TURSKI, Czeslaw; ZGLICZYNSKI, Stefan; KAMINSKI, Zdzislaw

Myxoma of the right auricle. Signs of right valvular stenosis and insufficiency. (Report of an operated case). Polski tygod.lek. 15 no.35:1356-1362 29 Ag '60.

1. Z Oddzialu Chorob Wewnetrznych; kierownik: prof. dr med. Walenty Hartwig, z Oddzialu Chirurgicznego; kierownik; prof. dr med. Leon Manteuffel i z Zakladu Anatomii Patologicznej; kierownik: prof. dr med. Stefania Chodkowska, Instytutu Gruzlicy w Warszawie; dyrektor Instytutu: prof. dr med. Wiwa Jaroszewicz
(HEART neoplasms)
(MYXOMA case reports)

MASZCZYK, Zinajda; KOCHANOWICZ, Jan; KAMINSKI, Zdzislaw.

A case of giant cyst associated with pulmonary neoplasm and tuberculosis. Gruzlica 28 no.9:725-730 S '60.

1. Z Oddzialu II Kierownik: prof. dr W.Jaroszewicz i z Oddzialu Patologii Kierownik: prof. dr S.Chodkowska Instytutu Gruzlicy Dyrektor: prof. dr W.Jaroszewicz
(TUBERCULOSIS PULMONARY compl)
(LUNG NEOPLASMS compl)

KAPUSCINSKI, Olgierd; KAMINSKI, Zdzislaw; HORNOWSKI, Sergiusz

Isolated primary malignant granuloma of the stomach. Pol. przegl. radiol. 26 no.1:85-89 '62.

1. Z zakladu Radiologii Instytutu Gruzlicy Kierownik: prof. dr med. K. Ossowska Z Zakladu Patologii Instytutu Gruzlicy Kierownik: prof. dr med. S. Chodkowska z Oddzialu Chirurgicznego Instytutu Gruzlicy Kierownik: prof. dr med. L. Manteuffel Dyrektor Instytutu Gruzlicy w Warszawie: prof. dr med. W. Jaroszewicz.

(HODGKIN'S DISEASE radiog)
(STOMACH NEOPLASMS radiog)

DYDYK, Lubomira; KAMINSKI, Zdzislaw

Spontaneous rupture of a normal spleen. Pol. przegl. chir. 34 no.11: 1213-1215 '62.

1. Z Oddzialu Chirurgicznego i Zakladu Anatomii Patologicznej Instytutu Gruzlicy w Warszawie Kierownik: Oddzialu: prof. dr L. Manteuffel Kierownik Zakladu: prof. dr S. Chodkowska.
(SPLENIC RUPTURE)

KAMINSKI, Zdzislaw; DYDYK, Lubomira; PAWLICKA, Lilia

Mediastinal chemodectoma. Polski przegl. chir. 35 no.6:621-623 '63.

1. Z Zakladu Patologii Instytutu Gruzlicy w Warszawie Kierownik: prof. dr S. Chodkowska Z Oddzialu Chirurgicznego Instytutu Gruzlicy w Warszawie Kierownik: prof. dr L. Manteuffel Z Zakladu Radiologii Instytutu Gruzlicy w Warszawie Kierownik: prof. dr K. Ossowska.

(CAROTID BODY TUMOR) (MEDIASTINAL NEOPLASMS)
(SURGERY, OPERATIVE)

OCHOCKA, Maria; BUJKO, Klaudia; KAMINSKI, Zdzislaw

Di Guglielmo's disease or erythroblastic reaction in miliary tuberculosis. Pediat. Pol. 39 no.6:691-697 Je '64.

1. Z Kliniki Terapii Chorob Dzieci Akademii Medycznej w Warszawie (Kierownik: doc. dr med. H. Kobierska), i z Zakladu Anatomii Patologicznej przy PSK nr 3 (Kierownik: dr Z. Kaminski).

GIRDZIJAUSKAS, Vitautas; VIKONYTE-VASILIEVIENE, Danguole, kand. med. nauk; KAMINSKIENE, L., red.

[Dysentery and its control in the Lithuanian S.S.R.] Dizenterija ir kova su ja Lietuvos TSR. Vilnius, Mintis, 1964. 163 p. [In Lithuanian] (MIRA 18:10)

1. Chlen-korrespondent AN Litovskoy SSR (for Girdzijauskas).

RUZGYTE, Jadvyga; KAMINSKIENE, L., red.; KRUPOVNICKAS, V., tekhn. red.

[Guarding the working people's health; from the experience of the Social Insurance Committee at the Verpstas Factory] Darbo zmoniu sveikatos sargyboje; "Verpsto" fabriko socialinio draudimo komisimos darbo patyrimas. Vilnius, Valstybine politines ir mokslines literaturos leidykla, 1961. 53 p.
(MIRA 15:3)
(Lithuania--Textile industry--Hygienic aspects)

DAILIDONIENE, Jadvyga; KAMINSKIENE, L., red.

[Tuberculosis, an infectious disease] Tuberkulioze - uzkreciama liga. Vilnius, Valstybine politines ir mokslines lit-ros leid kla, 1963. 16 p. [In Lithuanian] (MIRA 17:7)

AMBRAZEVICIENE, Emilija; KAMINSKIENE, L., red.

[Red blood diseases; anemias, erythremia] Raudonojo kraujo ligos; anemijos ir eritremija. Vilnius, Vastybine politines ir mokslines lit-ros leidykla, 1964. 119 p. [In Lithuanian] (MIRA 17:7)

BAGDZIUS, B., otv. red.[deceased]; CUKERZIS, J., red.; LAPINSKAITE, J., red.; MANIUKAS, J., red.; KAMINSKIENE, L., red.

[Hydrobiological studies of Dukstas area lakes] Duksto ezeru hidrobiologiniai tyrimai. Gidrobiologicheskie issledovaniia Dukshtasskikh ozer. Vilnius, Leidykla "Mintis," 1964. 146 p. [In Lithuanian and Russian] (MIRA 18:2)

1. Lietuvos TSR Mokslu Akademija, Vilna. Zoologijos ir parazitologijos institutas.

PAUKSH, P.[Pauksa,P.](Riga); EYDUK, Yu.[Eiduks,J.](Riga); KAMINSKIS,Ya.
[Kaminskis,J.](Riga)

Effect of the preparation method on the properties of fretted base glaze of type borax, sand. In Russian. Vestis Latv ak no.3: 119-124 '60. (EEAI 10:7)

1. Akademiya nauk Latviyskoy SSR, Institut khimiyi.
(Borax) (Glazes) (Sand)

KAMINSKIY, A.

13031

USSR/Agricultural Cooperatives 4106. Dec 1947

"Concerning Five-Year Plans in Collective Farms," A. Kaminskiy, P. Sukach, Candidates in Agricultural Sciences, 3 pp

"Sots Sel Khoz" Vol XVIII, No 12

Discusses five-year plans which individual kolkhoz have established for themselves, thereby increasing efficiency and productivity of labor in fulfillment of national Five-Year Plan. Names specific kolkhoz and certain points of their plans as examples. Gives 14 basic points of a typical kolkhoz five-year plan, covering administration, organization, sowing, agrotechnological measures, tractors and other mechanical

LC 13031

USSR/Agricultural Cooperatives 4106. (Cont'd) Dec 1947

traction, grain and livestock development, development of subsidiary branches of enterprises, construction, manpower, specialized training of personnel, determination of over-all production, finance, housing, and index of results of five-year plan.

13031

LC

KAMINSKIY, A., i OBOLYENSKIY, K.

29724

Razvitiye obshchyestvyennogo zhozyaystva v pygryedovykh kolzhozakh. Suts. Syel. Khoz-vo, 1949, No. 9, S. 29-42

So: Letopis' No. 40

KAMINSKIY, A.

Collective Farms

Indivisible funds are the basis for the development of communal economy on collective farms. Kolkh. proizv. 12 No. 9, 1952.

Monthly List of Russian Accessions, Library of Congress, December 1952. Unclassified.

KAMINSKIY, A., kand. sel'skokhoz. nauk

Great achievements of our Chinese brothers. Nauka i pered. op. v sel'khoz 9 no.10:73-76 O '59 (MIRA 13:3)
(China--Agriculture)

KAMINSKIY, A.

For profitable operations in Batum harbor. Mor. flot 20 no.9:10-12 S '60. (MIRA 13:9)

1. Zamestitel' nachal'nika Batumskogo porta.
(Batum--Harbor--Cost of operation) (Cargo handling)
(Merchant marine--Passenger traffic)

WRITE BELOW THIS LINE

ACCESSION NR: AP4012567 S/0056/64/046/001/0386/0389

AUTHORS: Kaminskiy, A. A.; Korniyenko, L. S.; Makarenko, L. V.; Prokhorov, A. M.; Fursikov, M. M.

TITLE: Investigation of stimulated emission of Nd^{3+} in calcium fluorite at room temperature

SOURCE: Zhurnal eksper. i teoret. fiz., v. 46, no. 1, 1964, 386-389

TOPIC TAGS: stimulated emission, molecular generator, maser, calcium fluorite, neodymium impurity, neodymium doping, emission wavelength, emission time dependence, radiation structure, fine structure component.

ABSTRACT: The only fluorite doped with Nd^{3+} previously found to exhibit stimulated emission at room temperature was SrF_2 (L. F. Johnson, J. Appl. Phys., v. 34, 897, 1963). The authors report tests of

Card 1/3

ACCESSION NR: AP4012567

crystals grown from the melt in a fluoriding atmosphere by lowering the crucible. Emission was observed in crystals with neodymium oxide concentrations 0.3 and 1.5%, the approximate wavelength being 1.047 micron. The system was excited by absorption of light from a flash system at 14,000 cm^{-1} above ground level. Emission corresponded to the $^4F_{3/2} \rightarrow {}^4I_{11/2}$ transition. The illuminating system consisted of an elliptical system with the crystal in one focus and the flash lamp (80-mm glow column) in the other. The time dependence of the radiation was determined with a photomultiplier and oscilloscope. The structure of the radiation was determined with a spectrograph having a 600 line/mm grating. For the crystal with 0.3% neodymium oxide the emission line width was approximately 3 Å (4 fine structure components), increasing to 5 Å (12 components) for the 1.5% crystal. "The authors are grateful to V. V. Osiko and Yu. K. Voronko for supplying the fluorite crystals and for fruitful discussions." Orig. art. has: 2 figures.

Card 2/3

ACCESSION NR: AP4012567

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Nuclear Physics Institute, Moscow State University)

SUBMITTED: 28Oct63 DATE ACQ: 26Feb64 ENCL: 00

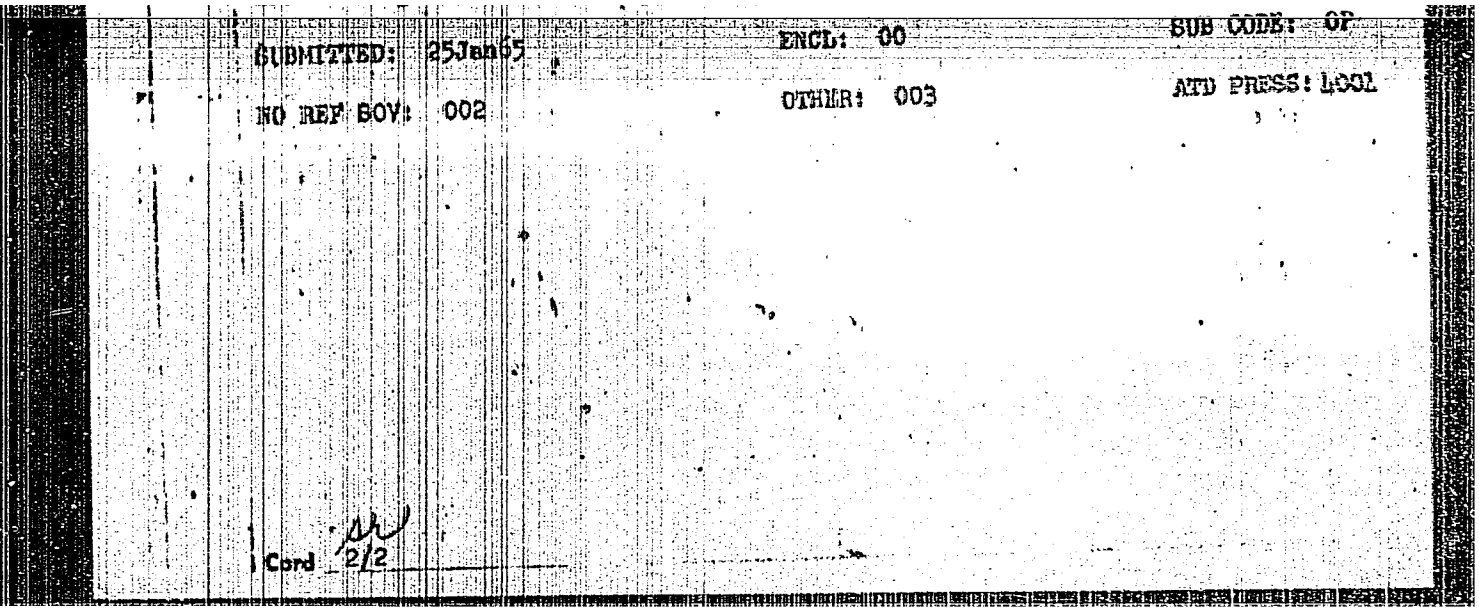
SUB CODE: PH NO REF SOV: 001 OTHER: 001

Card 3/3

L 15720-65

ACCESSION NR: AP5013663

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics



UR/0386/65/001/002/0103/0107

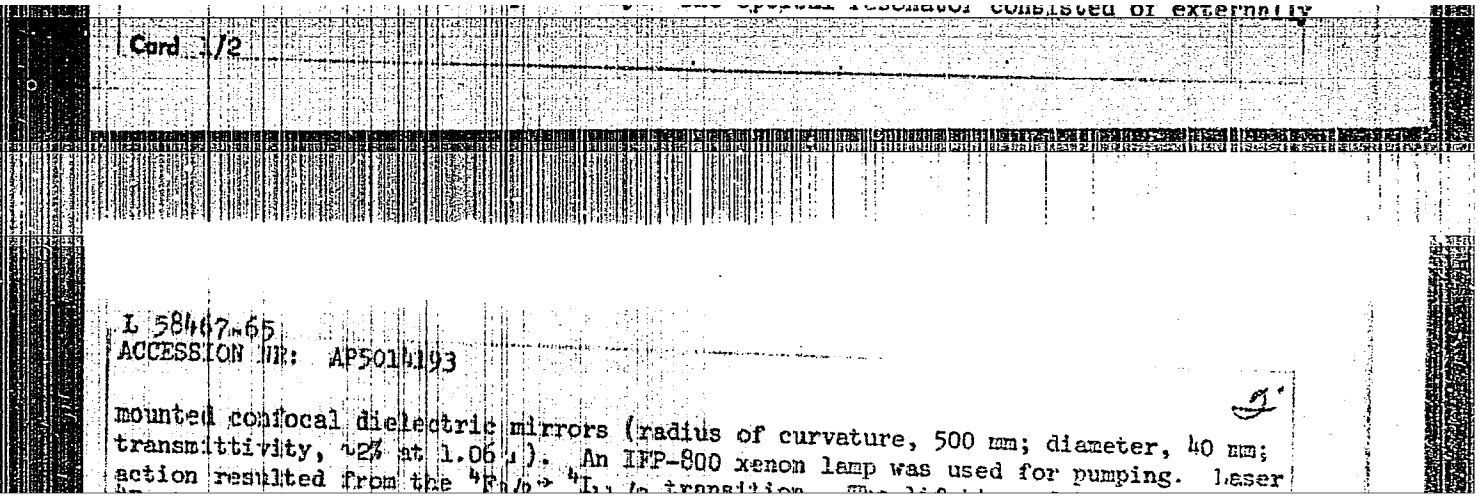
AUTHOR: Voron'ko, Yu. K.; Kaminskiy, A. A.; Korniyenko, L. S.; Osiko, V. V.; Prokhorov, A. M.; Udovenchik, V. T.

TITLE: Investigation of the stimulated emission in $CaF_2:Nd^{3+}$ crystals (type II) at room temperature

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 1, no. 2, 1965, 3-7, and insert A

TOPIC TAGS: neodymium, calcium compound, stimulated emission, paramagnetic laser, room temperature laser

ABSTRACT: The present work, a continuation of earlier research (ZhETF, 46, 1964, 386) in which the authors obtained stimulated emission at ~1.047 μ in $CaF_2:Nd^{3+}$ (type I) crystals at 300K



Card 1/2

L 58467-65
ACCESSION NR: AP5014193

mounted confocal dielectric mirrors (radius of curvature, 500 mm; diameter, 40 mm; transmittivity, ~2% at 1.06 μ). An IFP-800 xenon lamp was used for pumping. Laser action resulted from the $^4F_{3/2} \rightarrow {}^4I_{11/2}$ transition

Orig. Art. has: 1 table and 3 figures. [VK]

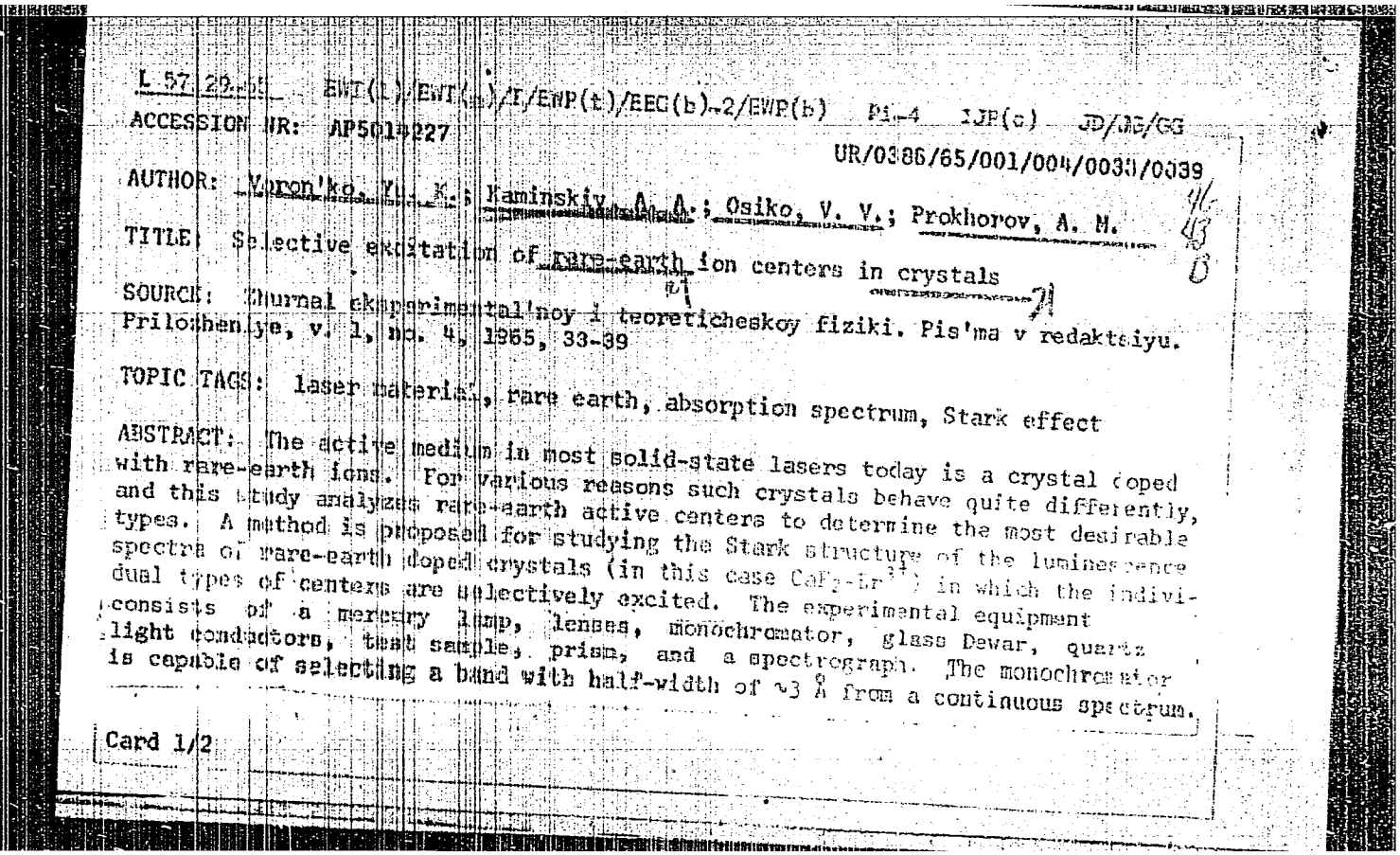
ASSOCIATION: Institut yadernoy fiziki Moskovskogo Gosudarstvennogo universiteta (Institute of Nuclear Physics, Moscow State University); Fizicheskiy institut Akademii nauk SSSR (Physics Institute, Academy of Sciences USSR)

SUBMITTED: 03Feb65 ENCL: 00 SUB CODE: EC, SS

NO REF SOV: 002 OTHER: 008 ATD PRESS: 4015

Card 2/2

APPROVED FOR RELEASE: 08/10/2001 CIA-RDP86-00513R000620310012-6"



L 57 20-65 EWT(l)/EWT(m)/T/EWP(t)/EEC(b)-2/EWP(b) Pi-4 IJP(c) JD/JG/GG

ACCESSION NR: AP5014227 UR/0386/65/001/004/0033/0039

AUTHOR: Voron'ko, Yu. K.; Kaminskiy, A. A.; Osiko, V. V.; Prokhorov, A. M. 44 43 B

TITLE: Selective excitation of rare-earth ion centers in crystals 21

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozhenlye, v. 1, no. 4, 1965, 33-39

TOPIC TAGS: laser material, rare earth, absorption spectrum, Stark effect

ABSTRACT: The active medium in most solid-state lasers today is a crystal doped with rare-earth ions. For various reasons such crystals behave quite differently, and this study analyzes rare-earth active centers to determine the most desirable types. A method is proposed for studying the Stark structure of the luminescence spectra of rare-earth doped crystals (in this case CaF_2-Er^{3+}) in which the individual types of centers are selectively excited. The experimental equipment consists of a mercury lamp, lenses, monochromator, glass Dewar, quartz light conductors, test sample, prism, and a spectrograph. The monochromator is capable of selecting a band with half-width of ~3 Å from a continuous spectrum.

Card 1/2

L 47124-65

ACCESSION NR: AP5014227

3

Both static and dynamic methods are used in producing excitation: in the first, excitation is produced in a preselected absorption line; in the second, the wavelengths of the excitation light are scanned. The dynamic luminescence spectrum for one transition at 77°K of CaF_2 doped with 3% Er^{3+} is shown, and the related absorption spectrum is compared. Three different Er^{3+} centers were studied, and excitation in each line of these systems was found to produce identical luminescence spectra. A typical microphotogram is shown and discussed, and the systems are com-

ment." Orig. art. has: 3 figures.

ASSOCIATION: Fizicheskiy institut imeni P. N. Lebedeva Akademii nauk SSSR (Physics Institute, Academy of Sciences, SSSR); Institut kristallografii Akademii nauk SSSR (Institute of Crystallography, Academy of Sciences, SSSR)

SUBMITTED: 16Apr56 ENCL: 00 SUB CODE: EC, SS

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4036

Card 2/2

BABICH, I.Yu. (Kiyev); KAMINSKIY, A.A. (Kiyev)

Critical loads originating cracks at the boundary of an elliptical hole. Prikl. mekh. 1 no.9:124-127 '65. (MIRA 18:10)

1. Institut mekhaniki AN UkrSSR.

L 3725-66 EWA(k)/FBD/EWT(l)/EWP(e)/EWT(m)/EEC(k)-2/EWP(i)/T/EWP(k)/EWA(m)-2/EWA(h)
ACC NR: AP5025788 SCTB/IJP(c) WG/WH SOURCE CODE: UR/0363/65/001/009/1521/1525

AUTHOR: Voron'ko, Yu. K.; Kaminskiy, A. A.; Osiko, V. V.; Khaimov-Mal'kov, V. Ya.

ORG: Institute of Crystallography, Academy of Sciences, SSSR (Institut kristallografii Akademii nauk SSSR); Physics Institute im. P. N. Lebedev, Academy of Sciences, SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Investigation of the optical inhomogeneity of $CaF_2:Dy^{3+}$ laser crystals

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 9, 1965, 1521-1525

TOPIC TAGS: laser, solid state laser, laser rod, laser crystal, fluorite, fluorite laser, optical inhomogeneity, excitation threshold

ABSTRACT: Experiments were performed to determine the effect of different types of optical inhomogeneities on the excitation threshold of CaF_2 laser rods doped with 0.5% Nd^{3+}. Crystals 150 mm long with a 15-mm diameter were grown from the same melt under identical conditions and had the same concentration of active impurities. Thirteen laser rods, each about 73 mm long and 6.5 mm in diameter, were fabricated from the crystals. Measurements of the excitation threshold, the gradient of the index of refraction, the local inhomogeneities, and small angle scattering showed that the optical defects differed from crystal to crystal. These differences were attributed to minute, uncontrollable variations in the temperature regime during the growth process and to differences in the crystallographic orientation of the growing crystals. It was estab-

Card 1/2 UDC: 546.41'161:548.55

L 3725-66

ACC NR: AP5025783

lished that the scattering angle of a beam from a He-Ne laser directed along the geometrical axis of the rod shows the greatest amount of correlation with the excitation threshold of the laser rod. This parameter should therefore be used in selecting the $CaF_2:Nd^{3+}$ crystal rods to be used in lasers. Orig. art. has: 4 figures and 1 table. [CS]

SUB CODE: SS/ SUBM DATE: 02Jun65/ ORIG REF: 008/ OTH REF: 000/ ATD PRESS: 4120

Card 2/2

KAMINSKIY, A.A.; OSIKO, V.V.

Inorganic laser materials with ionic structure. Izv. AN SSSR. Neorg. mat. 1 no.12:2049-2087 D '65.

1. Institut kristallografii AN SSSR i Fizicheskiy institut im. P.N. Lebedeva AN SSSR. Submitted August 4, 1965.

L 9498-66 EWA(k)/FBD/EWT(1)/EEC(k)-2/T/EWP(k)/EWA(m)-2/EWA(h) SCTB/IJP(c)
ACC NR: AP6001224 WG/GG SOURCE CODE: UR/0363/65/001/012/2088/2092

AUTHOR: Bagdasarov, Kh. S.; Voron'ko, Yu. K.; Kaminskiy, A. A.; Osiko, V. V.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences SSSR (Fizicheskiy institut Akademii nauk SSSR); Institute of Crystallography, Academy of Sciences SSSR (Institut kristallografii Akademii nauk SSSR)

TITLE: Fluoride-base systems as active quantum electronic materials

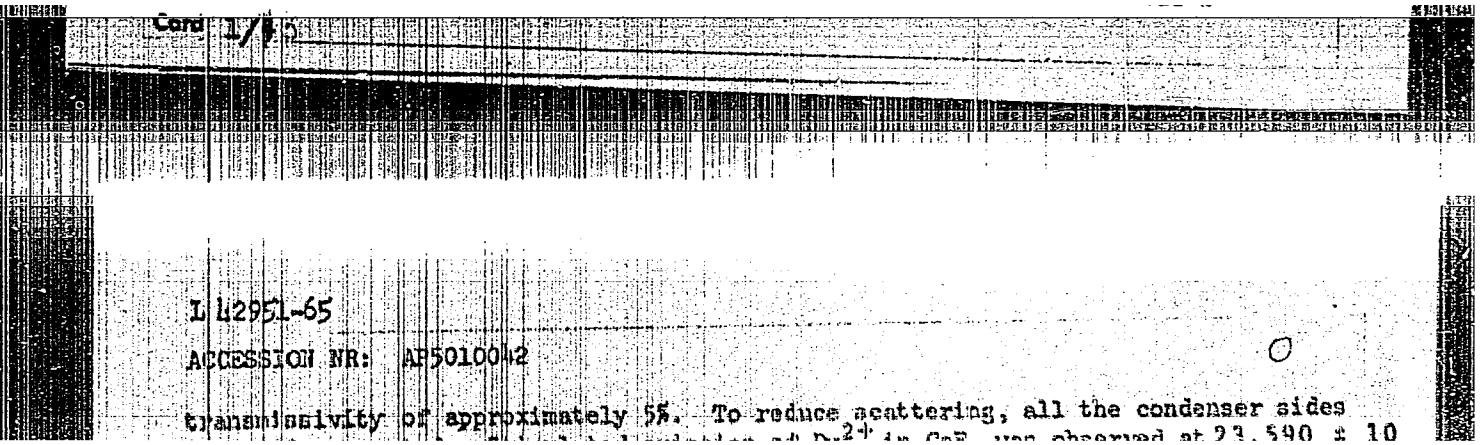
SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 12, 1965, 2088-2092

TOPIC TAGS: laser, infrared laser, solid state laser, stimulated emission, fluoride base laser

ABSTRACT: Stimulated emission in the infrared spectral region (10,540 Å) has been achieved with a low generation threshold (about 50 J) from Nd^{3+} activated BaF_2-LaF_3 single crystals at room temperature. The crystals, described as a new laser material, were grown by Stockbarger technique from a BaF_2-LaF_3 mixture of variable composition with 1% NdF_3 addition. The growth technique was described earlier [Yu. K. Voron'ko, V. V. Osiko, V. T. Udovenchik, M. M. Fursikov. Fiz. tv. tela, 7, 267 (1965)]. Preliminary study of the absorption and luminescence spectra of the crystals indicated the characteristics required for laser, i.e., an unusually high absorption coefficient in the 0.6—1.0 μ region at 300K and the highest luminescence intensity

Card 1/2 UDC: 546.161

Card 2/2



Card 1/2

L 42951-65

ACCESSION NR: AP5010042

transmissivity of approximately 55. To reduce scattering, all the condenser sides

ASSOCIATION: none

Card 2/4

L 42951-65

ACCESSION NR: AP5010042

SUBMITTED: 03Sep64 ENCL: 01 SUB CODE: EC

NO REF SOV: 000 OTHER: 007 ATD PRESS: 3236

Card 3/4

L 12824-66 EWT(1) AT

ACC NR: AP6001775 SOURCE CODE: UR/0386/65/002/010/0473/0478

AUTHOR: Voron'ko, Yu. K.; Kaminskiy, A. A.; Osiko, V. V.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Effect of hard radiation on the optical centers of TR^{3+} ions in crystals

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 2, no. 10, 1965, 473-478

TOPIC TAGS: luminescence center, rare earth element, Gamma irradiation, crystal symmetry

ABSTRACT: The authors have observed a new effect, wherein the structure and optical properties of the TR^{3+} centers in crystals with TR^{3+} impurity are changed by hard radiation. The investigations were carried out with the crystals $CaF_2:Nd^{3+}$ (0.3 wt.%), $CAF_2:Er^{3+}$ (0.3 wt.%), and $CaF_2:Eu^{3+}$ (0.3 wt.%, type I), synthesized by a procedure described earlier (FTT v. 7, 267, 1965). The absorption spectra were obtained with a diffraction spectrometer. In all crystals, irradiation greatly reduced the intensities of some lines and gave rise to new lines. From a comparison of the absorption coefficients at the line maxima before and after irradiation it is easily seen that: 1) the lines comprising a single system are decreased in like fashion, and 2) the decrease is strongest in rhombic-symmetry lines and practically nil in the tetragonal system. It is concluded that γ irradiation changes the structure of the optical TR^{3+} centers, with some centers becoming disintegrated

Card 1/2

L 12821-66
ACC NR: AP6001775

and replaced by others of still unknown structure. Two possible mechanisms of TR^{3+}-center transformation are discussed. The ionic mechanism, which presupposes dissociation (destruction) of the centers, and the electron-hole mechanism, which is tantamount to formation of a center of a new type. It is still unclear which of these mechanisms predominates. It is noted in conclusion that the effect observed in this investigation can be used for an analysis of the optical TR^{3+} centers in crystals by observing the inhomogeneous change in the absorption-line intensity following irradiation. In addition, a study of the optical properties of the TR^{3+} centers in irradiated crystals can yield valuable information on the character of the processes which occur when hard radiation interacts with crystalline matter. Orig. art. has: 3 figures and 1 table. [02]

SUB CODE: 20/ SUBM DATE: 29Sep65/ ORIG REF: 004/ OTH REF: 003/ ATD PRESS: 4183

Card 2/2

KAMINSKIY, A.A.; KORNIYENKO, L.S.; LITVAK, D.M.

Excitability of a continuous laser. Zhur. prikl. spekt. 3 no. 2:114-122 Ag '65. (MIRA 18:12)

1. Submitted June 9, 1964.

L 2328-66 EWA(k)/FBD/EWT(1)/EWT(m)/EPF(c)/EEC(k)-2/T/EWP(k)/EWP(b)/EWA(m)-2/EWP(t)/
EWA(h) SCTB/IJP(c) WG/JD

ACCESSION NR: AP5025093 UR/0368/65/003/003/0261/0262
621.385

AUTHOR: Kaminskiy, A. A.; Litvak, D. M.

TITLE: The DKSSh-1000 xenon lamp as a powerful light source under heavy overload

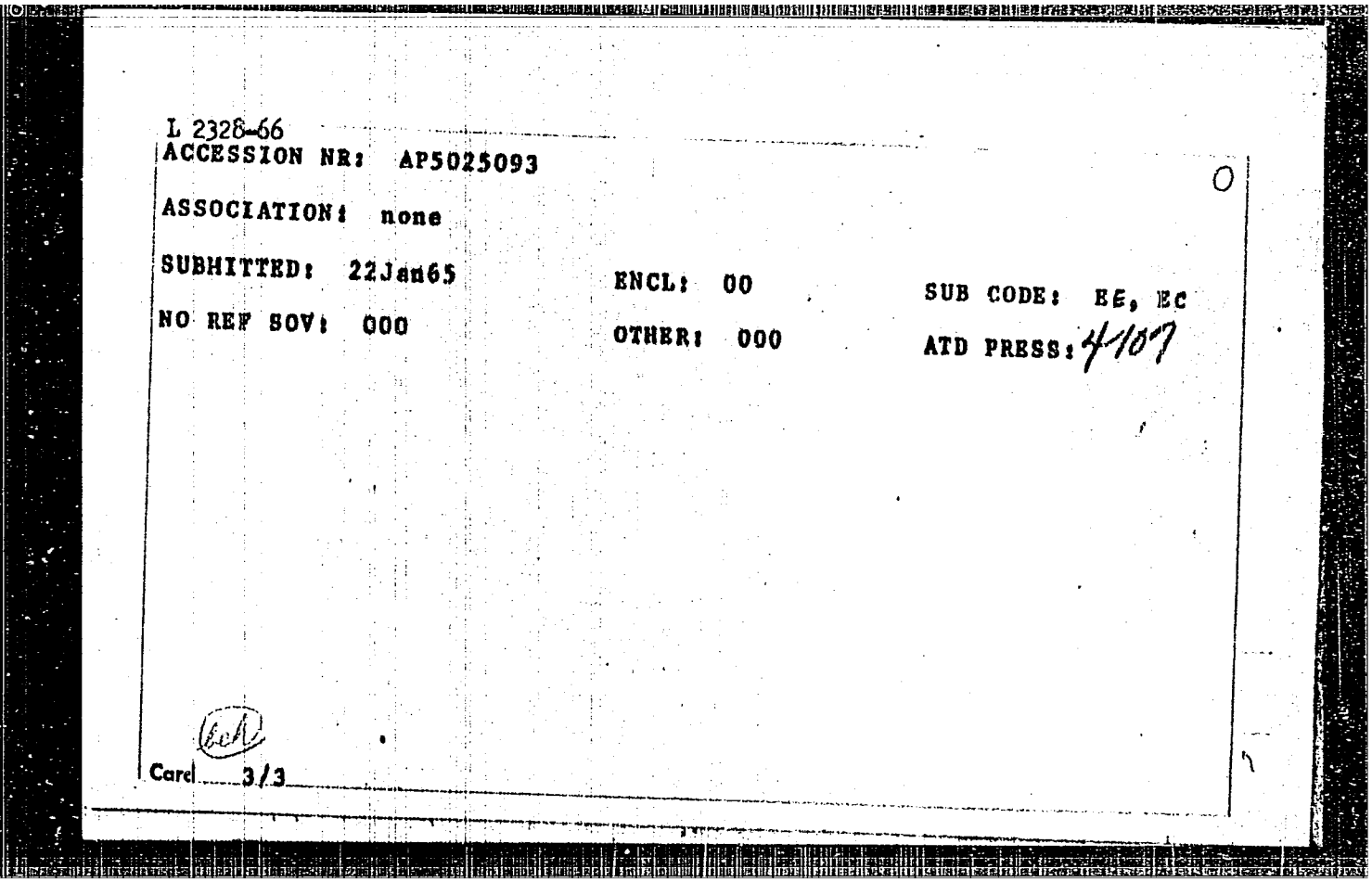
SOURCE: Zhurnal prikladnoy spektroskopii, v. 3, no. 3, 1965, 261-262

TOPIC TAGS: light source, DKSSh 1000 lamp, DKSSh 1000 xenon lamp, pulse light source, high power light source, laser pump, laser pump lamp, laser lamp

ABSTRACT: The DKSSh-1000 high-pressure xenon lamp was used as a high-power pump for a laser described elsewhere by the authors (Zhurnal prikladnoy spektroskopii, v. 2, no. 2, 1965, 138-141). DRSh- and DKSSh-type lamps are manufactured by Soviet industry with a single power rating of 1000 watts and have a rather low light efficiency of about 10%. Since this is inadequate in most applications, the DKSSh-1000 lamp was subjected to experiments on power overloads for short periods of time. The lamp was driven by a PN-400 direct-

Card 1/3

current generator of 110 v and 400 amp. The overload pulses, formed by shorting a water-cooled resistor in the lamp circuit, had durations of 0.05, 0.2, 0.25, 0.3, and 0.5 sec. At a current of 200 amp and a voltage of about 40 v, the power was about 8 kw. By increasing the current to 400 amp, the voltage rose to 65 v, while the power reached the value of 27 kw, which corresponds to a brightness of about 3×10^9 nt. Under normal conditions for the DKSSh-1000, the brightness at the center of the discharge is about 200×10^6 nt, with a luminous surface of the cone of 15.8 mm^2. When rated power was exceeded more than 20 times, the brightness reached a value of 2.6×10^9 nt and the luminous surface of the cone increased to 24.5 mm^2. The life of the lamp, which is rather variable even under normal conditions, was not investigated under overload conditions. In these experiments, the lamps worked reliably under an 8-fold overload for about 1.5 sec, and under a 20-fold overload for about 0.2 sec. Intense water cooling of the lamp is necessary under overload conditions. Orig. art. has: 2 figures. [FP]



L 2328-66
ACCESSION NR: AP5025093

ASSOCIATION: none

SUBMITTED: 22Jan65 ENCL: 00 SUB CODE: EE, EC

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4107

Card 3/3

L 2329-66 EWA(k)/FBD/EWT(l)/EWT(m)/EPF(c)/EEC(k)-2/T/EWP(t)/EWP(k)/EWP(b)/
EWA(m)-2/EWA(h) SCTB/IJP(c) WG/JD/JW/JG

ACCESSION NR: AP5024560 UR/0070/65/010/005/0746/0747
548.0

62
56
B

AUTHOR: Bagdasarov, Kh. S.; Voron'ko, Yu. K.; Kaminskiy, A. A.; Osiko, V. V.; Prokhorov, A. M.
44 44 44 44 44

TITLE: Stimulated emission of neodymium-doped yttrofluorite at room temperature

SOURCE: Kristallografiya, v. 10, no. 5, 1965, 746-747, and top half of insert facing p. 743

TOPIC TAGS: solid state laser, neodymium, yttrofluorite, stimulated emission
15,44

ABSTRACT: Certain basic characteristics of a neodymium-doped yttrofluorite (CaF_2—YF_3) laser operating at room temperature on two wavelengths are described. The present work is part of a study to improve the optical properties of active materials for fluorine-compound lasers. Type I CaF_2—YF_3 crystals with 0.1—0.5% (by weight) concentrations of Nd^{3+} were used. Generation at ~10461 and ~10640 Å corresponded to threshold energies of ~130 and ~35 j, respectively, supplied to a standard IFP-800 xenon flashlamp. The flashlamp was surrounded by a tubular glass (ZLS-17) filter in order to prevent undesirable aging of the neodymium. The space between the flashlamp and filter was filled with cooling water. The working crystals

Card 1/2

L 2329-66
ACCESSION NR: AP5024560 6

were in the form of cylindrical rods with polished ends (parallel within 10—20"), each ~75 mm long and ~6.5 mm in diameter. Confocal external mirrors were used which had an ~0.9% transmission at 1.06 μ. The mirrors were 20 mm in diameter and had a radius of curvature of 500 mm. The linewidths at ~10461 Å and ~10640 Å were ~0.8 cm^{-1} and ~3 cm^{-1}, respectively, at 300K. The most intense luminescence was due to the $^4F_{3/2} \rightarrow {}^4I_{11/2}$ transition, and the lifetime of the excited $^4F_{3/2}$ state of a CaF_2—YF_3 crystal with a 0.5% Nd^{3+} concentration at 300K was ~1 msec. The results show further that the generation in the described system occurs at a considerably lower threshold than in the case of known crystals based on fluorine compounds. Among previously investigated active media, only $CaWO_4:Nd^{3+}$ and $Gd_2O_3:Nd^{3+}$ are known to lase at two wavelengths at 300K with lower thresholds. Orig. art. has: 3 figures. [YK]

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva (Physics Institute); Institut kristallografii AN SSSR (Institute of Crystallography, AN SSSR)

SUBMITTED: 07May65 ENCL: 00 SUB CODE: EC

NO REF SOV: 004 OTHER: 002 ATD PRESS: 4107

Rare Earth Compounds

Card 2/2

L 35506-65 EEC(b)-2/EWT(1)/EEC(k)-2/EWA(h)/EWA(k)/EWP(k)/EWT(1)/EWT(m)/EEC(t)/EWP/
EWP(b)/T/EWA(m)-2/EWP(t) Pz-4/Pi-4/Pl-4/Pn-4/Po-4/Peb IJP(c) WW/JD/
ACCESSION NR: AP5006495 JG S/0056/65/048/002/0476/0482

AUTHOR: Kaminskiy, A. A.; Kornilyenko, L. S.; Prokhorov, A. M.

TITLE: A spectral study of stimulated emission from Nd^{3+} in CaF_2

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 2, 1965, 476-482

TOPIC TAGS: stimulated emission, neodymium, fluorite, electron paramagnetic reso-
nance, crystal field symmetry, laser, neodymium laser

ABSTRACT: Following earlier investigations of the induced emission from the

$^4F_{3/2} \rightarrow {}^4I_{11/2}$

transition of Nd^{3+} in CaF_2 at 77K (L. F. Johnson, J. Appl. Phys. v. 38, 756, 1962) and at room temperature (ZhETF v. 46, 386, 1964), the authors report experimental results of a spectral study of this stimulated emission at temperatures from 300 to 15K. Emission was investigated in crystals with Nd^{3+} ion concentrations from 0.02 to 0.7%, grown from a melt in a fluorine atmosphere by the method of lowering the crucible. Whereas only one line was observed in earlier research, five new lines were ob-

served below 100K in the present investigation. The exciting light was supplied by a xenon flash lamp, the ultraviolet radiation from which was cut off with a yellow filter. The spectrum was recorded with a spectrograph with a grating of 1200 lines/mm, the long-range band of which extended to 1.07 μ. The wavelength could be measured with accuracy ± 0.1 Å. The stimulated emission was detected with a photomultiplier with oxygen-cesium photocathode. Crystals 75 mm long and 6.5 mm in diameter with

L 35506-65

ACCESSION NR: AP5006495

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics of the Moscow State University)

SUBMITTED: 03Sep64 ENCL: 00 SUB CODE: SS, OP

NO REF SOV: 003 OTHER: 001 ATD PRESS: 3215

Card 3/3

L 48004-65 EWA(k)/EWD/EWG(m)/EWT(l)/EEC(k)-2/EEC(t)/T/EEC(b)-2/EWP(k)/EWA(m)-2/EWA(h)
Pn-4/Pn-4/Pu-4/Pf-4/Pe-5/Pi-4/Pi-4 SCIB/IJP(c) WG

ACCESSION NR: AP5013884 UR/0056/65/048/005/1262/1266

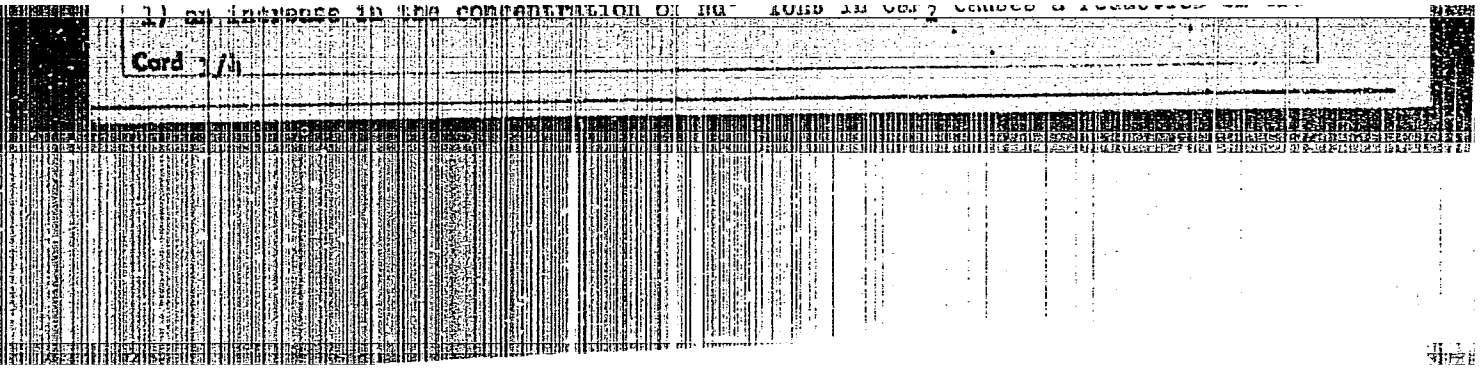
AUTHOR: Kaminskiy, A. A.; Kornlyenko, L. S.; Prokhorov, A. M.

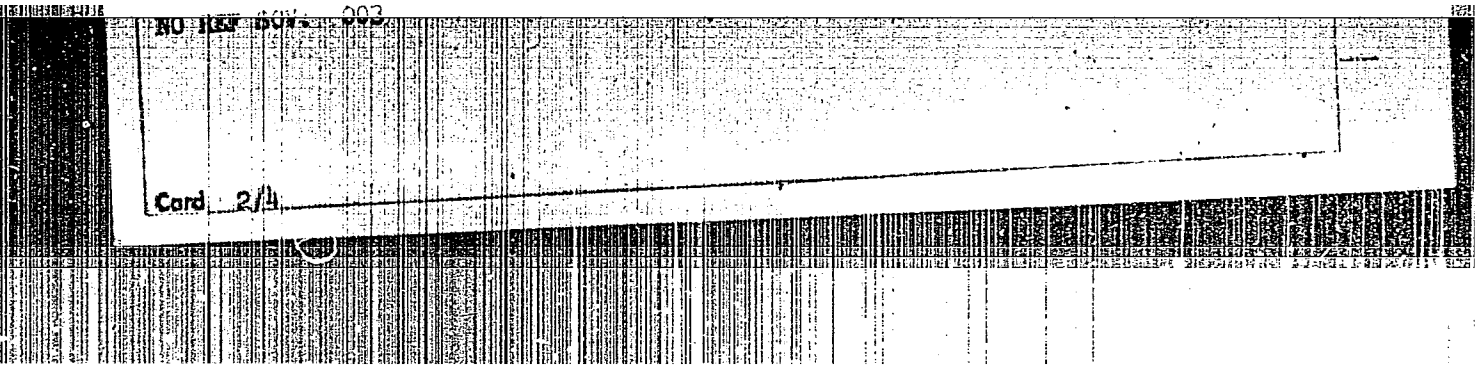
TITLE: Lifetime of the $^4F_{3/2}$ excited state of a Nd^{3+} ion in CaF_2 and $CaWO_4$

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 5, 1965, 1262-1266

TOPIC TAGS: ion lifetime, excited ion, trivalent neodymium, taumeter, radiationless transition, CaF_2, $CaWO_4$, paramagnetic laser

ABSTRACT: An experimental study of the lifetime of the excited $^4F_{3/2}$ state of a Nd^{3+} ion in CaF_2 and $CaWO_4$ crystals was made in the 300—4.2K temperature range and [illegible] concentrations of Nd^{3+} ranging from several thousandths percent to a





L 48094-65

ACCESSION NR: AP5013884

ENCLOSURE: 01

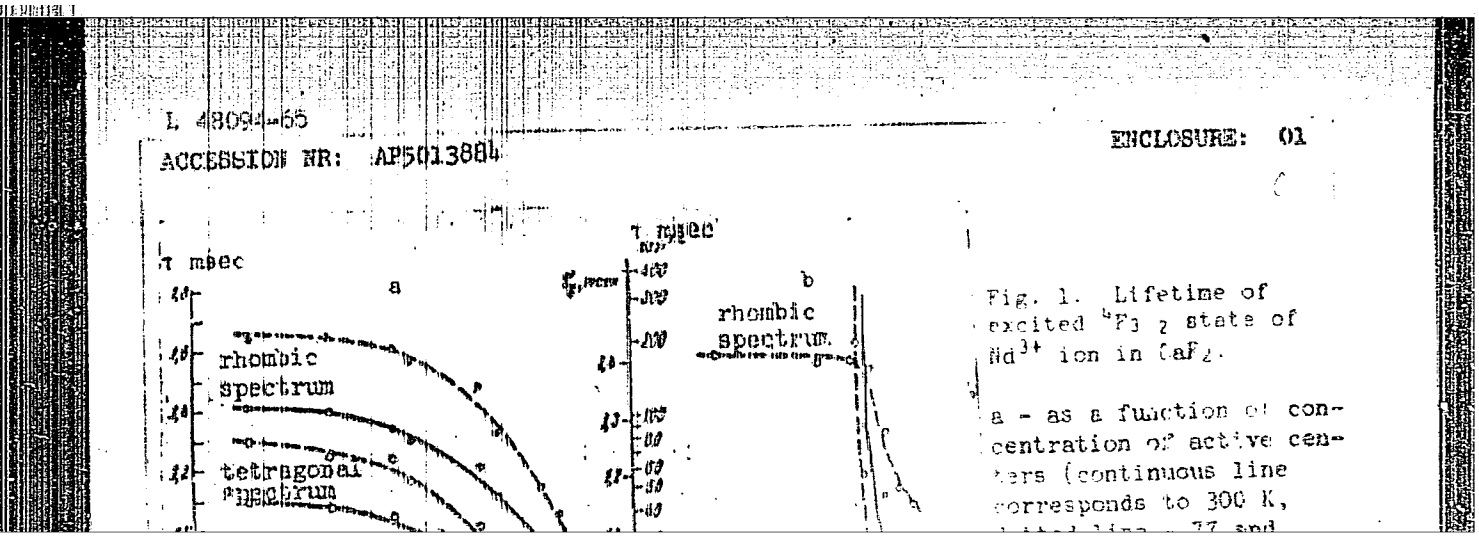
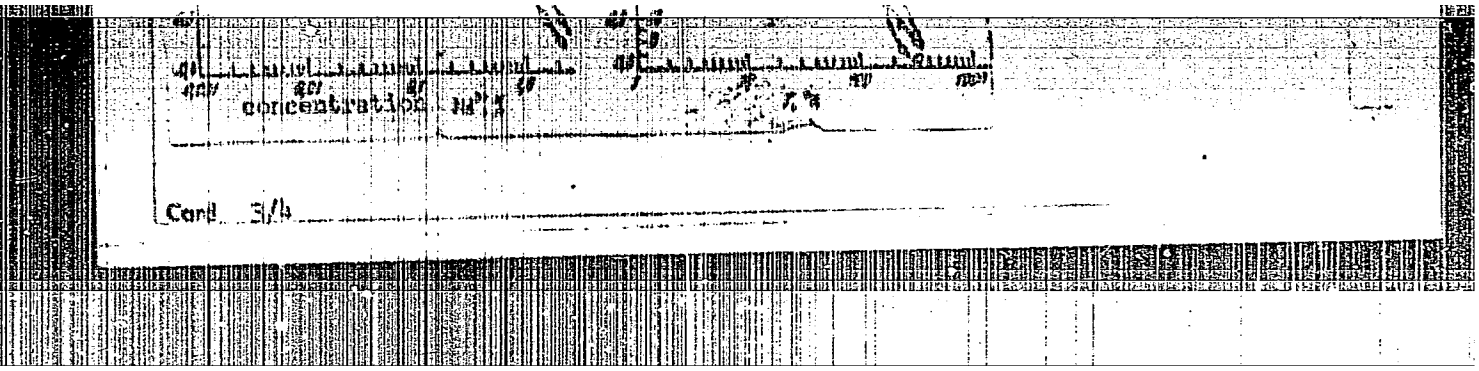


Fig. 1. Lifetime of excited $^4F_{3/2}$ state of Nd^{3+} ion in CaF_2.

a - as a function of concentration of active centers (continuous line corresponds to 300 K,



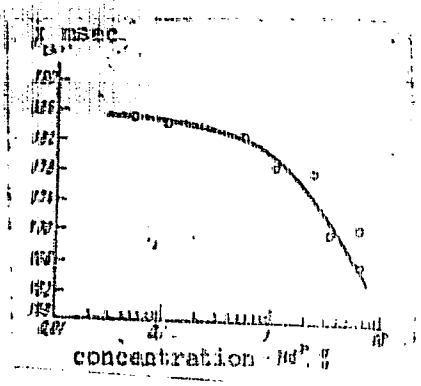
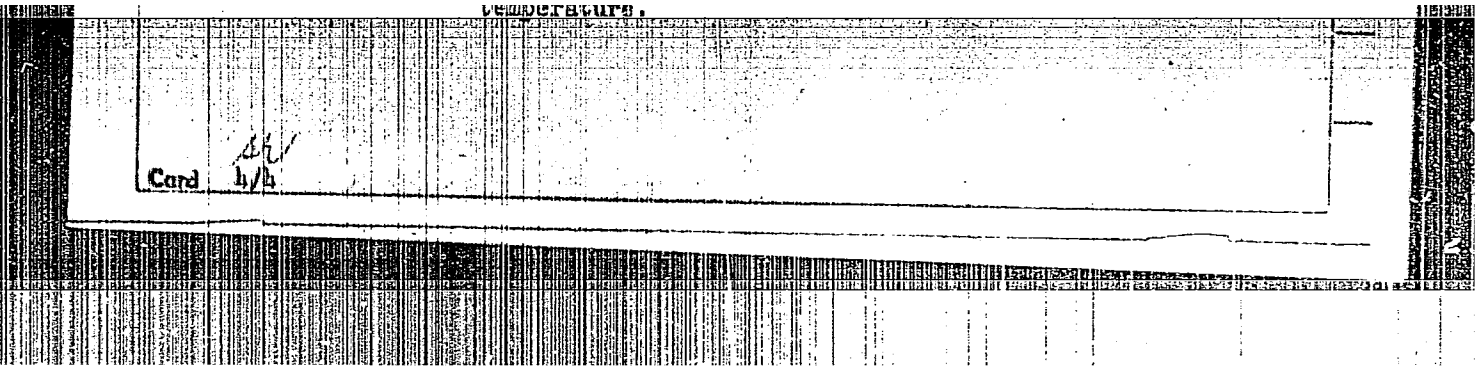


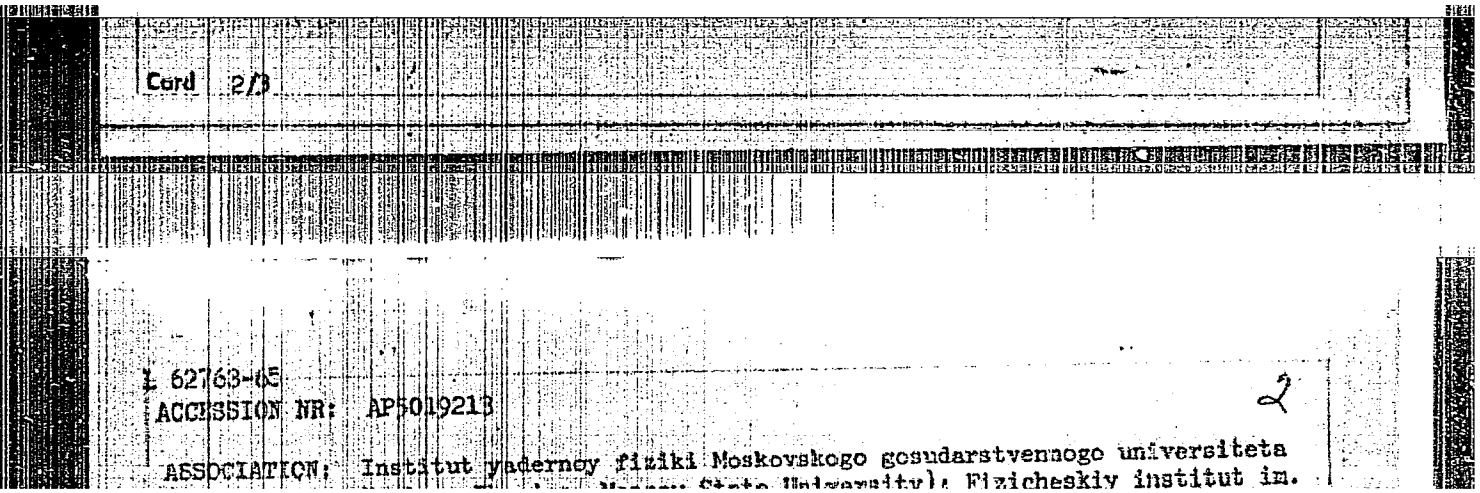
Fig. 2. Lifetime of excited $^4F_{3/2}$ state of Nd^{3+} ion in $CsLiWO_4$ as a function of

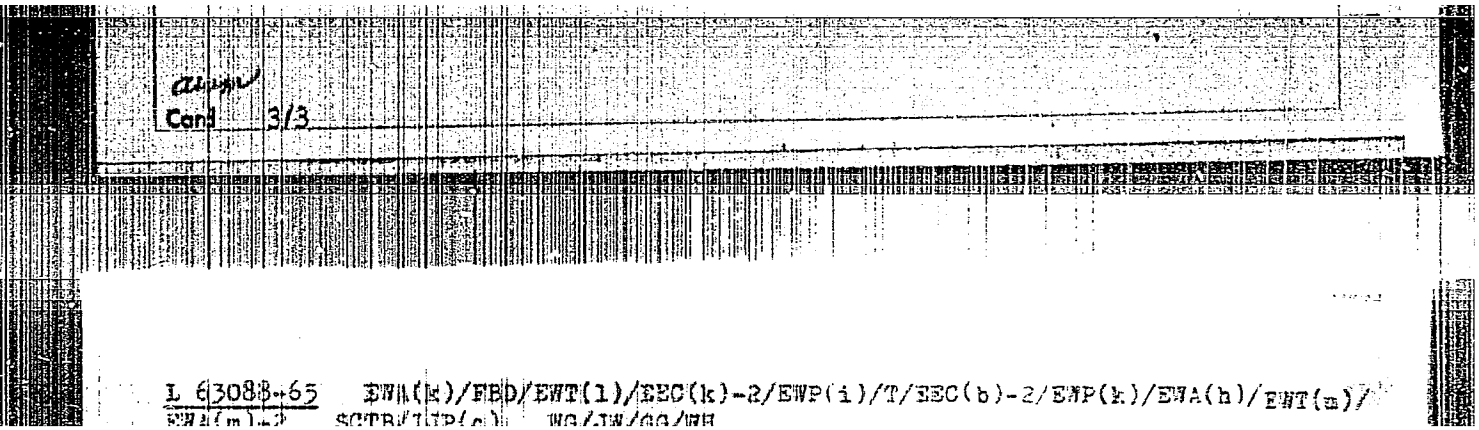


TOPIC TAGS: CW laser, neodymium laser, glass laser, room temperature laser, water cooled laser

ABSTRACT: The design and fundamental characteristics of a CW neodymium-doped $CaWO_4$ water-cooled laser, operating at room temperature, are described in detail. Single crystals were grown by the Czochralski method. The $CaWO_4$ mixture was prepared by sedimentation. The starting materials were ammonium paratungstate and calcium chloride, specially refined for this purpose. The neodymium was introduced in the form of a binary salt $NaNd(WO_4)_2$. Na_2WO_4 was introduced [illegible] mole % in excess concentration seven times greater than that of Nd [illegible] oriented according to both axis [illegible]

Reduction of the growth rate from 12 to 7 mm/hr led to significant improvement in the optical quality of the crystal. The infrared luminescence of the neodymium ions due to transitions from the $^4F_{3/2}$ level to the different levels of the ^4I multiplet (the most intense luminescence being at 1.06 μ, which corresponds to the transition $^4F_{3/2} \rightarrow {}^4I_{11/2}$) and its absorption spectrum were considered. A crystal 5 mm in diameter and 42 mm long with an Nd^{3+} concentration of about 3.0 percent, was selected for the laser. The lifetime of the excited state $^4F_{3/2}$ of this crystal at room tem-





420-428

TOPIC TAGS: laser, fluorite/laser, neodymium doped laser, laser emission spectrum, paramagnetic laser

ABSTRACT: The "concentration series" method was used for the spectral analysis of rare-earth ions in type-1 CaF_2 crystals. The designation "type-1" was taken from the crystallochemical classification of V. V. Osiko (Rost kristallov, 5, Izd. AN SSSR, 1965). The aim of the analysis was to determine the suitability of Nd^{3+} as an activator for certain types of lasers, in particular for the CaF_2 crystal, with which emission was obtained recently at room temperature on the 10,461 Å wavelength and on five other wavelengths at temperatures of 90 to 15K. The experiments in-

L 43088-65
ACCESSION NR: AP5021102

are outlined in some detail. The absorption spectra at 77 and 4.2K showed signifi-
cant changes with the increase of Nd^{3+} concentration: the number of lines increased

temperatures down to 20K. The shorter wave lost intensity as the temperature was lowered and ceased at 18K. In general, the number of absorption lines observed, even at helium temperatures, considerably exceeded the theoretical, a condition attributed to the fact that neodymium ions in the fluorite lattice belong to structurally varying types of centers. An analysis of the thermodynamic balance of optical centers in fluorite crystals revealed a specific concentration dependence for cubic, tetragonal, and rhombic centers corresponding to transitions between the three components of the

L 2129-66 EWT(m)/EPF(c)/EWP(t)/EWP(b) IJP(c) JD/JW/JG

ACCESSION NR: AP5024688 UR/0056/65/049/003/0724/0729

40
38
B

AUTHOR: Voron'ko, Yu. K.; Kaminskiy, A. A.; Osiko, V. V.

TITLE: Analysis of optical spectra of Pr^{3+}, Nd^{3+}, Eu^{3+}, and Er^{3+} in fluorite crystals by the "concentration series" method

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 3, 1965, 724-729

TOPIC TAGS: fluorite, fluorite spectrum, doped fluorite, doped fluorite spectrum, admixture spectrum, dope spectrum, spectral analysis, absorption spectra, luminescence spectra

ABSTRACT: A new experimental method for the analysis of absorption and luminescence spectra of type-1 CaF_2 crystals with admixtures of rare-earth ions (TR^{3+}) is described and the investigation results are discussed. The crystal classification is that of V. V. Osiko (Rost Kristallov, 5, Izd. AN SSSR, 1965). The designation "concentration series" refers to the staggered admixture concentration in the set of samples used for the investigation. The method is based on the difference in the character of concentration dependence of various admixtures. This character is specific for structurally different admixture centers as a function of the

Card 1/3

overall concentration of the rare-earth admixture in the crystal at equilibrium temperature. Thus, at low concentrations the greatest number of TR^{3+} ions are found in cubic centers. With an increased concentration, the tetragonal centers increase and exceed the number of cubic centers at a concentration of 10^{-3}. A further concentration leads to an increasing proportion of rhombic centers. The concentrations investigated ranged from 0.003 to 2% by weight of each kind of admixture. Special care was taken to insure perfect uniformity of the specimens (except for admixture concentrations) and even distribution of the centers. Preliminary studies of absorption spectra were carried out at 77K by the SP-700 spectrophotometer within the 0.185 to 2.5 μ range. Further investigations concerned the selected line groups most convenient for study. The absorption in these groups was determined by the DFS-12 defraction spectrometer with a 0.1 Å resolution at 77K. A photomultiplier with an oxygen-cesium photocathode was used to detect the light pulses which were amplified and recorded by an EPP-09M1 potentiometer. The concentration series of absorption curves thus obtained clearly displayed a redistribution of line intensities with the increase of concentration of a given admixture. The peak values of absorption coefficients were then determined for each spectral group. The dependence of absorption coefficients on concentration, charted in the double logarithmic scale, showed families of parallel curves of distinct character, each family representing a

L 2139-66
ACCESSION NR: AP5024688

2

different kind of admixture. A similar intensity redistribution effect was obtained in the investigation of the luminescence spectra. A strong reabsorption of resonance lines, however, prevented a quantitative evaluation. By combining the analysis by the concentration series method with spectrum study at helium temperatures it is possible to construct the pattern of energy levels for each type of center. To identify the specific line groups with definite center structures

other method. Orig. art. has: 4 figures. [FP]

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute, Academy of Sciences, SSSR)

SUBMITTED: 10Mar65 ENCL: 00 SUB CODE: SS, OP

NO REF SOV: 006 OTHER: 002 ATD PRESS: 4117

Card 3/3

L 5040-66 EWT(l)/EWT(m)/T/EWP(t)/EWP(b) IJP(c) JD/JG/GG

ACC NR: AP5026588 SOURCE CODE: UR/0056/65/049/004/1022/1027

AUTHOR: Voron'ko, Yu. K.; Kaminskiy, A. A.; Osiko, V. V.

ORG: Institute of Crystallography, Academy of Sciences, SSSR (Institut kristallografii Akademii nauk SSSR); Physics Institute im. P. N. Lebedev, Academy of Sciences, SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Optical relaxation of Ho^{3+} and Er^{3+} ions in the CaF_2 lattice (Type I) in the optical wavelength region

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 4, 1965, 1022-1027

TOPIC TAGS: laser, lifetime, calcium bifluoride, holmium ion, erbium ion, nonradiative transition, luminescence spectrum, absorption spectrum, rare earth ion

ABSTRACT: The lifetimes of the $^5S_2$ and $^5F_5$ excited states of Ho^{3+} and the $^4S_{3/2}$ and $^4F_{9/2}$ states of Er^{3+} in CaF_2 host crystals (activator concentration 0.01—2% by weight) were investigated in the range of temperatures of 77—300K. An analysis made of the influence of nonradiative transitions on the reduction of lifetimes of the excited states included a discussion of the possible causes of the failure

Card 1/2

L 5040-66

ACC NR: AP5026588

to obtain generation in the yellow-green of the spectrum of $CaF_2:Er^{3+}$ at 77K. The samples were cut from crystals into cylindrical rods of various lengths. The ends were polished. Emission was excited by a stroboscopic lamp, and a photomultiplier with a multiple alkali metal cathode was employed for oscilloscope display. The experiments showed a shortening of the excited state lifetimes with increasing concentrations of Ho^{3+} and Er^{3+} ions in CaF_2, which may be explained by a mutual dipole-dipole magnetic interaction of the ions. At room temperature, nonradiative transmissions, which significantly shorten the lifetimes of spontaneous transmissions, played an essential part. In the case of $CaF_2:Er^{3+}$, an anomalous dependence of lifetimes on the concentration was found for the $^4S_{3/2} \rightarrow {}^4I_{15/2}$ transition at 77K. Orig. art. has: 5 figures.

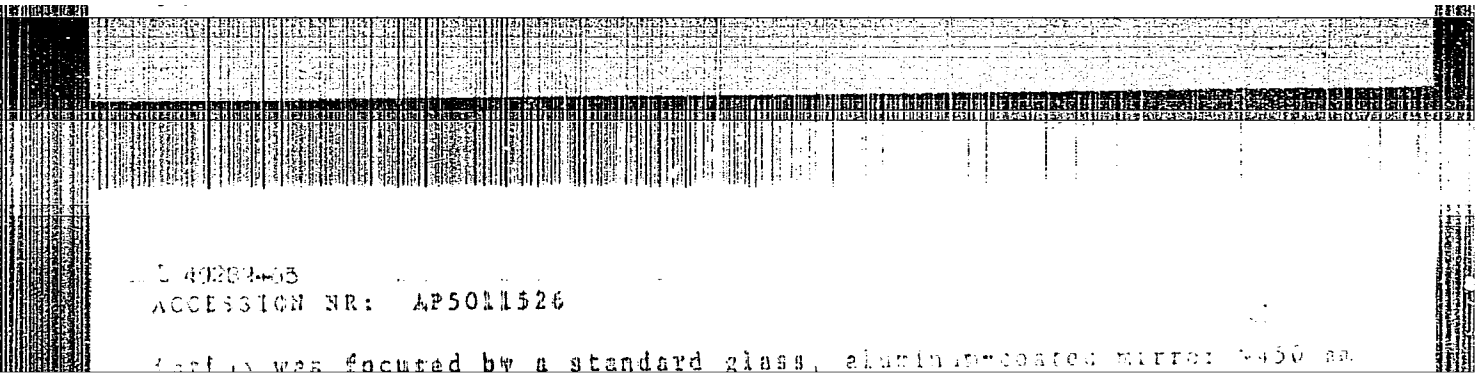
[ZL]

SUB CODE: 55, OP/ SUBM DATE: 08Apr65/ ORIG REF: 005/ OTH REF: 005

ATD PRESS: 4132

EPC

Card 2/2



L 40224-65
ACCESSION NR: AP5011526

Light is was focused by a standard glass, aluminum-coated mirror (450 mm

L 16025-66 EWT(1)/EWP(e)/EWT(m)/EWP(t) IJP(c) JD/JW/JG/WH

ACC NR: AP6004912 SOURCE CODE: UR/0056/66/050/001/0015/0022

AUTHORS: Voron'ko, Yu. K.; Kaminskiy, A. A.; Osiko, V. V.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences SSSR (Fizicheskiy institut Akademii nauk SSSR); Institute of Crystallography, Academy of Sciences SSSR (Institut kristallografii Akademii nauk SSSR)

TITLE: Optical centers of Er^{3+} in cubic crystals of the fluorite type

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 1, 1966, 15-22

TOPIC TAGS: rare earth element, color center, fluorite, cubic crystal, erbium, yttrium, optic activity

ABSTRACT: The authors investigated the character of the distribution of the erbium ions over centers of varying structure, and constructed the energy level scheme for each of them, using two methods previously developed by them — the method of selective excitation (ZhETF

Card 1/3

L 16025-66

ACC NR: AP6004912

Pis'ma, v. 1, no. 4, 33, 1965) and the method of concentration series (ZhETF v. 49, 724, 1965). The concentration series were obtained for CaF_2-Er^{3+} (type 1) crystals with erbium concentration ranging from 0.03 to 2 per cent by weight, at temperatures from 300 to 4.2K. The absorption spectra were measured in the wavelength range 0.185 to 2.5 μ, and the luminescence was measured at wavelengths above 520 nm, with special attention to the band near 540 nm. From the variation of the absorption coefficient with the wavelength, it is concluded that the erbium introduced into the crystals can be distributed over as many as four centers, each having a spectral fine structure. The level scheme is presented for three of these centers. The results are compared with EPR data. The influence of an yttrium impurity on the optical spectra of CaF_2-Er^{3+} was investigated and it was found that addition of Y^{3+} does not give rise to new spectral lines, but the presence of appreciable amounts of yttrium causes the majority of the erbium ions to become parts of complicated optical centers. It is concluded that the decisive effect on the change in spectrum is

Card 2/3

L 16025-66
ACC NR: AP6004912

2

exerted not by the type of ion (Y^{3+} or Er^{3+}), but only by the symmetry of the centers. Authors thank V. B. Aleksandrov for help with the experiments and S. P. Afanas'yev for help with growing the crystals. Orig. art. has: 6 figures and 1 formula. [02]

SUB CODE: 20/ SUBM DATE: 21Jul65/ ORIG REF: 009/ OTH REF: 004
ATD PRESS: 4203

Card 3/3

L 20531-66 T/EWP(t) IJP(c) JD/JW/JG

ACC NR: AP6002044 SOURCE CODE: GE/0030/65/012/002/0905/0912

AUTHOR: Bagdasarov, Kh. S.; Voronko, Yu. K.; Kaminskii, A. A.; Krotova, L. V.; Osiko, V. V. 67 64 B

ORG: P. N. Lebedev Physical Institute of the Academy of Sciences of the USSR, Moscow; Institute of Crystallography of the Academy of Sciences of the USSR, Moscow

TITLE: Modification of the optical properties of CaF_2-TR^{3+} crystals by yttrium admixtures 21 27

SOURCE: Physica status solidi, v. 12, no. 2, 1965, 905-912

TOPIC TAGS: optic crystal, crystal imperfection, crystal impurity, yttrium compound, absorption spectrum, luminescence spectrum, equilibrium constant, fluoride, ionic crystal, rare earth element

ABSTRACT: Absorption and luminescence spectra of CaF_2-Nd^{3+} (type 1) (V. V. Osiko, Crystal growth, Encyclopedia, v. 5, Publishing House of the Academy of Sciences SSSR, 1965) crystals were investigated as a function of the concentration of added yttrium fluoride. The appearance of new lines and a decrease in the line intensities because of the addition of yttrium is attributed to a shift in the equilibrium of Nd centers. Some possible models are discussed. The equilibrium of centers of rare-earth ions (TR^{3+}) in the presence of yttrium fluoride

Card 1/2

L 20581-66

ACC NR: AP6002044

in CaF_2-Nd^{3+} crystals was calculated approximately. The authors thank S. P. Afanasev and M. F. Limanovskaya for the growth of crystals and V. B. Aleksandrov for his help in the experiment. Orig. art. has: 4 figures and 2 formulas. [Based on author's abstract] [NT]

SUB CODE: 20/ SUBM DATE: 11Sep65/ ORIG REF: 008/ OTH REF: 005

Card 2/2 BK

L 27649-66 EEC(k)-2/EWA(h)/EWP(k)/EWT(1)/EWI(m)/FBD/T IJP(c) WH/WG

ACC NR AP6018495 SOURCE CODE: UR/0368/65/003/002/0114/0122

64
60
B

AUTHOR: Kaminskiy, A. A.; Korniyenko, L. S.; Litvak, D. M.

ORG: none

TITLE: Possibility of exciting a continuous-action optical laser 25

SOURCE: Zhurnal prikladnoy spektroskopii, v. 3, no. 2, 1965, 114-122

TOPIC TAGS: laser, mercury lamp, ruby laser, light excitation, xenon lamp motion picture projector

ABSTRACT: The proper selection of sources of light excitation is important in the development of continuous-action optical lasers. In this connection the authors present formulas suitable for evaluating the excitation thresholds and give data on the spectral emission of Soviet-produced lasers. Further, experimentally obtained absolute figures on the power that can be obtained over different spectral intervals with the aid of the OKL-3a motion-picture projector are given. This projector is used since at present there are no selective emitters with sufficient power to excite lasers, and, hence, sources emitting over a broad spectral range have to be used. A comparison of the theoretical evaluations and experimental findings on measurements of the spectral distribution of emission shows that a mercury lamp may be recommended for

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ACC NR: AP6018495

exciting ruby, while a xenon lamp may be recommended for exciting Nd^{3+}, U^{3+}, and Dy^{2+}. It is also expedient to use a tungsten lamp to excite Dy^{2+}. The authors thank A. K. Shevchenko for his valuable observations, A. S. Kovalev for his help in conducting the experiment, and L. D. