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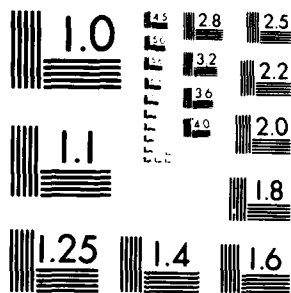
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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO. AD-A107304	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) BIBLIOGRAPHY OF SOVIET LASER DEVELOPMENTS, No. 27, JANUARY - FEBRUARY 1977		5. TYPE OF REPORT & PERIOD COVERED
7. AUTHOR(s)		6. PERFORMING ORG REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS Defense Intelligence Agency Directorate for Scientific and Technical Intelligence, ATTN: DT-1A		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE 21 Nov 1977
		13. NUMBER OF PAGES 96
		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited		
17. Distribution Statement (of the abstract entered in Block 20, if different from report)		
18. Supplementary Notes		
19. KEY WORDS Solid State Lasers, Liquid Lasers, Gas Lasers, Chemical Lasers, Laser Components, Nonlinear Optics, Spectroscopy of Laser Materials, Ultrashort Pulse Generation, Gamma Lasers, Laser Theory, Laser Biological Effects, Laser Communications, Laser Beam Propagation, Laser Computer Technology, Holography, Laser Chemical Effects, Laser Measurement Applications, Laser Parameters, Laser Beam-Target Interaction, Laser Plasma		
20. ABSTRACT This is the Soviet Laser Bibliography for January-February 1977 and is No. 27 in a continuing series on Soviet laser developments. The coverage includes basic research on solid state, liquid, gas, and chemical lasers; components; nonlinear optics; spectroscopy of laser materials; ultrashort pulse generation; theoretical aspects of advanced lasers; and general laser theory. Laser applications are listed under biological effects; communications; beam propagation; computer technology; holography; laser-induced chemical reactions; instrumentation and measurements; beam-target interaction; and plasma generation and diagnostics.		

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Introduction

This bibliography has been compiled under an interagency agreement as a continuing effort to document current Soviet-bloc developments in the quantum electronics field. The period covered is January-February 1977, and includes all significant laser-related articles received by us in that interval. The bulk of the entries come from the approximately 30 periodicals which are known to publish the most significant findings in Soviet laser technology. Citations from the Russian Reference Journals are included, as well as entries from the CIRC data base not otherwise covered. Laser items from the popular or semipopular press are generally omitted. The section titled, "Translations," lists currently available translations of laser articles.

For convenience we have abbreviated frequently cited source names; a source abbreviations list and an author index are included. All sources cited with no parenthetical notation are available at the Library of Congress. A parenthetical entry (RZh, KL) indicates the secondary source in which the original source is not currently available at the Library. The authors' affiliations are indicated by the numbers in parentheses following the authors' names in the text and are listed in the Author Affiliations List. New affiliations are assigned a new number and are added to a cumulative list which includes all affiliations from 1969 to the present. Only those affiliations which appear in this issue are listed in this issue's Author Affiliations List.

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III. MONOGRAPHS, BOOKS, CONFERENCE PROCEEDINGS

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547. Aleksandrov, A.F., and A.A. Rukhadze (0). Fizika sil'notochnykh elektro-razryadnykh istochnikov sveta (Physics of heavy-current sources of light). Moskva, Atomizdat, 1976, 184 p. (RZhF, 2/77, 2D1427)
548. Bugayev, A.A., B.P. Zakharchenya, and F.A. Chudnovskiy (0). FTIROS -- novyy material dlya impul'snoy golografii (FTIROS: a new material for pulsed holography). Leningradskiy dom nauchno-technicheskoy propagandy. Seriya Progressivnyye metody obrabotki metallov i splavov, 1976, 30 p. (KL, 8/77, 6098).
549. Gruzinov, V.V., V.I. Ivanishchev, V.A. Kougiya, O.N. Malkovskiy, and V.D. Petrov (0). Lazernyye geodezicheskiye pribory v stroitel'stve (Laser geodetic instruments in construction). Moskva, Nedra, 1977, 164 p.
550. Kogerentnyye kooperativnyye yavleniya (Coherent cooperative phenomena). Fizicheskiy institut AN SSSR. Trudy, no. 87, 1976, 157 p. (RZhF, 1/77, 1D978).
551. Metrologicheskoye obespecheniye izmereniy optiko-fizicheskikh parametrov izlucheniya OKG (Metrological implementation of measurements of the optical-physical parameters of laser radiation). VNII fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy. Moskva, 1976, 172 p. (RZhF, 2/77, 2D1120).

