Transform	J. H. McClellan	IEEE Trans. Acoust., Speech, and Signal Processing ASSP-24, 216 (1976), DDC AD-A029283/9
4353	Brillouin Scattering in Semiconductors	A. S. Pine	Chapter 6 in <u>Topics in Applied Physics, Volume 8: Light Scattering in Solids</u> , M. Cardona, Ed. (Springer-Verlag, Heidelberg, 1975), pp. 253-273
4359	Two-Dimensional Nonrecursive Filters	J. G. Fiasconaro	Chapter 3 in <u>Picture Processing and Digital Filtering</u> , T. S. Huang, Ed. (Springer-Verlag, Berlin, 1975), pp. 69-129
4365	Determination of the Three-Dimensional Seismic Structure of the Lithosphere	K. Aki A. Christoffersson E. S. Husebye	J. Geophys. Res. 82, 277 (1977), DDC AD-A046029
4371	An Experiment on Problem Solving with Delayed Computer Responses	M. Grossberg R. A. Wiesen D. B. Yntema	IEEE Trans. Syst., Man Cybern. SMC-6, 219 (1976), DDC AD-A027003/3
4382	On the Application of the Number Theoretic Methods of High-Speed Convolution to Two-Dimensional Filtering	C. M. Rader	IEEE Trans. Circuits and Systems CAS-22, 575 (1975), DDC AD-A037626/9
4387	Effects of Random Phase Errors at $K_a$ Band Resulting from a Composite Material Radome	J. T. Mayhan	IEEE Trans. Antennas Propag. AP-24, 356 (1976), DDC AD-A027009/0

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|-------|--|--|---|
| 4408  | Antenna Performance in the Presence of Diffuse Multipath                   | T. P. McGarty  | IEEE Trans. Aerospace Electron. Systems <u>AES-12</u> , 42 (1976)                                     |
| 4410  | Scattering of Elastic Waves from Depth-Dependent Inhomogeneities           | P. G. Richards<br>C. W. Frasier                              | Geophysics <u>41</u> , 441 (1976),<br>DDC AD-A050671  |
| 4433  | Modifications to Formant Tracking Algorithm of April 1974                  | S. Seneff  | IEEE Trans. Acoust., Speech, and Signal Processing <u>ASSP-24</u> , 192 (1976), DDC AD-A027102/3      |
| 4440  | Simplified Matrix Inversion for Optimization of Linear Arrays              | M. Y. L. Liu<br>H. J. Stalzer, Jr.                           | IEEE Trans. Antennas Propag. <u>AP-24</u> , 387 (1976)  |
| 4441  | Nulling Limitations for a Multiple-Beam Antenna                            | J. T. Mayhan   | IEEE Trans. Antennas Propag. <u>AP-24</u> , 769 (1976),<br>DDC AD-A046032/9                           |
| 4451  | Dielectric Constants of Paraffin-Wax - TiO <sub>2</sub> Mixtures           | G. F. Dionne<br>J. F. Fitzgerald<br>R. C. Aucoin             | J. Appl. Phys. <u>47</u> , 1708 (1976),<br>DDC AD-A027104/9   |
| 4457  | Spacecraft Neutral Self-Contamination by Molecular Outgassing              | R. L. Harvey   | J. Spacecraft <u>13</u> , 301 (1976),<br>DDC AD-A030984/9   |
| 4461  | External Cavity CO <sub>2</sub> -Pumped InSb Spin-Flip Laser               | S. R. J. Brueck<br>A. Mooradian                              | IEEE J. Quantum Electron. <u>QE-12</u> , 201 (1976),<br>DDC AD-A027004/1                              |
| 4465  | Molecular Absorption of Infrared Laser Radiation in the Natural Atmosphere | P. L. Kelley<br>R. A. McClatchey<br>R. K. Long<br>A. Snelson | Opt. Quantum Electron. <u>8</u> , 117 (1976), DDC AD-A027005/8  |
| 4466  | A Baker's Dozen Magnitude Approximations and Their Detection Statistics    | A. E. Filip  | IEEE Trans. Aerospace Electron. Systems <u>AES-12</u> , 86 (1976), DDC AD-A027006/6                   |
| 4469A | Low-Threshold Transversely Excited NdP <sub>5</sub> O <sub>14</sub> Laser  | S. R. Chinn<br>J. W. Pierce<br>H. Heckscher                  | Appl. Opt. <u>15</u> , 1444 (1976)  |
| 4476  | Efficient InSb Laser with Resonant Longitudinal Optical Pumping            | N. Menyuk<br>A. S. Pine<br>A. Mooradian                      | IEEE J. Quantum Electron. <u>QE-11</u> , 477 (1975)   |
| 4478  | Synthesis of Equiripple Sector Antenna Patterns                            | J. E. Evans  | IEEE Trans. Antennas Propag. <u>AP-24</u> , 347 (1976)  |
