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NUMBER 18, OCTOBER - DECEMBER 1974

Stuart G. Hibben

Informatics, Incorporated

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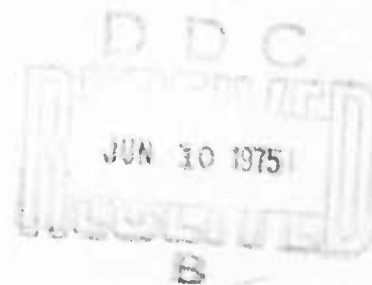
## BIBLIOGRAPHY OF SOVIET LASER DEVELOPMENTS

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This is the Soviet Laser Bibliography for the fourth quarter of 1974 and is No. 18 in the 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; crystal growing; theoretical aspects of advanced lasers; and general laser theory. Laser applications are listed under biological effects; communications; 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 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 fourth quarter of 1974, 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, KL) 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: Ruby

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c. Eu<sup>2+</sup>

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3. Crystal: Miscellaneous

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a. Rhodamine

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c. Miscellaneous Dyes

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G. BEAM-TARGET INTERACTION

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#### IV. SOURCE ABBREVIATIONS

APP	-	Acta physica polonica
BAPS	-	Bulletin de l'Academie Polonaise des Sciences. Serie des Sciences Techniques
DAN Az	-	Akademiya nauk Azerbaydzhanskoy SSR. Doklady
DAN B	-	Akademiya nauk Belorusskoy SSR. Doklady
DAN SSSR	-	Akademiya nauk SSSR. Doklady
FAiO	-	Akademiya nauk SSSR. Izvestiya. Fizika atmosfery i okeana
FGiV	-	Fizika goreniya i vzryva
FiKhOM	-	Fizika i khimiya obrabotki materialov
FTP	-	Fizika i tekhnika poluprovodnikov
FTT	-	Fizika tverdogo tela
GiK	-	Geodeziya i kartografiya
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 Fiz	-	Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya
IAN Fizika zemli	-	Akademiya nauk SSSR. Izvestiya. Fizika zemli
IT	-	Izmeritel'naya tekhnika
IVUZ Fiz	-	Izvestiya vysshikh uchebnykh zavedeniy. Fizika
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'
KLDV	-	Knizhnaya letopis'. Dopolnitel'nyy vy; usk
Kristal	-	Kristallografiya
MZhiG	-	Akademiya nauk SSSR. Izvestiya. Mekhanika zhidkosti i gaza
OiS	-	Optika i spektroskopiya
OMP	-	Optiko-mekhanicheskaya promyshlennost'
Otkr izobr	-	Otkrytiya, izobreneniya, promyshlennyye obraztsy, tovarnyye znaki
PF	-	Postepy fizyki
PTE	-	Pribory i tekhnika eksperimenta
Radiotekh	-	Radiotekhnika
RiE	-	Radiotekhnika i elektronika
RZhElektrotekh	-	Referativnyy zhurnal. Elektrotekhnika i energetika
RZhF	-	Referativnyy zhurnal. Fizika
RZhFoto	-	Referativnyy zhurnal. Fotokinotekhnika
RZhGeofiz	-	Referativnyy zhurnal. Geofizika
RZhKh	-	Referativnyy zhurnal. Khimiya
RZhMekh	-	Referativnyy zhurnal. Mekhanika
RZhMetal	-	Referativnyy zhurnal. Metallurgiya
RZhMetrolog	-	Referativnyy zhurnal. Metrologiya i izmeritel'naya tekhnika
RZhRadiot	-	Referativnyy zhurnal. Radiotekhnika
Sb1	-	Sbornik. Kvantovaya elektronika, no. 8, Kiyev, Naukova dumka, 1974.
Sb2	-	Nelineynyye protsessy v optike. Novosibirsk, 1973.
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- Sb8 - Moshchnyye nanosekundnyye impul'snyye istochniki uskorenykh elektronov. Novosibirsk, Izd-vo Nauka, Sibirskoye otdeleniye, 1974.
- Sb9 - Elementy i ustroystva radioelektroniki. Tomsk, Tomskiy universitet, 1974.
- Sb10 - Tekhnologiya proizvodstva kosmicheskoy apparatury. Moskva, 1974.
- Sb11 - Vsesoyuznaya nauchno-tekhnicheskaya konferentsiya Elektronika v kinematografii. 1st. 1974. Tezisy dokladov. Moskva, 1974.
- Sb12 - Opticheskiye metody obrabotki informatsii. Leningrad, Nauka, 1974.
- Sb13 - Konferentsiya Avtomatizatsiya nauchnykh issledovaniy na osnove primeneniye EVM, 1974. Materialy. Osnovnyye komponenty sistem avtomatizatsii nauchnykh issledovaniy. Novosibirsk, 1974.
- Sb15 - Prikladnaya spektroskopiya. Minsk, 1974.
- Sb16 - Voprosy molekulyarnoy spektroskopii. Novosibirsk, Nauka, 1974.
- Sb17 - Istoriya i metodologiya yestestvennykh nauk, no. 15. Fizika. Moskovskiy universitet, 1974.
- Sb18 - Sistemy upravleniya letatel'nykh apparatov, no. 1, Khar'kov, 1972.