552. Solodova, A.V., ed. (0). Inzhenernyy spravochnik po kosmicheskoy tekhnike (Engineering handbook on space technology). Moskva, Voennoye izdatel'stvo Ministerstva oborony SSSR, 1977, 430 p.
553. Tsyul'nikov, D.A. (410). Gologrammy s shirokim spektral'nyy sostavom vosstanovlennogo izobrazheniya (Holograms with a wide spectral composition of the reconstructed image). Tsentral'nyy nauchno-issledovatel'skiy institut aviatsionnogo motorostroyeniya. Trudy, no. 717, 1976, 49 p. (KL, 5/77, 3521).
554. Voprosy golograficheskogo kinematografa (Problems of the holographic motion picture studio). Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut. Trudy, no. 82, 1976, 112 p. (RZhF, 2/77, 2D1196).

IV. TRANSLATIONS

A. COMMERCIAL TRANSLATIONS

A number of Soviet journals which contain articles on laser research are routinely translated cover-to-cover by commercial firms. These are generally available from four to twelve months after the original Russian publication appears. The bulk of such translated laser articles will be found in the following journals:

<u>Journal abbreviation</u>	<u>Transliterated title</u>	<u>English translation</u>
FAiO	Akademiya nauk SSSR. Fizika atmosfery i okeana	Izvestiya, Atmospheric and Oceanographic Physics
FTP	Fizika i tekhnika poluprovodnikov	Soviet Physics--Semiconductors
---	Fizika plazmy	Soviet Journal of Plasma Physics
FTT	Fizika tverdogo tela	Soviet Physics--Solid State
IT	Izmeritel'naya tekhnika	Measurement Techniques
IVUZ Radiofiz	Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika	Radio Physics and Quantum Electronics
KE	Kvantovaya elektronika	Soviet Journal of Quantum Electronics
KSpF	Kratkiye soobshcheniya po fizike	Soviet Physics. Lebedev Institute Reports
~	Akademiya nauk SSSR. Izvestiya. Neorganicheskiye materialy	Inorganic Materials
	Fizika i spektroskopiya	Optics and Spectroscopy
	Fizika i mekhanicheskaya optika	Soviet Journal of Optical Technology

<u>Journal abbreviation</u>	<u>Transliterated title</u>	<u>English translation</u>
PTE	Pribory i tekhnika eksperimenta	Instruments and Experimental Techniques
RiE	Radiotekhnika i elektronika	Radio Engineering and Electronic Physics
TVT	Teplofizika vysokikh temperatur	High Temperature Physics
UFN	Uspekhi fizicheskikh nauk	Soviet Physics--Uspekhi
ZhETF	Zhurnal eksperimental'noy i tekhnicheskoy fiziki	Soviet Physics--JETP
ZhETF P	Pis'ma v zhurnal eksperimental'noy i tekhnicheskoy fiziki	JETP Letters
ZhPMTF	Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki	Journal of Applied Mechanics and Technical Physics
ZhPS	Zhurnal prikladnoy spektroskopii	Journal of Applied Spectroscopy
ZhTF	Zhurnal tekhnicheskoy fiziki	Soviet Physics--Technical Physics
ZhTF P	Pis'ma v zhurnal tekhnicheskoy fiziki	Soviet Technical Physics Letters

B. MISCELLANEOUS TRANSLATIONS

A number of laser books and articles in Russian are translated independently by private or government activities and can be obtained from these sources. It should be noted, however, that because of copyright restrictions, not all government-sponsored translations are available to the general public.