| 4482  | Spectra of Ionospheric Scintillation                                       | R. K. Crane  | J. Geophys. Res. <u>81</u> , 2041 (1976), DDC AD-A029282/1  |
| 4486  | Surface Wave Device Fabrication  | H. I. Smith  | Chapter 4 in <u>Surface Wave Filters</u> , edited by H. Matthews (Wiley, New York, 1977), pp. 165-217 |

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4496	Applications of Infrared Lasers to Spectroscopy	A. H. M. Ross P. L. Kelley K. W. Nill	In <u>Frontiers in Laser Spectroscopy</u> , Vol. 2, edited by R. Balian, S. Haroche, and S. Liberman (North-Holland, Amsterdam, 1977), pp. 571-635
4501	A Transistor Design for High $f_T$ at Low Currents	P. Greiff	IEEE Trans. Electron Devices ED-23, 343 (1976), DDC AD-A027007/4
4505	Reflection Grating Filters	R. C. Williamson	Chapter 9 in <u>Surface Wave Filters</u> , edited by H. Matthews (Wiley, New York, 1977), pp. 381-442
4508	Electrical Characterization of Epitaxial Layers	G. E. Stillman C. M. Wolfe	Thin Solid Films 31, 69 (1976), DDC AD-A024175/2
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4525	Thermal-Blooming Compensation: Experimental Observations Using a Deformable-Mirror System	C. A. Primmerman D. G. Fouche	Appl. Opt. 15, 990 (1976), DDC AD-A026809/4
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4675	Suboptimal Continuous Shift Keyed (CSK) Demodulation for the Efficient Implementation of Low Crosstalk Data Communication	I. Kalet B. E. White	IEEE Trans. Commun. COM-25, 1037 (1977), DDC AD-A050859
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4681	Preparation and Properties of PbS Crystals with Low Carrier Concentrations	T. C. Harman A. J. Strauss	J. Electron. Mater. <u>5</u> , 621 (1976)
4684	Microscopic Theory of the Lattice Dynamics of hcp Rare-Earth Metals	J. C. Upadhyaya A. O. E. Animalu	Phys. Rev. B <u>15</u> , 1867 (1977), DDC AD-A042237/8
4690	Adaptive Nulling with Multiple-Beam Antennas	J. T. Mayhan	Accepted IEEE Trans. Antennas Propag.
4693	Resonant Infrared Third-Harmonic Generation in Cryogenic Liquids	H. Kildal S. R. J. Brueck	Phys. Rev. Lett. <u>38</u> , 347 (1977), DDC AD-A042238/6
4694	X-Ray Photoemission Spectroscopy Studies of Sn-Doped Indium-Oxide Films	J. C. C. Fan J. B. Goodenough	J. Appl. Phys. <u>48</u> , 3524 (1977), DDC AD-A046983

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4695	Digital Speech Networks	B. Gold	Proc. IEEE <u>65</u> , 1636 (1977)
4698	Some Geophysical Applications of Autoregressive Spectral Estimates	T. E. Landers R. T. Lacoss	IEEE Trans. Geosci. Electron. <u>GE-15</u> , 26 (1977)
4699	Autoregressive and Maximum Likelihood Spectral Analysis Methods	R. T. Lacoss	In <u>Aspects of Signal Processing, Part 2</u> , G. Tacconi, Ed. (D. Reidel, Dordrecht-Holland, 1977), pp. 591-615, DDC AD-A050628
4700	Low-Dose n-Type Ion Implantation into Cr-Doped GaAs Substrates	J. P. Donnelly C. O. Bozler W. T. Lindley	Solid-State Electron. <u>20</u> , 273 (1977), DDC AD-A042239/4
4701	A Night Sky Model for Satellite Search Systems	G. M. Daniels	Optical Engineering <u>16</u> , 66 (1977)
4703	1500-hr Continuous cw Operation of Double-Heterostructure GaInAsP/InP Lasers	C. C. Shen J. J. Hsieh T. A. Lind	Appl. Phys. Lett. <u>30</u> , 353 (1977)
4705	Room-Temperature cw Operation of Buried-Stripe Double-Heterostructure GaInAsP/InP Diode Lasers	J. J. Hsieh C. C. Shen	Appl. Phys. Lett. <u>30</u> , 429 (1977)
4706	Tests of Electrodynamical Consistency From Daytime Ionospheric Drift Observations	J. E. Salah J. V. Evans	J. Geophys. Res. <u>82</u> , 2413 (1977)
4708	Schottky-Barrier Diodes for Submillimeter Heterodyne Detection	B. J. Clifton	IEEE Trans. Microwave Theory Tech. <u>MTT-25</u> , 457 (1977)
4709	Selective Black Absorbers Using rf-Sputtered Cr <sub>2</sub> O <sub>3</sub> /Cr Cermet Films	J. C. C. Fan S. A. Spura	Appl. Phys. Lett. <u>30</u> , 511 (1977)