- Sb19 - Mikroelektronika, no. 7, Moskva, Sovetskoye radio, 1974.
- Sb20 - Itogi nauki i tekhnika. Radiotekhnika, no. 5, Moskva, 1974.
- Sb21 - Tverdotel'naya radioelektronika. Voronezh, 1973.
- Sb22 - Konferentsiya Avtomatizatsiya nauchnykh issledovaniy na osnove primeneniya EVM, 1974. Materialy. Ispol'zovaniye novykh fizicheskikh printsipov v sistemakh avtomatizatsii. Novosibirsk, 1974.
- Sb23 - Upravleniye i informatsiya, no. 7, Vladivostok, 1973.
- Sb24 - Radiotekhnika, no. 29, 1974.
- Sb25 - Tekhnika radiatsionnogo eksperimenta, no. 2, Moskva, Atomizdat, 1974.
- Sb26 - Nauchno-tekhnicheskaya konferentsiya Leningradskogo instituta vodnogo transporta. 28th. 1974. Leningrad, 1974.
- Sb27 - Radiotekhnika, no. 31, 1974.
- Sb28 - Poluprovodnikovaya tekhnika i mikroelektronika, no. 16, 1974.
- Sb29 - Fizika vysokikh plotnostey energii. Moskva, Mir, 1974.
- TKiT - Tekhnika kino i televideniya
- Tr1 - Moskovskoye vyssheye tekhnicheskoye uchilishche. Trudy, no. 184. Optiko-elektronnyye kvantovyye pribory, no. 7, 1974.
- Tr2 - AN SSSR. Fizicheskiiy institut. Trudy, no. 75, 1974.
- Tr3 - Trudy metrologicheskikh institutov SSSR. VNII fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy, no. 112(172), 1974.
- Tr4 - Gosudarstvennyy opticheskiiy institut. Trudy, v. 41, no. 174, 1974.
- Tr5 - Moskovskiy fiziko-tekhnicheskiiy institut. Trudy. Seriya Radiotekhnika i elektronika. Part 2, 1972(1974).

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Tr7	-	Gruzinskiy politekhnicheskiy institut. Trudy, no. 1(165), 1974.
Tr8	-	Trudy uchebnykh institutov svyazi. Ministerstvo svyazi SSR, no. 64, 1974.
Tr9	-	Tsentral'nyy NII svyazi. Sbornik nauchnykh trudov, no. 2, 1973.
Tr10	-	Moskovskiy institut elektronnoy mashinostroyeniya. Trudy, no. 37, 1974.
Tr11	-	Frunzinskiy politekhnicheskiy institut. Trudy, no. 66, 1973.
Tr12	-	Leningradskiy elektrotekhnicheskiy institut. Izvestiya, no. 152, 1974.
Tr13	-	Energeticheskiy institut. Sbornik trudov, no. 8, 1973.
Tr14	-	Moskovskiy aviatsionnyy institut. Trudy, no. 290, 1974.
TVT	-	Teplofizika vysokikh temperatur
UFN	-	Uspekhi fizicheskikh nauk
UFZh	-	Ukrainskiy fizicheskiy zhurnal
VMU Khimiya	-	Moskovskiy universitet. Vestnik. Seriya khimiya
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
ZhPMTF	-	Zhurnal prikladnoy mekhaniki i teoreticheskoy fiziki
ZhPS	-	Zhurnal prikladnoy spektroskopii
ZhTF	-	Zhurnal tekhnicheskoy fiziki

