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NUMBER 11, JANUARY-MARCH 1973

Stuart G. Hibben

Informatics, Incorporated

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13. ABSTRACT

This is the Soviet Laser Bibliography for the first quarter of 1973 and is No. 11 in the series on Soviet laser developments. The coverage includes basic research on solid state, liquid and gas lasers; chemical lasers; u-v lasers; components; nonlinear optics, spectroscopy of laser materials; ultrashort pulse generation; crystal growing; and general laser theory. Laser applications are listed under biological effects; communications; computer technology; holography; instrumentation and measurement; materials processing; and plasma generation and diagnostics.

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Introduction

This bibliography has been compiled by the staff of Informatics Inc. in response to a continuing contractual assignment to monitor current Soviet-bloc developments in the quantum electronics field. Of all material reviewed, the major yield has been from the approximately 30 periodicals which are known to report the most advanced and interesting findings in Soviet laser technology.

The period covered is the first quarter of 1973, and includes all significant laser-related articles received by us during that interval. The structure and selection criteria are basically those used in the preceding reports.

For convenience we have abbreviated frequently cited source names; a source abbreviation list and an author index are included. Unless indicated by a parenthesized (RZh, LZhS) notation, all cited sources are available at Informatics Inc. The numbers in parentheses following the authors' names in the text refer to the Cumulative Affiliations List which includes all author affiliations from 1969 to the present.

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I. BASIC RESEARCH

A. SOLID STATE LASERS

1. Crystal

a. Ruby

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- d. Miscellaneous Organics
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II. LASER APPLICATIONS

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IV. SOURCE ABBREVIATIONS

AiT	-	Avtomatika i telemekhanika
APP	-	Acta physica polonica
DAN ArmSSR	-	Akademiya nauk Armyanskoy SSR. Doklady
DAN AzSSR	-	Akademiya nauk Azerbaydzhanskoy SSR. Doklady
DAN BSSR	-	Akademiya nauk Belorusskoy SSR. Doklady
DAN SSSR	-	Akademiya nauk SSSR. Doklady
DAN TadSSR	-	Akademiya nauk Tadzhikskoy SSR. Doklady
DAN UkrSSR	-	Akademiya nauk Ukrainskoy SSR. Dopovidi
DAN UzbSSR	-	Akademiya nauk Uzbekskoy SSR. Doklady
DBAN	-	Bulgarska akademiya na naukite. Doklady
EOM	-	Elektronnaya obrabotka materialov
FAiO	-	Akademiya nauk SSSR. Izvestiya. Fizika atmosfery i okeana
FGIV	-	Fizika goreniya i vzryva
FiKhOM	-	Fizika i khimiya obrabotka materialov
F-KhMM	-	Fiziko-khimicheskaya mekhanika materialov
FMiM	-	Fizika metallov i metallovedeniye
FTP	-	Fizika i tekhnika poluprovodnikov
FTT	-	Fizika tverdogo tela
FZh	-	Fiziologicheskiy zhurnal
GiA	-	Geomagnetizm i aeronomiya
GiK	-	Geodeziya i kartografiya
IAN Arm	-	Akademiya nauk Armyanskoy SSR. Izvestiya. Fizika
IAN Az	-	Akademiya nauk Azerbaydzhanskoy SSR. Izvestiya. Seriya fiziko-tekhnicheskikh i matematicheskikh nauk

IAN B	-	Akademiya nauk Belorusskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh nauk
IAN Biol	-	Akademiya nauk SSSR. Izvestiya. Seriya biologicheskaya
IAN Energ	-	Akademiya nauk SSSR. Izvestiya. Energetika i transport
IAN Est	-	Akademiya nauk Estonskoy SSR. Izvestiya. Fizika matematika
IAN Fiz	-	Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya
IAN Fizika zemli	-	Akademiya nauk SSSR. Izvestiya. Fizika zemli
IAN Kh	-	Akademiya nauk SSSR. Izvestiya. Seriya khimicheskaya
IAN Lat	-	Akademiya nauk Latviyskoy SSR. Izvestiya
IAN Met	-	Akademiya nauk SSSR. Izvestiya. Metally
IAN Mold	-	Akademiya nauk Moldavskoy SSR. Izvestiya. Seriya fiziko-tehnicheskikh i matematicheskikh nauk
IAN SO SSSR	-	Akademiya nauk SSSR. Sibirskoye otdeleniye. Izvestiya
IAN Tadzh	-	Akademiya nauk Tadzhiksoy SSR. Izvestiya. Otdeleniye fiziko-matematicheskikh i geologo-khimicheskikh nauk
IAN TK	-	Akademiya nauk SSSR. Izvestiya. Tekhnicheskaya kibernetika
IAN Turk	-	Akademiya nauk Turkmenskoy SSR. Izvestiya. Seriya fiziko-tehnicheskikh, khimicheskikh, i geologicheskikh nauk
IAN Uzb	-	Akademiya nauk Uzbekskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh nauk
IBAN	-	Bulgarska akademiya na naukite. Fizicheski institut. Izvestiya na fizicheskaya institut s ANEB
I-FZh	-	Inzhenerno-fizicheskiy zhurnal

IIR	-	Izobretatel' i ratsionalizator
ILEI	-	Leningradskiy elektrotekhnicheskiy institut. Izvestiya
IT	-	Izmeritel'naya tekhnika
IVUZ Avia	-	Izvestiya vysshikh uchebnykh zavedeniy. Aviatsionnaya tekhnika
IVUZ Cher	-	Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya
IVUZ Energ	-	Izvestiya vysshikh uchebnykh zavedeniy. Energetika
IVUZ Fiz	-	Izvestiya vysshikh uchebnykh zavedeniy. Fizika
IVUZ Geod	-	Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i aerofotos'yemka
IVUZ Geol	-	Izvestiya vysshikh uchebnykh zavedeniy. Geologiya i razvedka
IVUZ Gorn	-	Izvestiya vysshikh uchebnykh zavedeniy. Gornyy zhurnal
IVUZ Mash	-	Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye
IVUZ Priboro	-	Izvestiya vysshikh uchebnykh zavedeniy. Priborostroyeniye
IVUZ Radioelektr	-	Izvestiya vysshikh uchebnykh zavedeniy. Radioelektronika
IVUZ Radiofiz	-	Izvestiya vysshikh uchebnykh zavedeniy. Radiofizika
IVUZ Stroi	-	Izvestiya vysshikh uchebnykh zavedeniy. Stroitel'stvo i arkhitektura
KhVE	-	Khimiya vysokikh energiy
KiK	-	Kinetika i kataliz
KL	-	Knizhnaya letopis'
Kristall	-	Kristallografiya
KSpF	-	Kratkiye soobshcheniya po fizike

LC	-	Received at Library of Congress
LZhS	-	Letopis' zhurnal'nykh statey
MiTOM	-	Metallovedeniye i termicheskaya obrabotka materialov
MP	-	Mekhanika polimerov
MTT	-	Akademiya nauk SSSR. Izvestiya. Mekhanika tverdogo tela
MZhiG	-	Akademiya nauk SSSR. Izvestiya. Mekhanika zhidkosti i gaza
NK	-	Novyye knigi
NM	-	Akademiya nauk SSSR. Izvestiya. Neorganicheskiye materialy
NTO SSSR	-	Nauchno-tekhnicheskiye obshchestva SSSR
OiS	-	Optika i spektroskopiya
OMP	-	Optiko-mekhanicheskaya promyshlennost'
Otkr izobr	-	Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki
PF	-	Postepy fizyki
Phys abs	-	Physics abstracts
PM	-	Prikladnaya mekhanika
PMM	-	Prikladnaya matematika i mekhanika
PSS	-	Physica status solidi
PSU	-	Pribory i sistemy upravleniya
PTE	-	Pribory i tekhnika eksperimenta
Radiotekh	-	Radiotekhnika
RiE	-	Radiotekhnika i elektronika
RZhAvtom	-	Referativnyy zhurnal. Avtomatika, telemekhanika i vychislitel'naya tekhnika
RZhElektr	-	Referativnyy zhurnal. Elektronika i yeye primeneniye

RZhF	-	Referativnyy zhurnal. Fizika
RZhFoto	-	Referativnyy zhurnal. Fotokinotekhnika
RZhGeod	-	Referativnyy zhurnal. Geodeziya i aero- s'yemka
RZhGeofiz	-	Referativnyy zhurnal. Geofizika
RZhInf	-	Referativnyy zhurnal. Informatics
RZhKh	-	Referativnyy zhurnal. Khimiya
RZhMekh	-	Referativnyy zhurnal. Mekhanika
RZhMetrolog	-	Referativnyy zhurnal. Metrologiya i izmeritel'naya tekhnika
RZhRadiot	-	Referativnyy zhurnal. Radiotekhnika
Sb1	-	Sbornik. Kvantovaya elektronika. Moskva, 1972
Sb2	-	Vsesoyuznaya konferentsiya po nelineynoy optiki. 6th. Minsk, 1972
Sb3	-	Neylineynnye protsessy v optike, no. 2, Novosibirsk, 1972
Sb4	-	Tekhnologiya polucheniya novykh materialov. Kiyev, 1972
Sb5	-	Fizika primesnykh tsentrov v kristallakh. Tallin, 1972
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Sb8	-	XXV Gertsenovskiy chteniya. Fizicheskaya i poluprovodnikovaya elektronika. Kratkoye soderzhaniye dokladov. Leningrad, 1972

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| Sb17 | - | Biologicheskaya i meditsinskaya elektronika. Part 3. Sverdlovsk, 1972 |
| Sb18 | - | Poluprovodnikovaya tekhnologiya i mikroelektronika, no. 10, 1972 |
| Sb19 | - | Nauchno-tekhnicheskaya konferentsiya posvyashchennaya 50-letiyu SSSR. Novosibirskiy institut inzhenerov zheleznodorozhnoy transporta: Tezisy dokladov. Novosibirsk, 1972 |
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Sb24	-	Sbornik nauchnykh trudov po problemam mikroelektroniki, no. 6, 1971
Sb25	-	Vsesoyuznaya konferentsiya po besserebryanym i neobychnym fotograficheskim protsessam. 1st. Tezisy dokladov. Kiyev, 1972
Sb26	-	Fizika elementarnykh chastits i atomnogo yadra, v. 3, no. 3, 1972
Sb27	-	Konferentsiya po avtomatizatsii nauchnykh issledovaniy na osnove primeneniya ETsVM, 1972. Novosibirsk, 1972
Sb28	-	Elektronnaya tekhnika. Nauchno-tekhnicheskiy sbornik. Materialy, no. 6, 1972
Sb29	-	Elektronnaya promyshlennost'. Nauchno-tekhnicheskiy sbornik, no. 4, 1972
SovSciRev	-	Soviet science review
TiEKh	-	Teoreticheskaya i eksperimental'naya khimiya
TKiT	-	Tekhnika kino i televideniya
TMF	-	Teoreticheskaya i matematicheskaya fizika
Tr1	-	Kiyevskiy politekhnicheskiy institut. Seriya priborostroyeniye. Vestnik, no. 3, 1972
Tr2	-	Mezhdunarodnyy simpozium po voprosam avtomatizatsii obrabotki dannykh s puzyr'kovykh i iskrovykh kamer, 1971. Trudy, Dubna, 1972
Tr3	-	Trudy metrologicheskikh institutov SSSR, no. 131(191), 1972
Tr4	-	Simpozium po fizike plazmy i elektricheskim neustoychivostyam v tverdykh telakh, 1971. Trudy. Vil'nyus, Mintis, 1972
Tr5	-	Novocherkaskiy politekhnicheskiy institut. Trudy, no. 236, 1971
Tr6	-	Novosibirskiy gosudarstvennyy pedagogicheskiy institut. Nauchnyye trudy, no. 71, 1971
Tr7	-	Kirgizskiy universitet. Trudy. Seriya fizicheskikh nauk, no. 1, 1972
Tr8	-	Moskovskiy institut radiotekhniki, elektroniki i avtomatiki. Trudy, no. 55, 1972

Tr9	-	Fizicheskiy institut AN SSSR. Trudy, no. 61, 1972
Tr10	-	Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy, no. 15(45), 1972
Tr11	-	Moskovskiy khimiko-tekhnologicheskiy institut. Trudy, no. 71, 1972
Tr12	-	Omskoye sel'sko-khozyaystvennyy institut. Nauchnyye trudy, no. 80, 1972
Tr13	-	Moskovskiy institut radiotekhniki, elektroniki i avtomatiki. Trudy, no. 64, 1972
Tr14	-	Sverdlovskiy gornyy institut. Trudy, no. 89, 1972
Tr15	-	Gor'kovskiy politekhnicheskiy institut. Trudy, v. 28, no. 7, 1972
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Tr17	-	Novosibirskiy institut inzhenerov geodezii, aerofotos'yemki i kartografii. Trudy, no. 28, 1972
Tr18	-	Institut teoreticheskoy astronomii. Byulleten', v. 12, no. 10(143), 1971
Tr19	-	Vsesoyuznaya shkola-seminara po statisticheskoy gidroakustike. 2nd. Novosibirsk, Nauka, 1971
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Tr21	-	Ivanovskiy gosudarstvennyy pedagogicheskiy institut. Uchenyye zapiski, no. 99, 1972
Tr22	-	Taganarogskiy radiotekhnicheskiy institut. Trudy, no. 25, 1971
Tr23	-	Trudy metrologicheskikh institutov SSSR, no. 136(196), 1972
Tr24	-	Trudy metrologicheskikh institutov SSSR, no. 123, 1972
Tr25	-	Kazanskiy khimiko-tekhnologicheskiy institut. Trudy, no. 48, 1972