4710	Micro Fresnel Zone Plates for Coded Imaging Applications	N. M. Ceglie H. I. Smith	Accepted Rev. Sci. Instrum.
4711	Kalman Filter Compensation for a Special Class of Systems	C. B. Chang K. P. Dunn	IEEE Trans. Aerospace Electron. Systems <u>AES-13</u> , 700 (1977), DDC AD-A054572
4712	Electronics and National Defense	G. P. Dinneen F. C. Frick	Science <u>195</u> , 1151 (1977)
4713	Microprocessor Realization of a Linear Predictive Vocoder	E. M. Hofstetter J. Tierney O. Wheeler	IEEE Trans. Acoust., Speech, and Signal Processing <u>ASSP-25</u> , 379 (1977), DDC AD-A050860
4718	Ag <sub>2</sub> Se-Ga <sub>2</sub> Se <sub>3</sub> Pseudobinary Phase Diagram	J. C. Mikkelsen, Jr.	Mater. Res. Bull. <u>12</u> , 497 (1977)

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4719	Satellite Beacon Contributions to Studies of the Structure of the Ionosphere	J. V. Evans	Revs. Geophys. Space Phys. <u>15</u> , 325 (1977)
4720	Hole-Boring in Clouds by High-Intensity Laser Beams: Theory	R. C. Harney	Appl. Opt. <u>16</u> , 2974 (1977), DDC AD-A054402
4721	cw Operation of Distributed Feedback Pb <sub>1-x</sub> Sn <sub>x</sub> Te Lasers	J. N. Walpole A. R. Calawa S. R. Chinn S. H. Groves T. C. Harman	Appl. Phys. Lett. <u>30</u> , 524 (1977)
4722	Polarised Infrared Reflectivity of CdGeAs <sub>2</sub>	G. D. Holah A. Miller W. D. Dunnett G. W. Iseler	Solid State Commun. <u>23</u> , 75 (1977)
4724	Second Vibrational Overtone Absorption Spectrum of the $\nu_3$ Mode of SF <sub>6</sub>	H. Kildal	J. Chem. Phys. <u>67</u> , 1287 (1977), DDC AD-A046980
4725	An Application of the Energy - Moment Tensor Relation to Estimation of Seismic Energy Radiated by Point and Line Sources	D. W. McCowan A. M. Dziewonski	Geophys. J. R. Astr. Soc. <u>51</u> , 531 (1977), DDC AD-A054403
4726	Thin-Film VO <sub>2</sub> Submillimeter-Wave Modulators and Polarizers	J. C. C. Fan H. R. Fetterman F. J. Bachner P. M. Zavracky C. D. Parker	Appl. Phys. Lett. <u>31</u> , 11 (1977)
4728	Flash-Lamp-Excited NdP <sub>5</sub> O <sub>14</sub> Laser	S. R. Chinn W. K. Zwicker	Appl. Phys. Lett. <u>31</u> , 178 (1977)
4730	Tolerance Control in an Array Antenna	G. N. Tsandoulas	Microwave J. <u>20</u> , 24 (1977), DDC AD-A054404
4732	Simultaneous Optical and X-Ray Imaging Telescopes	R. C. Harney	Appl. Opt. <u>16</u> , 2039 (1977), DDC AD-A046981
4734	Optoacoustic Measurements of Energy Absorption in CO <sub>2</sub> TEA-Laser-Excited SF <sub>6</sub> at 293 and 145 K	T. F. Deutsch	Opt. Lett. <u>1</u> , 25 (1977)
4735	The N-Quantum Approximation in the Bronzan-Lee Extended-Source Static Model	L. M. Scarfone J. A. Burns	J. Math. Phys. <u>18</u> , 2031 (1977)
4736	New C. C. D. Programmable Transversal Filter	B. E. Burke W. T. Lindley	Electron. Lett. <u>13</u> , 521 (1977), DDC AD-A054405

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| 4737  | High-Resolution Transient-Double-Resonance Spectroscopy in SF <sub>6</sub>   | P. F. Moulton<br>D. M. Larsen<br>J. N. Walpole<br>A. Mooradian          | Opt. Lett. <u>1</u> , 51 (1977),<br>DDC AD-A046984                 |
| 4738  | Analysis of the 4- $\mu$ m $\nu_1 + \nu_3$ Combination Band of SO <sub>2</sub>   | A. S. Pine<br>G. Dresselhaus<br>B. Palm<br>R. W. Davies<br>S. A. Clough | J. Mol. Spectrosc. <u>67</u> , 386 (1977)                          |
| 4739. | Measured Compositions and Laser Emission Wavelengths of Ga <sub>x</sub> In <sub>1-x</sub> As <sub>y</sub> P <sub>1-y</sub> LPE Layers Lattice-Matched to InP Substrates                | J. J. Hsieh   | Accepted J. Electron. Mater.                                       |
| 4740  | Interferometer Design for Elevation Angle Estimation   | R. J. McAulay   | IEEE Trans. Aerospace Electron. Systems <u>AES-13</u> , 486 (1977) |
| 4741  | Phase Studies, Crystal Growth, and Optical Properties of CdGe(As <sub>1-x</sub> P <sub>x</sub> ) <sub>2</sub> and AgGa(Se <sub>1-x</sub> S <sub>x</sub> ) <sub>2</sub> Solid Solutions | J. C. Mikkelsen, Jr.<br>H. Kildal                                       | Accepted J. Appl. Phys.  |
| 4743  | GaAs Directional-Coupler Switch with Stepped $\Delta\beta$ Reversal  | F. J. Leonberger<br>C. O. Bozler  | Appl. Phys. Lett. <u>31</u> , 223 (1977)                           |
| 4744  | Vibrational Two-Photon Resonance Linewidths in Liquid Media  | S. R. J. Brueck   | Chem. Phys. Lett. <u>50</u> , 516 (1977), DDC AD-A050861           |
| 4745  | Proton Bombardment in InP  | J. P. Donnelly<br>C. E. Hurwitz   | Solid-State Electron. <u>20</u> , 727 (1977), DDC AD-A054406       |
| 4748  | 310-MHz SAW Resonator with Q at the Material Limit   | R. C. M. Li   | Appl. Phys. Lett. <u>31</u> , 407 (1977), DDC AD-A050855           |
| 4750  | On Computing the Cramer-Rao Bound for a Random Signal via a Sampled Data Approach  | C. B. Chang   | Accepted IEEE Trans. Aerospace Electron. Systems                   |
| 4751  | Vibrational Energy Relaxation of CH <sub>3</sub> F Dissolved in Liquid O <sub>2</sub> and Ar   | S. R. J. Brueck<br>T. F. Deutsch<br>R. M. Osgood, Jr.                   | Chem. Phys. Lett. <u>51</u> , 339 (1977), DDC AD-A054565           |
| 4752  | Ion-Implanted n- and p-Type Layers in InP  | J. P. Donnelly<br>C. E. Hurwitz   | Appl. Phys. Lett. <u>31</u> , 418 (1977), DDC AD-A050856           |
| 4753  | Surface Relief Gratings of 3200- $\text{\AA}$ Period - Fabrication and Influence on Thin-Film Growth   | D. C. Flanders<br>H. I. Smith   | Accepted J. Vac. Sci. Technol.                                     |

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4754	Polarized Vibrational Raman Scattering Lineshape Parameters in Liquid CO and Liquid CO Mixtures	S. R. J. Brueck	Accepted Chem. Phys. Lett.
4756	Thermal Expansion and Seeded Bridgman Growth of AgGaSe <sub>2</sub>	G. W. Iseler	J. Cryst. Growth <b>41</b> , 146 (1977), DDC AD-A054773
4757	High-Efficiency GaAs Shallow-Homojunction Solar Cells	C. O. Bozler J. C. C. Fan	Appl. Phys. Lett. <b>31</b> , 629 (1977), DDC AD-A053926
4760	Coherent Optical Radar	R. H. Kingston	Optics News, 27 (Summer 1977), DDC AD-A053924
4761	High-Sensitivity Infrared Heterodyne Radiometer Using a Tunable-Diode-Laser Local Oscillator	R. T. Ku D. L. Spears	Opt. Lett. <b>1</b> , 84 (1977), DDC AD-A050857
4766	A New Interferometric Alignment Technique	D. C. Flanders H. I. Smith S. Austin	Appl. Phys. Lett. <b>31</b> , 426 (1977), DDC AD-A050858
4772	GaInAsP/InP Double-Heterostructure Lasers for Fiber Optic Communications	J. J. Hsieh C. C. Shen	Accepted Fiber Integ. Opt.
4773	Suppression of Bulk-Scattering Loss at S. A. W. -Resonator Reflectors	R. C. M. Li J. A. Alusow	Electron. Lett. <b>13</b> , 580 (1977)
4774	Packet Switching in a Processing Satellite	J. K. DeRosa L. H. Ozarow	Accepted Proc. IEEE
4775	Chemisorbed Phases of H <sub>2</sub> O on TiO <sub>2</sub> and SrTiO <sub>3</sub>	V. E. Henrich G. Dresselhaus H. J. Zeiger	Solid State Commun. <b>24</b> , 623 (1977), DDC AD-A053928
4777	Surface Relief Structures with Linewidths Below 2000 Å	D. C. Flanders H. I. Smith H. W. Lehmann R. Widmer D. C. Shaver	Accepted Appl. Phys. Lett.
4779	A Note on Lunar Tides in the Ionosphere	J. V. Evans	Accepted J. Geophys. Res.
4780	Effect of O <sub>2</sub> Pressure During Deposition on Properties of rf-Sputtered Sn-Doped In <sub>2</sub> O <sub>3</sub> Films	J. C. C. Fan F. J. Bachner G. H. Foley	Appl. Phys. Lett. <b>31</b> , 773 (1977), DDC AD-A053923
4781	High-Resolution Group Velocity Analysis	D. W. McCowan	Accepted Geopexploration

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| 4784 | High-Resistivity Layers in n-InP Produced by Fe Ion Implantation  | J. P. Donnelly<br>C. E. Hurwitz   | Accepted Solid-State Electron. |
| 4785 | Infrared Four-Wave Sum and Difference Frequency Generation in Liquid CO-O <sub>2</sub> Mixtures   | H. Kildal<br>S. R. J. Brueck  | Accepted Appl. Phys. Lett.     |
| 4786 | Collisionless Intramolecular Energy Transfer in Vibrationally Excited SF <sub>6</sub>   | T. F. Deutsch<br>S. R. J. Brueck  | Accepted Chem. Phys. Lett.     |
| 4792 | Crystal Structure and Ionic Conductivity of Li <sub>14</sub> Zn(GeO <sub>4</sub> ) <sub>4</sub> and Other New Li <sup>+</sup> Superionic Conductors | H. Y-P. Hong  | Accepted Mater. Res. Bull.     |
| 4798 | Surface Acoustic Wave Properties of Fresnoite, Ba <sub>2</sub> Si <sub>2</sub> TiO <sub>8</sub>   | J. Melngailis<br>J. F. Vetelino<br>A. Jhunjhunwala<br>T. B. Reed<br>R. E. Fahey<br>E. Stern | Accepted Appl. Phys. Lett.     |
| 4799 | Ultraviolet Photoemission Measurements of the Band Structure of TiO <sub>x</sub> (0.93 ≤ x ≤ 1.15)  | V. E. Henrich<br>H. J. Zeiger<br>T. B. Reed   | Accepted Phys. Rev. B          |

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<u>MS No.</u>			
2951H	Conceptual Phase Diagrams and Their Applications to Itinerant Electron Magnetism	J. B. Goodenough	In <u>Magnetism in Metals and Metallic Compounds</u> , J.T. Lopuszanski, A. Pekalski, and J. Przystawa, Eds. (Plenum, New York, 1976), pp.35-90, DDC AD-A029281/3
3633	Morphology of Ionospheric Scintillation	R.K. Crane	In <u>Communications Satellite Developments: Technology, Vol.42 - Progress in Astronautics and Aeronautics</u> , W.G. Schmidt and G.E. LaVeau, Eds. (M.I.T. Press, Cambridge, Massachusetts, 1976), pp.311-345, DDC AD-A030992/2
3965	Planar HgCdTe Photodiodes for Wideband Heterodyne Detection at 10.6 $\mu\text{m}$	D.L. Spears I. Melngailis T.C. Harman	IEEE J. Quantum Electron. <u>QE-11</u> , 79D (1976)
3981	Solar-Heated-Air Receivers	P.O. Jarvinen	Solar Energy <u>19</u> , 139 (1977)
3983	High-Efficiency Electrochemical Plant	M.S.S. Hsu W.E. Morrow, Jr. J.B. Goodenough	IECEC '75 Record, pp.555-563
3986	Planar HgCdTe Quadrantal Heterodyne Arrays with GHz Response at 10.6 $\mu\text{m}$	D.L. Spears	Infrared Phys. <u>17</u> , 5 (1977), DDC AD-A046982
3994	Design and Performance of High Power Multi-Stage mm-Wave IMPATT Diode Amplifiers for Use on LES-8/9	D.F. Peterson, III C.D. Berglund	Proc. IEEE Intl. Symp. on Circuits and Systems, Boston, 21-23 April 1975, pp.415-418, DDC AD-A030983/1
3995A	Current and Future Communication Satellite Technology	W.E. Morrow	In <u>Proceedings of the XXVI International Astronautical Congress</u> , edited by L.G. Napolitano (Pergamon Press, Oxford and New York, 1976), pp.277-296
4045A	Electron Energy Loss Spectroscopy of Surface States on Titanium and Vanadium Oxides	V.E. Henrich H.J. Zeiger G. Dresselhaus	Proc. Workshop on Electrocatalysis of Non-Metallic Surfaces, Bethesda, Maryland, 9-12 December 1975, p.133
4067	Recent Advances in Tunable Lasers	A. Mooradian	Sov. J. Quant. Electron. <u>6</u> , 420 (1976)
4067G	Scalable Tunable IR Lasers	A. Mooradian	In <u>Tunable Lasers and Applications</u> , A. Mooradian, T. Jaeger, and P. Stokseth, Eds. (Springer-Verlag, Berlin, 1976), p.60
4072	Laser Spectroscopic Instrumentation and Techniques: Long-Path Monitoring by Resonance Absorption	E.D. Hinkley	Opt. Quantum Electron. <u>8</u> , 155 (1976)

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| 4088  | Experimental Exploration of the Limits of Achievable Q of Grooved Surface-Wave Resonators   | R. C. M. Li<br>J. A. Alusow<br>R. C. Williamson                     | <u>1975 Ultrasonics Symposium Proceedings</u> (IEEE, New York, 1975), pp.279-283, DDC AD-A031696/8  |
| 4090  | BGO Reflective-Array Compressor (RAC) with 125 $\mu$ s of Dispersion  | V. S. Dolat<br>R. C. Williamson                                     | <u>1975 Ultrasonics Symposium Proceedings</u> (IEEE, New York, 1975), pp.390-394, DDC AD-A031713/1  |
| 4091  | Measurement of Impedance Mismatch and Stored Energy for Right-Angle Reflection of Rayleigh Waves from Grooves in Y-Cut LiNbO <sub>3</sub> | J. Melngailis<br>R. C. M. Li  | <u>1975 Ultrasonics Symposium Proceedings</u> (IEEE, New York, 1975), pp.426-429, DDC AD-A031714/9  |
| 4093  | Stable CW Operation of Gap-Coupled Silicon-on-Sapphire to LiNbO <sub>3</sub> Acoustoelectric Amplifiers                                   | R. W. Ralston   | <u>1975 Ultrasonics Symposium Proceedings</u> (IEEE, New York, 1975), pp.217-222, DDC AD-A031715/6  |
| 4098  | Programmable Matched Filtering with Acoustoelectric Convolver in Spread-Spectrum Systems  | J. H. Cafarella<br>J. A. Alusow<br>W. M. Brown<br>E. Stern          | <u>1975 Ultrasonics Symposium Proceedings</u> (IEEE, New York, 1975), pp.205-208, DDC AD-A031716/4  |
| 4100  | Holographic Storage of Acoustic Surface Waves with Schottky Diode Arrays  | K. A. Ingebrigtsen<br>E. Stern                                      | <u>1975 Ultrasonics Symposium Proceedings</u> (IEEE, New York, 1975), pp.212-216, DDC AD-A031717/2  |
| 4104  | Reflective-Array Matched Filter for a 16-Pulse Radar Burst  | R. C. Williamson<br>J. Melngailis<br>V. S. Dolat                    | <u>1975 Ultrasonics Symposium Proceedings</u> (IEEE, New York, 1975), pp.400-404, DDC AD-A031718/0  |
| 4105  | Techniques for Making Gap-Coupled Acoustoelectric Devices   | H. I. Smith   | <u>1975 Ultrasonics Symposium Proceedings</u> (IEEE, New York, 1975), pp.238-240, DDC AD-A031719/8  |
| 4109  | Solar Energy Application of Natural Zeolites  | D. I. Tchernev  | Proc. 2nd Workshop on the Use of Solar Energy for the Cooling of Buildings, University of California, Los Angeles, 4-6 August 1975, edited by F. and J.W. de Winter (July 1976), pp.307-319 |
| 4122  | The Discrete Address Beacon System for Air Traffic Control  | H. G. Weiss   | Proc. Natl. Telecommunications Conf., New Orleans, 1-3 December 1975, pp.14-19 - 14-22  |
| 4140  | Photoelectrolysis of Water  | J. G. Mavroides<br>D. I. Tchernev<br>J. A. Kafalas<br>D. F. Kolesar | Proc. Workshop on Electrocatalysis of Non-Metallic Surfaces, Bethesda, Maryland, 9-12 December 1975, p.221  |
| 4140B | Decomposition of Water Using Solar Energy   | J. G. Mavroides   | Proc. Symp. and Workshop on the 5 MWt Solar Thermal Test Facility, Houston, Texas, 17-19 May 1976, p.225  |

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4143	Stark Model of the Excitonic Surface States Observed on MgO	H. J. Zeiger V. E. Henrich G. Dresselhaus	Proc. Workshop on Electrocatalysis of Non-Metallic Surfaces, Bethesda, Maryland, 9-12 December 1975, p. 59
4169	Ion Beam Etching	H. I. Smith	In <u>Etching for Pattern Definition</u> (The Electrochemical Society, Inc., Princeton, New Jersey, 1976), pp. 133-143, DDC AD-A041620/6
4174A	Optically Pumped Gas Lasers	H. Kildal T. F. Deutsch	In <u>Tunable Lasers and Applications</u> , A. Mooradian, T. Jaeger, and P. Stokseth, Eds. (Springer-Verlag, New York, 1976), p. 367
4176	LES-8/9 Thermal Design and Testing	D. M. Nathanson W. J. Raymond	Proc. AIAA 11th Thermophysics Conf., San Diego, 14-16 July 1976, DDC AD-A030986/4
4177E	Wavelength-Selective Surfaces for Solar Energy Utilization	J. C. C. Fan	Proc. SPIE Vol. 85: <u>Optics in Solar Energy Utilization II</u> (Society of Photo-Optical Instrumentation Engineers, Bellingham, Washington, 1976), pp. 39-46
4178	New Solid Electrolytes	H. Y-P. Hong	Chapter 10 in <u>Advances in Chemistry Series, No. 163: Solid State Chemistry and Energy Conversion and Storage</u> , J. B. Goodenough and M. S. Whittingham, Eds. (American Chemical Society, New York, 1977), pp. 179-194
4190	The Physics and Equivalent Circuit of the Basic SAW Resonator	R. C. M. Li J. A. Alusow R. C. Williamson	In <u>1976 IEEE-MTT-S International Microwave Symposium Digest</u> (IEEE, New York, 1976), p. 280
4192	Interferometric Evaluation of the Imaging Characteristics of Laser Beams Propagated Through the Turbulent Atmosphere	D. Kelsall	Phot. Sci. Eng. <u>21</u> , 123 (1977)
4194	Surface-Acoustic-Wave Device for Doppler Filtering of Radar Burst Waveforms	J. Melngallis R. C. Williamson	In <u>1976 IEEE-MTT-S International Microwave Symposium Digest</u> (IEEE, New York, 1976), p. 289
4198	Relative Stability of O <sup>2-</sup> and O <sup>-</sup> Ions on Crystal Surfaces	G. Dresselhaus H. J. Zeiger V. E. Henrich	Bull. Am. Phys. Soc. <u>21</u> , 321 (1976)
4205	Design of Reflective-Array Surface Wave Devices	J. Melngallis R. C. Williamson J. Holtham R. C. M. Li	Wave Electronics <u>2</u> , 177 (1976)

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| 4230A | $\text{In}_{1-x}\text{Ga}_x\text{As}_y\text{P}_{1-y}$ -InP Double-Heterostructure Lasers | J. A. Rossi<br>J. J. Hsieh<br>J. P. Donnelly  | Chapter 6 in <u>Gallium Arsenide and Related Compounds (St. Louis) 1976</u> , edited by L. F. Eastman (The Institute of Physics, London, 1977), pp. 303-310, DDC AD-A046991 |
| 4238  | Preparation of Polycrystalline Si Thin Films by Laser Crystallization                    | J. C. C. Fan<br>H. J. Zeiger<br>P. M. Zavracky  | Proc. National Workshop on Low Cost Polycrystalline Solar Cells, Dallas, Texas, 1 <sup>o</sup> -19 May 1976, pp. 89-104   |
| 4261  | Studies of Surface Defect States on $\text{TiO}_2$ : Two-Dimensional Surface Phases      | V. E. Henrich<br>G. Dresselhaus<br>H. J. Zeiger   | In <u>Physics of Semiconductors</u> (North-Holland, Amsterdam, 1977), p. 726  |
| 4262  | The Physical Properties of Cadmium Telluride   | A. J. Strauss   | Rev. Phys. Appl. <u>12</u> , 167 (1977), DDC AD-A042235/2   |
| 4263  | Theory of Resonant Raman Scattering in Europium Chalcogenides                            | S. A. Safran<br>G. Dresselhaus<br>M. S. Dresselhaus<br>B. Lax   | Physica <u>89B</u> , 229 (1977)   |
| 4271  | X-Ray Lithography  | H. I. Smith<br>D. C. Flanders   | Jap. J. Appl. Phys. <u>16</u> , Suppl. 16-1, 61 (1977)  |
| 4273  | The MIT Lincoln Laboratory Pulsed Plasma Thruster  | R. J. Vondra  | Proc. AIAA Intl. Electric Propulsion Conf., Key Biscayne, Florida, 14-17 November 1976, DDC AD-A049013/6  |
| 4280  | CdTe Optical Waveguide Modulators  | D. L. Spears<br>A. J. Strauss   | Rev. Phys. Appl. <u>12</u> , 401 (1977), DDC AD-A042236/0   |
| 4295  | Thickness of InP Layers Grown by LPE from Supercooled Solutions                          | J. J. Hsieh   | Chapter 2 in <u>Gallium Arsenide and Related Compounds (St. Louis) 1976</u> , edited by L. F. Eastman (The Institute of Physics, London, 1977), pp. 74-80, DDC AD-A046988   |
| 4296  | Ion Implanted Lo-Hi-Lo Annular GaAs IMPATT Diodes  | R. A. Murphy<br>C. O. Bozler<br>J. P. Donnelly<br>R. W. Laton<br>G. A. Lincoln<br>R. W. Sudbury<br>W. T. Lindley<br>L. Lowe<br>M. Deane | Chapter 4 in <u>Gallium Arsenide and Related Compounds (St. Louis) 1976</u> , edited by L. F. Eastman (The Institute of Physics, London, 1977), p. 210                      |
| 4298  | Conditions for Lattice Matching in the LPE Growth of GaInAsP Layers on InP Substrates    | J. J. Hsieh<br>M. C. Finn<br>J. A. Rossi  | Chapter 1 in <u>Gallium Arsenide and Related Compounds (St. Louis) 1976</u> , edited by L. F. Eastman (The Institute of Physics, London, 1977), pp. 37-44, DDC AD-A046985   |

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4302	Ion Implantation in GaAs	J. P. Donnelly	Chapter 4 in <u>Gallium Arsenide and Related Compounds (St. Louis) 1976</u> , edited by L. F. Eastman (The Institute of Physics, London, 1977), pp.166-190, DDC AD-A046986
4317	Adaptive Nulling with Multiple-Beam Antennas	J. T. Mayhan	AP-S International Symposium Digest, 11-15 October 1976, pp.441-442
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