## V. CUMULATIVE AFFILIATIONS LIST

### NS. Non-Soviet

0. Affiliation not given
1. Physics Institute im. Lebedev, AN SSSR, Moscow (Fizicheskiy institut im. Lebedeva AN SSSR).
2. Moscow State University (Moskovskiy gosudarstvennyy universitet).
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).
8. Radiophysics Scientific Research Institute at Gorkiy State University (Gor'kovskiy nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom gos. universitete).
9. Institute of Radiophysics and Electronics, Siberian Branch AN SSSR, Novosibirsk (Institut radiofiziki i elektroniki, Sibirskoye otdeleniye AN SSSR).
10. Institute of Semiconductor Physics of the Siberian Branch, AN SSSR, Novosibirsk (Institut fiziki poluprovodnikov, Sib. otdel AN SSSR).
11. Kazan' State University (Kazanskiy gos. universitet).
12. Leningrad State University (Leningradskiy gos. universitet).
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).
16. Moscow Engineering Physics Institute (Moskovskiy inzhenerno-fizicheskiy institut).
17. Institute of Mechanical Problems, AN SSSR, Moscow (Institut problem mekhaniki, AN SSSR).
18. Institute of General and Inorganic Chemistry im. Kurnakov, AN SSSR, Moscow (Institut obshchey i neorganicheskoy khimii im. Kurnakova, AN SSSR).
19. Moscow Power Engineering Institute (Moskovskiy energeticheskiy institut).
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 (VNIi tekstil'nogo i legkogo mashinostroyeniya).
28. Leningrad Opticomechanical Society (Leningradskoye optiko-mekhanicheskoye obshchestvo).
29. Leningrad Polytechnic Institute (Leningradskiy politekhnicheskiy institut).
30. Leningrad Institute of Precision Mechanics and Optics (Leningradskiy institut tochnoy mekhaniki i optiki).
31. Institute of Semiconductors, AN SSSR, Leningrad (Institut poluprovodnikov AN SSSR).

32. Physics Scientific Research Institute at Leningrad State University (Fizicheskiy NII pri Leningradskom gos. universitete).
33. Institute of Silicate Chemistry im. Grebanshchikov, AN SSSR, Leningrad (Institut khimii silikatov im. Grebanshchikova AN SSSR).
34. Khar'kov State University (Khar'kovskiy gos. universitet).
35. Khar'kov Institute of Radioelectronics (Khar'kovskiy institut radioelektroniki).
36. Physicotechnical Institute of Low Temperatures, AN UkrSSR, Khar'kov (Fiziko-tekhnicheskii institut nizkikh temperatur AN UkrSSR).
37. Yerevan State University (Yerevanskiy gos. universitet).
38. Kazan' Physicotechnical Institute (Kazanskiy fiziko-tekhnicheskii institut).
39. Institute of Cybernetics, AN GruzSSR (Institut kibernetiki AN GruzSSR).
40. Tbilisi State University (Tbilisiskiy gos. universitet).
41. Rostov-on-Don State University (Rostovskiy-na-Donu gos. universitet).
42. Ural Polytechnic Institute im. Klrov, Sverdlovsk (Ural'skiy politekhnicheskii institut im. Kirova).
43. Ural State University, Sverdlovsk (Ural'skiy gos. universitet).
44. Institute of Applied Physics, AN MSSR, Kishinev (Institut prikladnoy fiziki AN MSSR).
45. Saratov State University (Saratovskiy gos. universitet).
46. Novosibirsk State University (Novosibirskiy gos. universitet).
47. Siberian Physicotechnical Institute im. Kuznetsov, Tomsk (Sibirskiy fiziko-tekhnicheskii institut im. Kuznetsova).
48. Tomsk Institute of Radio Engineering and Electronics (Tomskiy institut radiotekhniki i elektroniki).
49. Vilnius State University (Vil'nyuskiy gos. universitet).
50. Institute of Semiconductor Physics, AN LitSSR, Vilnius (Institut fiziki poluprovodnikov, AN LitSSR).
51. Kiev State University (Kiyevskiy gos. universitet).
52. Joint Institute of Nuclear Research, Dubna (Ob'yedinennyy institut yadernykh issledovaniy).
53. Chernovtsy State University (Chernovitskiy gos. universitet).
54. Taganrog Radio Engineering Institute (Taganrozhskiy radiotekhnicheskii institut).
55. Physicotechnical Institute, AN TurkSSR, Ashkhabad (Fiziko-tekhnicheskii institut AN TurkSSR).
56. Nezhin State University (Nezhinskiy gos. universitet).
57. All Union Machine Construction Institute, Kramatorsk (Vsesoyuznyy mashinostroitel'nyy institut).
58. Kemerova State Pedagogical Institute (Kemerovskiy gos. pedagogicheskiy institut).
59. Institute of Physics Research, AN ArmSSR (Institut fizicheskikh issledovaniy AN ArmSSR).
60. Institute of Physics, AN AzSSR (Institut fiziki AN AzSSR).
61. Institute of Physics and Astronomy, AN EstSSR (Institut fiziki i astronomii AN EstSSR).
62. Institute of Geophysics, AN GruzSSR (Institut geofiziki AN GruzSSR).
63. Institute of Physics, AN LatSSR (Institut fiziki AN LatSSR).
64. Institute of Atmospheric Physics, AN SSSR (Institut fiziki atmosfery AN SSSR).
65. Institute of Problems of Physics, AN SSSR (Institut fizicheskikh problem AN SSSR).
66. Institute of Solid State Physics, AN SSSR (Institut fiziki tverdogo tela AN SSSR).
67. Institute of Physics of Chemistry, AN SSSR (Institut khimicheskoy fiziki AN SSSR).
68. Institute of Space Research, AN SSSR (Institut kosmicheskikh issledovaniy AN SSSR).
69. Institute of Oceanography, AN SSSR (Institut okeanologii AN SSSR).
70. Institute of Organic and Physical Chemistry, AN SSSR (Institut organicheskoy i fizicheskoy khimii AN SSSR).

71. Institute of Applied Mathematics, AN SSSR (Institut prikladnoy matematiki AN SSSR).
72. Institute of Spectroscopy, AN SSSR (Institut spektroskopii AN SSSR).
73. Institute of Theoretical Physics im. Landau, AN SSSR (Institut teoreticheskoy fiziki im. Landau AN SSSR).
74. Institute of High Temperatures, AN SSSR (Institut vysokikh temperatur AN SSSR).
75. Institute of Automation and Electronic Measurements, Siberian Branch AN SSSR (Institut avtomatiki i elektrometrii SOAN).
76. Institute of Hydrodynamics, Siberian Branch AN SSSR (Institut gidrodinamiki SOAN).
77. Institute of Inorganic Chemistry, Siberian Branch AN SSSR (Institut neorganicheskoy khimii SOAN).
78. Institute of Atmospheric Optics, Siberian Branch AN SSSR (Institut optiki atmosfery SOAN).
79. Institute of Nuclear Physics, Siberian Branch AN SSSR (Institut yadernoy fiziki SOAN).
80. Computer Center, Siberian Branch AN SSSR (Vychislitel'nyy tsentr SOAN).
81. Physicomechanical Institute, AN UkrSSR (Fiziko-mekhanicheskiy institut AN UkrSSR).
82. Physicotechnical Institute, AN UkrSSR (Fiziko-tekhnicheskii institut AN UkrSSR).
83. Institute of Problems in Material Studies, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR).
84. Institute of Radiophysics and Electronics, AN UkrSSR (Institut radiofiziki i elektroniki AN UkrSSR).
85. Institute of Nuclear Physics, AN UzSSR (Institut yadernoy fiziki AN UzSSR).
86. Azerbaydzhan State University (Azerbaydzhanskiy gos. universitet).
87. Belorussian State University (Belorusskiy gos. universitet).
88. Dagestan State University (Dagestanskiy gos. universitet).
89. Donetsk State University (Donetskii gos. universitet).
90. Electrotechnical Institute of Communications (Elektrotekhnicheskii institut svyazi).
91. Power Institute im. Krzhizhanovskiy (Energeticheskii institut im. Krzhizhanovskogo).
92. Physicochemical Institute im. Karpov (Fiziko-khimicheskiy institut im. Karpova).
93. Gor'kiy Physicotechnical Research Institute at Gor'kiy State University (Gor'kovskiy issledovatel'skiy fiziko-tekhnicheskii institut pri Gor'kovskom gos. universitete).
94. Gor'kiy State University (Gor'kovskiy gos. universitet).
95. State Scientific Research and Planning Institute of the Rare Metals Industry (GIREDMET, Gos. NI proyektnyy institut redkometallicheskoj promyshlennosti).
96. State Scientific Research Institute of Photochemical Planning (GOSNIKHIMFOTOPROYEKT).
97. Georgian Polytechnical Institute (Gruzinskiy politekhnicheskii institut).
98. Institute of Nuclear Physics at Moscow State University (Institut yadernoy fiziki pri Moskovskom gos. universitete).
99. Institute of Mechanics and Physics, Saratov (Institut mekhaniki i fiziki).
100. Institute of Oncology im. Petrov (Institut onkologii im. Petrova).
101. Ivanovo State Medical Institute (Ivanovskiy gos. meditsinskiy institut).
102. Ivanovo Chemicotechnological Institute (Ivanovskiy khimiko-tekhnologicheskiy institut).
103. Ivanovo Pedagogical Institute (Ivanovskiy pedagogicheskiy institut).
104. Kaunas Polytechnic Institute (Kaunasskiy politekhnicheskii institut).
105. Kazan' Civil Engineering Institute (Kazanskiy inzhenernostroitel'skiy institut).
106. Kiev Polytechnic Institute (Kiyevskiy politekhnicheskii institut).
107. Khar'kov State Scientific Research Institute of Metrology (Khar'kovskiy gos. NII metrologii).
108. Khar'kov Polytechnic Institute (Khar'kovskiy politekhnicheskii institut).
109. Latvian State University (Latviyskiy gos. universitet).