The following is a partial list of laser translations for the current interval.

Afanas'yev, Yu.V., N.G. Basov, Ye.G. Gamaliy, O.N. Krokhin and V.B. Rozanov.

Physics of laser fusion. Priroda, Moscow, no.10, 1976, 4-16. JPRS no. L/6904, 1977, 90-107.

Akul'shina, L.G., A.F. Dobrovol'skiy, V.A. Krasutskiy, V.K. Mamonov, O.M.

Matveyev, V.P. Nikolayev, A.M. Skripkin and G.I. Shchelchkov. Experimental investigation of the fog clearing process using radiation of a CO₂ laser.

Trudy instituta eksperimental'noy meteorologii, Moscow, no.5(43), 1974, 52-67. JPRS no. L/7162, 1977, 78-95.

Basov, N.G. Laser fusion: state of the art and prospects. Priroda, Moscow, no.10, 1976, 3-4. JPRS no. L/6904, 1977, 87-89.

Basov, N.G., O.N. Krokhin, G.V. Sklizkov and S.I. Fedotov. High power lasers for thermonuclear fusion. Priroda, no.12, 1976, 10-27. JPRS no. L/6916, 1977, 57-58.

Bel'ts, V.A., V.S. Vinevich, O.M. Matveyev, V.P. Nikolayev, Yu.V. Pechenin and S.D. Pinchuk. Experimental study of the stationary "wind deflection" effect for laser radiation at 10.6 μ m propagating in artificial fogs. Trudy instituta eksperimental'noy meteorologii, Moscow, no.5(43), 1974, 104-114. JPRS, no.L/7162, 1977, 123-133.

Belyayev, V.P., O.A. Volkovitskiy, A.F. Nerushev, V.P. Nikolayev, S.D. Pinchuk, and A.M. Skripkin. Experimental investigation of the influence of motion of medium on the formation of a clearing zone in an artificial fog under the influence of laser radiation with $\lambda=10.6 \mu\text{m}$. Trudy instituta eksperimental'noy meteorologii, Moscow, no.5(43), 1974, 68-82. JPRS no.L/7162, 1977, 96-110.

Didenko, N.K., N.K. Kraskovskiy and L.P. Semenov. Experimental study of thermal characteristics of a cloud medium in a zone of CO₂ laser activity. Trudy instituta eksperimental'noy meteorologii, Moscow, no.5(43), 1974, 92-103. JPRS no. L/7162, 1977, 111-122.

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Mal'sub, Yu.E., T.P. Symera, R.Ya. Syuvala, P.A. Uusmaa, and Kh.V. Khinrikus. Optical communications link at a wavelength of 0.63 micrometers. Elektrosvyaz', Moscow, no.2, February 1977, 26-29. JPRS no. L/7268, 1977, 19-25.

Scientist highlights Soviet achievements in laser research. Muszaki Elet, Budapest, 15 July 1977, p.3. JPRS no. 69558, 20-21.

V. SOURCE ABBREVIATIONS

DAN Arm	-	Akademiya nauk Armyanskoy SSR. Doklady
DAN B	-	Akademiya nauk Belorusskoy SSR. Doklady
DAN SSSR	-	Akademiya nauk SSSR. Doklady
DAN Uz	-	Akademiya nauk Uzbekskoy SSR. Doklady
EOM	-	Elektronnaya obrabotka materialov
FAIO	-	Akademiya nauk SSSR. Izvestiya. Fizika atmosfery i okeana
FikhOM	-	Fizika i khimiya obrabotka materialov
FTP	-	Fizika i tekhnika poluprovodnikov
FTT	-	Fizika tverdogo tela
IAN Arm	-	Akademiya nauk Armyanskoy SSR. Izvestiya. Fizika
IAN B	-	Akademiya nauk Belorusskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh nauk
IAN Fiz	-	Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya
IAN Khim	-	Akademiya nauk SSSR. Izvestiya. Seriya khimicheskaya
IT	-	Izmeritel'naya tekhnika
IVUZ Fiz	-	Izvestiya vysshikh uchebnykh zavedeniy. Fizika
IVUZ Gorn	-	Izvestiya vysshikh uchebnykh zavedeniy. Gornyy zhurnal
IVUZ Priboro	-	Izvestiya vysshikh uchebnykh zavedeniy. Priborostroyeniye
IVUZ Radioelektr	-	Izvestiya vysshikh uchebnykh zavedeniy. Radioelektronika
IVUZ Radiofiz	-	Izvestiya vysshikh uchebnykh zavedeniy. Radiofizika
KE	-	Kvantovaya elektronika
KhVE	-	Khimiya vysokikh energiy
KL	-	Knizhnaya letopis'

Kristal	-	Kristallografiya
KSpF	-	Kratkiye soobshcheniya po fizike
NM	-	Akademiya nauk SSSR. Izvestiya. Neorganicheskiye materialy
OiS	-	Optika i spektroskopiya
OMP	-	Optiko-mekhanicheskaya promyshlennost'
Otkr izobr	-	Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki
PTE	-	Pribory i tekhnika eksperimenta
RiE	-	Radiotekhnika i elektronika
RZhElektrotekh	-	Referativnyy zhurnal. Elektrotehnika i energetika
RZhF	-	Referativnyy zhurnal. Fizika
RZhGeofiz	-	Referativnyy zhurnal. Geofizika
RZhRadiot	-	Referativnyy zhurnal. Radiotekhnika
Sb1	-	Sbornik. Nauchnyye pribory, no. 10, Moskva, 1976.
Sb2	-	Metrologicheskoye obespecheniye izmereniy optiko-fizicheskikh parametrov izlucheniya OKG. Moskva, 1976.
Sb3	-	Vsesoyuznyy simpozium po priboram, tekhnike i rasprostraneniyu millimetrovykh i submillimetrovykh voln v atmosfere. Tezisy dokladov i soobshcheniya. Moskva, 1976.
Sb4	-	Kvantovaya elektronika, no. 10, Kiyev, Naukova dumka, 1976.
Sb5	-	Vsesoyuznyy simpozium po lazernomu zondirovaniyu atmosfery. 4th. Tezisy dokladov. Tomsk, 1976.
Sb6	-	Fizyka dielektrykow i radiospektroskopia. Prace komisji matematyczno-przyrodniczej Poznanskie towarzystwo przyjaciol nauk, v. 8, no. 1, 1976.
Sb7	-	Akusticheskiiy paramagnitnyy rezonans. Kazan', 1976.
Sb8	-	Prace Komisji matematyczno-przyrodniczej Poznanskie towarzystwo przyjaciol nauk, v. 7, no. 2, 1975.

Sb9	-	Obrabotka i interpretatsiya fizicheskikh eksperimentov, no. 5, Moskva, Moskovskiy universitet, 1976.
Sb10	-	Primeneniye radioelektronnykh priborov v biologii i meditsine. Kiyev, Naukova dumka, 1976.
Sb11	-	Razvedochnaya geofizika, no. 72, Moskva, Nedra, 1976.
Sb12	-	Defekty kristallov. Mezhmolekulyarnyye vzaimodeystviye. Kuzbasskiy politekhnicheskii institut. Kemerovo, 1976.
Sb13	-	Sposoby zapisi informatsii na besserebryanykh nositelyakh, no. 7, 1976.
Sb14	-	Fizika i tekhnologiya tonkikh plenok slozhnykh poluprovodnikov. Tezisy dokladov 2-go Respublikanskogo soveshchaniya. Uzhgorod, 1975.
Sb15	-	Razvedochnaya geofizika, no. 73, Moskva, Nedra, 1976.
Sb16	-	Nekotoryye voprosy fiziki kinetiki tverdogo tel, no. 2, Cheboksary, 1976.
TKiT	-	Tekhnika kino i televideniya
Tr1	-	Moskovskiy energeticheskii institut. Trudy, no. 295, 1976.
Tr2	-	Tashkentskiy universitet. Sbornik nauchnykh trudov, no. 499, 1976.
Tr3	-	Trudy metrologicheskikh institutov SSSR. VNII metrologii, no. 193(253), 1976.
Tr4	-	Moskovskiy fiziko-tekhnicheskii institut. Trudy. Seriya Radiotekhnika i elektronika, no. 10, 1975.
Tr5	-	AN SSSR. Fizicheskii institut. Trudy, no. 87, 1976.
Tr6	-	Moskovskoye vyssheye tekhnicheskoye uchilishche. Trudy, no. 222, 1976.
Tr7	-	Institut eksperimental'noy meteorologii. Trudy, no. 4(61), 1976.
Tr8	-	Institut eksperimental'noy meteorologii. Trudy, no. 14(59), 1976.
Tr9	-	Moskovskiy energeticheskii institut. Trudy, no. 288, 1976.

Tr10	-	Permskiy politekhnicheskiy institut. Sbornik nauchnykh trudov, no. 176, 1975(1976).
Tr11	-	VNI kinofotoinstitut. Trudy, no. 82, 1976.
Tr12	-	Gos NI Tsentr izucheniya prirodnkh resursov. Trudy, no. 2, 1976.
Tr13	-	Moskovskiy energeticheskiy institut. Trudy, no. 290, 1976.
Tr14	-	Leningradskiy elektrotekhnicheskiy institut. Izvestiya, no. 192, 1976.
Tr15	-	VNII transportnogo stroitel'stva. Sbornik nauchnykh trudov, no. 99, 1976.
Tr16	-	VNII fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy. Nauchnyye trudy. Problemy fizicheskoy optiki i metrologii. Moskva, 1975.
Tr17	-	NII prikladnoy matematiki i mekhaniki pri Tomskom universitete. Trudy, no. 7, 1976.
Tr18	-	Moskovskiy institut elektronnoy tekhniki. Sbornik nauchnykh trudov po problemam mikroelektroniki, no. 23, 1976.
UFN	-	Uspekhi fizicheskikh nauk
UFZh	-	Ukrainskiy fizicheskiy zhurnal
VMU	-	Moskovskiy universitet. Vestnik. Seriya fizika, astronomiya
ZhETF	-	Zhurnal eksperimental'noy i teoreticheskoy fiziki
ZhETF P	-	Pis'ma v Zhurnal eksperimental'noy i teoreticheskoy fiziki
ZhNIPFik	-	Zhurnal nauchnoy i prikladnoy fotografii i kinematografii
ZhPS	-	Zhurnal prikladnoy spektroskopii
ZhTF	-	Zhurnal tekhnicheskoy fiziki
ZhTF P	-	Pis'ma v Zhurnal tekhnicheskoy fiziki
ZL	-	Zavodskaya laboratoriya

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405. Institute of Hydromechanics, AN UkrSSR (Institut gidromekhaniki AN UkrSSR).
406. Cherepovets Higher Military Engineering College of Radioelectronics (Cherepovetskoye vyssheye voyennoye inzhenernoye uchilishche radioelektroniki).
407. Perm' Polytechnic Institute (Permskiy politekhnicheskoy institut).
408. Central Planning, Design and Technological Bureau for Scientific Instrument Manufacture, AN UzSSR (Tsentral'noye proyektno-konstruktorskoye i tekhnologicheskoy byuro nauchnogo priborostroyeniya AN UzSSR).

- 409. All-Union Scientific Research Institute of Hydraulic Engineering and Reclamation (VNII gidrotekhniki i melioratsii).
- 410. Central Scientific Research Institute of Aircraft Engines (Tsentral'nyy NII aviatsionnogo motorostroyeniya).
- 411. Krasnoyarsk State University (Krasnoyarskiy GU).
- 413. All-Union Scientific Research Institute for the Leather Goods Industry (VNII kozhgalantereynoy promyshlennosti).

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