Tr26	-	Kiyevskiy politekhnicheskiy institut. Seriya radioelektroniki. Vestnik, no. 8, 1971
Tr27	-	Moskovskoye vysshoye tekhnicheskoye uchilishche im. N. E. Bauma, no. 149, 1972
TVT	-	Teplofizika vysokikh temperatur
UFN	-	Uspekhi fizicheskikh nauk
UFZh	-	Ukrainskiy fizicheskoy zhurnal
UMS	-	Ustalost' metallov i splavov
UNF	-	Uspekhi nauchnoy fotografii
VAN	-	Akademiya nauk SSSR. Vestnik
VAN BSSR	-	Akademiya nauk Belorusskoy SSR. Vestnik
VAN KazSSR	-	Akademiya nauk Kazakhskoy SSR. Vestnik
VBU	-	Belorusskiy universitet. Vestnik
VDNKh SSSR	-	VDNKh SSSR. Informatsionnyy byull'ten'
VLU	-	Leningradskiy universitet. Vestnik. Fizika, khimiya
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
ZhFKh	-	Zhurnal fizicheskoy khimii
ZhNiPFiK	-	Zhurnal nauchnoy i prikladnoy fotografii i kinematografii
ZhNKh	-	Zhurnal neorganicheskoy khimii
ZhPKh	-	Zhurnal prikladnoy khimii
ZhPMTF	-	Zhurnal prikladnoy mekhaniki i teoreticheskoy fiziki
ZhPS	-	Zhurnal prikladnoy spektroskopii

ZhTF	-	Zhurnal tekhnicheskoy fiziki
ZhVMMF	-	Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki
ZL	-	Zavodskaya laboratoriya

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3. Institute of Physics, AN BSSR, Minsk (Institut fiziki, AN BSSR).
4. Leningrad Physical-technical Institute im. Ioffe (Fiziko-tekhnicheskiy institut im. Ioffe).
5. Institute of Physics, AN UkrSSR, Kiev (Institut fiziki, AN UkrSSR).
6. Institute of Semiconductors, AN UkrSSR, Kiev (Institut poluprovodnikov, AN UkrSSR).
7. State Optical Institute im. Vavilov, Leningrad (Gosudarstvennyy opticheskiy institut im. Vavilova).
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13. Institute of Crystallography, AN SSSR, Moscow (Institut kristallografiya, AN SSSR).
14. University of Friendship Among Nations im. Lumumba, Moscow (Universitet druzhby narodov im. Lumumby).
15. Institute of Radio Engineering and Electronics, AN SSSR, Moscow (Institut radiotekhniki i elektroniki AN SSSR).
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20. All Union Scientific Research Institute of Physicotechnical and Electronic Measurements, Moscow (Vsesoyuznyy nauchno-issled. institut fiziko-tekhnicheskikh i elektronnykh izmereniy).
21. Acoustics Institute, AN SSSR, Moscow (Akusticheskiy institut, AN SSSR).
22. Institute of metallurgy im. Baykov, Moscow (Institut metallurgii im. Baykova).
23. Institute of Atomic Energy im. Kurchatov, Moscow (Institut atomnoy energii im. Kurchatova).
24. Moscow Higher Technical College im. Bauman (Moskovskoye vyssheye tekhnicheskoye uchilishche im. Baumana).
25. Moscow Scientific Research Institute of Instrument Manufacture (Moskovskiy nauchno-issled. institut instrumental'nogo proizvodstva).
26. Central Scientific Research Institute of the Ministry of Defense, Moscow (Tsentral'nyy nauchno-issled. institut Ministerstva oborony).
27. All Union Scientific Research Institute of Textile and Light Machinery, Moscow (Vsesoyuznyy nauchno-issled. institut tekstil'nogo i legkogo mashinostroyeniya).
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38. Kazan' Physicotechnical Institute (Kazanskiy fiziko-tekhnicheskiy institut).
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