110. Leningrad Electrotechnical Institute (Leningradskiy elektrotekhnicheskiy institut).
111. Leningrad Mining Institute (Leningradskiy gornyy institut).
112. Leningrad Institute of Soviet Trade (Leningradskiy institut Sovetskoy trgovli).
113. Leningrad Mechanical Institute (Leningradskiy mekhanicheskiy institut).
114. L'vov State University (L'vovskiy gos. universitet).
115. L'vov Polytechnic Institute (L'vovskiy politekhnicheskiy institut).
116. Moscow Aviation Institute (Moskovskiy aviatsionnyy institut).
117. Moscow Mining Institute (Moskovskiy gornyy institut).
118. Moscow Physicotechnical Institute (Moskovskiy fiziko-tekhnicheskiy institut).
119. Moscow Institute of Electronic Engineering (Moskovskiy institut elektronnoy tekhniki).
120. Moscow Institute of Engineers of Geodesy, Aerial Photography and Cartography (Moskovskiy institut inzhenerov geodezii, aerofotos"yemki i kartografii).
121. Moscow Institute of Chemical Machinery (Moskovskiy institut khimicheskogo mashinostroyeniya).
122. Scientific Research Institute of Physicochemistry im. Karpov (NI fiziko-khimicheskoy institut im. Karpova).
123. Novosibirsk Institute of Automation and Electrometallurgy (Novosibirskiy institut avtomatiki i elektrometallurgii).
124. Odessa Scientific Research Institute of Eye Diseases and Tissue Therapy (Odesskiy NII glaznykh bolezney i tkanevoy terapii).
125. Odessa Technological Institute of Refrigeration Industry (Odesskiy tekhnologicheskiy institut kholodil'noy promyshlennosti).
126. Omsk Polytechnic Institute (Omskiy politekhnicheskiy institut).
127. Rostov Civil Engineering Institute (Rostovskiy inzhenerno-stroitel'nyy institut).
128. Ryazan' Radiotechnical Institute (Ryazanskiy radiotekhnicheskiy institut).
129. Siberian State Scientific Research Institute of Metrology (Sibirskiy gos. NII metrologii).
130. Tadzhik State University (Tadzhikskiy gos. universitet).
131. Tartu State University (Tartusskiy gos. universitet).
132. Tomsk State University (Tomskiy gos. universitet).
133. Central Aerohydrodynamic Institute im. Zhukovskiy (Tsentral'nyy aerogidrodinamicheskiy institut im. Zhukovskogo).
134. Central Aerological Observatory (Tsentral'naya aerologicheskaya observatoriya).
135. Central Scientific Research Institute of Communications (Tsentral'nyy NII svyazi).
136. Uzhgorod State University (Uzhgorodskiy gos. universitet).
137. Voronezh State University (Voronezhskiy gos. universitet).
138. Voronezh Polytechnic Institute (Voronezhskiy politekhnicheskiy institut).
139. All Union Electrotechnical Institute (Vsesoyuznyy elektrotekhnicheskiy institut).
140. All Union Scientific Research Institute of Physicotechnical and Radiotechnical Measurements (VNII fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy, VNIFTRI).
141. All Union Scientific Research Institute of Opticophysical Measurements (VNII optiko-fizicheskikh izmereniy).
142. All Union Scientific Research Institute for Synthesis of Mineral Ore (VNII sinteza mineral'nogo syr'ya).
143. All Union Scientific Research Institute of Synthetic Rubber (VNII sinteticheskogo kauchuka).
144. All Union Scientific Research Institute of Television and Radio Broadcasting (VNII televideniya i radioveshchaniya).
145. All Union Correspondence Electrotechnical Institute of Communications (Vsesoyuznyy zaочnyy elektrotekhnicheskiy institut svyazi).
146. Yerevan Physics Institute (Yerevanskiy fizicheskiy institut).

147. Moscow Highway Institute (Moskovskiy avtodorozhnyy institut, MADI).
148. Institute of Terrestrial Magnetism, the Ionosphere and Radiowave Propagation, AN SSSR (Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln AN SSSR, IZMIRAN).
149. Leningrad Shipbuilding Institute (Leningradskiy korablestroitel'nyy institut).
150. Dnepropetrovsk State University (Dnepropetrovskiy gos universitet).
151. Kishinev State University (Kishinevskiy gos universitet).
152. Moscow Institute of Steel and Alloys (Moskovskiy institut stali i splavov, MISI).
153. Kiev Civil Engineering Institute (Kiyevskiy inzhenerno-stroitel'skiy institut, KISI).
154. Marine Hydrophysical Institute, AN UkrSSR (Morskoy gidrofizicheskiy institut AN UkrSSR).
155. North Ossetian State University (Severo-Osetinskiy gos universitet).
156. Mountain Agricultural Institute (Gorskiy sel'skokhozyaystvennyy institut).
157. All Union Scientific Research, Planning and Design Institute of Electric Equipment, Khar'kov (VNI i proyektno-konstruktorskiy institut elektroaparator).
158. Military Medical Academy, Leningrad (Voyenno-meditsinskaya akademiya).
159. Institute of Thermophysics, Siberian Branch, AN SSSR, Novosibirsk (Institut teplofiziki SOAN).
160. Scientific Research Institute of Hydrometeorological Instrument Manufacture (NII gidrometeorologicheskogo priborostroyeniya).
161. Moscow Institute of Radio Engineering, Electronics and Automation (Moskovskiy institut radiotekhnika, elektroniki i avtomatiki).
162. Moscow State Pedagogical Institute (Moskovskiy gos pedagogicheskiy institut).
163. All Union Scientific Research Institute of Metrology im. Mendeleev (VNII metrologii im Mendeleeva).
164. Special Design Bureau for Analytical Instrument Manufacture, AN SSSR (Spetsial'noye konstruktorskoye byuro analiticheskogo priborostroyeniya AN SSSR).
165. Kazan' Command Engineering College (Kazanskoye vyssheye komandno-inzhenernoye uchilishche).
166. Riga Polytechnic Institute (Rizhskiy politekhnicheskiy institut).
167. Institute of Petrochemical Synthesis im. Topchiyev, AN SSSR, Moscow (Institut neftekhimicheskogo sinteza im Topchiyeva AN SSSR).
168. Institute of Electric Welding im. Paton, AN UkrSSR, Kiev (Institut elektrosvarki im Patona AN UkrSSR).
169. Department of Telecommunications of the All Union State Planning, Surveying and Scientific Research Institute of Power Systems and Electric Power Networks (Otdel dal'nykh peredach Vsesoyuznogo gosudarstvennogo proyektno-izyskatel'skogo i NII energeticheskikh sistem i elektricheskikh setey, Energoset'proyekt).
170. Moscow Machine Tool Institute (Moskovskiy stankoinstrumental'nyy institut).
171. Leningrad Institute for the Advanced Training of Physicians (Leningradskiy institut usovershenstvovaniya vrachey).
172. Main Astronomical Observatory, AN UkrSSR (Glavnaya astronomicheskaya observatoriya AN UkrSSR).
173. Ul'yanovsk Polytechnic Institute (Ul'yanovskiy politekhnicheskiy institut).
174. Scientific Research Institute of Organic Intermediates and Dyestuffs, Moscow (NII organicheskikh poluproduktov i krasiteley).
175. Arctic and Antarctic Scientific Research Institute, Leningrad (Arkticheskiy i antarkticheskiy NII).
176. Moscow Geological Prospecting Institut im. Ordzhonikidze (Moskovskiy geologorazvedochnyy institut im Ordzhonikidze).
177. Riga Institute for Civil Aviation Engineers (Rizhskiy institut inzhenerov grazhdanskoj aviatsii).
178. Moscow Institute of Chemical Technology im. Mendeleev (Moskovskiy khimiko-tekhicheskiy institut im Mendeleeva).
179. Moscow Institute of Fine Chemical Technology im. Lomonosov (Moskovskiy institut tonkoy khimicheskoy tekhnologii im Lomonosova).
180. Institute of Heat and Mass Exchange, AN BSSR (Institut teplo- i massoobmena AN BSSR).
181. Institute of Nuclear Research, AN UkrSSR, Kiev (Institut yadernykh issledovaniy AN UkrSSR).

182. Kiev Communications College of Military Engineering (Kiyevskoye vysshoye voyennoye inzhenernoye uchilishche svyazi).
183. Physico-technical Institute, AN BSSR (Fiziko-tekhnicheskyy institut AN BSSR).
184. Institute of Geochemistry and Analytical Chemistry im. Vernadskiy, AN SSSR, Moscow (Institut geokhimii i analiticheskoy khimii im Vernadskogo AN SSSR).
185. Gor'kiy Polytechnic Institute (Gor'kovskiy politekhnicheskyy institut).
186. Kishinev Pedagogical Institute (Kishinevskiy pedagogicheskyy institut).
187. Institute of Epidemiology and Microbiology im. Gamaleya, AMN SSSR, Moscow (Institut epidemiologii i mikrobiologii im Gamalei AMN SSSR).
188. All Union Scientific Research Institute of Single Crystals, Khar'kov (VNI monokristallov).
189. Novocherkassk Polytechnic Institute (Novocherkasskiy politekhnicheskyy institut).
190. Central Scientific Research Institute of the Maritime Fleet (Tsentral'nyy NII morskogo flota).
191. Karaganda Polytechnic Institute (Karagandinskiy politekhnicheskyy institut).
192. Belorussian Technological Institute (Belorusskiy tekhnologicheskyy institut).
193. Institute of Theoretical and Applied Mechanics, Siberian Branch, AN SSSR, Novosibirsk (Institut teoreticheskoy i prikladnoy mekhaniki SOAN).
194. VIOGEM
195. Northwest Correspondence Polytechnic Institute (Severo-Zapadnyy zaочnyy politekhnicheskyy institut).
196. Institute of Organic Chemistry im. Zelinskiy, AN SSSR (Institut organicheskoy khimii im Zelinskogo AN SSSR).
197. Tomsk Polytechnic Institute (Tomskiy politekhnicheskyy institut).
198. Institute of Mineral Fuels, Moscow (Institut goryuchikh iskopayemykh).
199. Moscow Institute of Electronic Machinery (Moskovskiy institut elektronnoy mashinostroyeniya).
200. Khar'kov Aviation Institute (Khar'kovskiy aviatsionnyy institut).
201. Institute for Problems of Information Transmission, AN SSSR, Moscow (Institut problem peredachi informatsii AN SSSR).
202. Institute of Electronics, AN UzSSR, Tashkent (Institut elektroniki AN UzSSR).
203. Institute of General and Inorganic Chemistry, AN ArmSSR, Yerevan (Institut obshchey i neorganicheskoy khimii AN ArmSSR).
204. Institute of General Genetics, AN SSSR, Moscow (Institut obshchey genetiki AN SSSR).
205. Moscow X-ray Radiological Scientific Research Institute (Moskovskiy NI rentgeno-radiologicheskyy institut).
206. Institute of Geology and Geophysics, Siberian Branch, AN SSSR, Novosibirsk (Institut geologii i geofiziki SOAN).
207. Main Geophysical Observatory (Glavnaya geofizicheskaya observatoriya).
208. Tula Polytechnic Institute (Tul'skiy politekhnicheskyy institut).
209. Moscow Institute of Precision Mechanics and Computer Technology (Moskovskiy institut tochnoy mekhaniki i vychislitel'noy tekhniki).
210. Institute of Physics, Siberian Branch, AN SSSR (Institut fiziki SOAN).
211. Kalinin Polytechnic Institute (Kalininskiy politekhnicheskyy institut).
212. Kuban' State University (Kubanskiy gos universitet).
213. Leningrad Technological Institute (Leningradskiy tekhnologicheskyy institut).
214. Kazan' Pedagogical Institute (Kazanskiy pedagogicheskyy institut).
215. Physico-technical Institute, AN TadzhSSR (Fiziko-tekhnicheskyy institut AN TadzhSSR).
216. Kazan' Aviation Institute (Kazanskiy aviatsionnyy institut).
217. Poltava Civil Engineering Institute (Poltavskiy inzhenerno-stroitel'nyy institut).
218. Second Moscow State Medical Institute im. Pirogov (Vtoroy Moskovskiy meditsinskiy institut im Pirogova).

219. Belorussian Polytechnic Institute, Minsk (Balorusskiy politekhnicheskiy institut).
220. Institute of Experimental Meteorology (Institut eksperimental'noy meteorologii).
221. All Union Scientific Research Institute of Hydraulic Engineering (VNII gidrotekhniki).
222. Institute of Surgery im. Vishnevskiy, AMN SSSR (Institut khirurgii im Vishnevskogo AMN SSSR).
223. Central Institute for the Advanced Training of Physicians (Tsentral'nyy institut usovarsheystvovaniya vrachey).
224. Yerevan Polytechnic Institute (Yeravanskiy politekhnicheskiy institut).
225. Institute for Problems of Oncology, AN UkrSSR (Institut problem onkologii AN UkrSSR).
226. Leningrad Branch of the Mathematical Institute, AN SSSR (Leningradskoye otdaleniya Matematicheskogo instituta AN SSSR).
227. Tashkent State University (Tashkentskiy gos universitet).
228. Institute of Theoretical Physics, AN UkrSSR (Institut teoraticheskoy fiziki AN UkrSSR).
229. Moscow Aviation Technological Institute (Moskovskiy aviatsionnyy tekhnologicheskiy institut).
230. Novosibirsk Institute for Engineers of Geodesy, Aerial Surveying and Cartography (Novosibirskiy institut inzhenerov geodezii, aerofotoz'emyki i kartografii).
231. Scientific Research Institute of Motion Pictures and Photography (NI kinofotoinstitut, NIKFI).
232. State Scientific Research Institute of Glass (Gosudarstvennyy NII stekla).
233. Ivanovo-Frankov Pedagogical Institute (Ivanovo-Frankovskiy pedagogicheskiy institut).
234. Scientific Research Institute of Civil Aviation (NII grazhdanskoy aviatsii).
235. Tashkent State Pedagogical Institute (Tashkentskiy gos pedagogicheskiy institut).
236. All Union Scientific Research Institute of Mining Geomechanics and Surveying (VNIU gurnoy geomekhaniki i markshayderskogo dela).
237. Department of the Physics of Nondestructive Control, AN BSSR (Otdel fiziki narazrushayushchego kontrolya AN BSSR).
238. Institute of High Pressure Physics, AN SSSR (Institut fiziki vysokikh davleniy AN SSSR).
239. All Union State Planning, Surveying and Scientific Research Institute of Power Systems and Electric Power Networks (Vsesoyuznyy gosudarstvennyy proyektno-izyskatel'skiy i NII energeticheskikh sistem i elektricheskikh setey, ENERGOSET'PROYEKT).
240. Odessa State University (Odesskiy gos universitet).
241. Sverdlovsk State Pedagogical Institute (Sverdlovskiy gos pedagogicheskiy institut).
242. Kazakh State University, Alma Ata (Kazakhskiy gos universitet).
243. Radio Engineering Institute, AN SSSR (Radiotekhnicheskiy institut AN SSSR).
244. Moscow Scientific Research Institute of Television (Moskovskiy NI televizionnyy institut).
245. Novosibirsk State Pedagogical Institute (Novosibirskiy gos pedagogicheskiy institut).
246. Main Astronomical Laboratory, AN SSSR (Glavnaya astronomicheskaya laboratoriya AN SSSR).
247. Scientific Research Institute of Electrophysical Equipment im. Yefremov, Leningrad (NII elektrofizicheskoy apparatury im Yefremova).
248. Institute of Mechanics at Moscow State University (Institut mekhaniki pri Moskovskom gos universitete).
249. Omsk Agricultural Institute (Omskiy sel'skokhuzyaystvennyy institut).
250. Sverdlovsk Mining Institute (Sverdlovskiy gornyy institut).
251. Tomsk Institute of Automatic Control Systems and Radioelectronics (Tomskiy institut avtomatizirovannykh sistem upravleniya i radioelektroniki).
252. Leningrad Institute of Nuclear Physics, AN SSSR (Leningradskiy institut yadernoy fiziki AN SSSR).
253. Kirghiz State University (Kirgizskiy gos universitet).
254. Moscow Civil Engineering Institute (Moskovskiy inzhenerno-stroitel'skiy institut).
255. Tallinn Polytechnical Institute (Tallinskiy politekhnicheskiy institut).

256. Far Eastern State University, Vladivostok (Dal'nevostochnyy gos universitet).
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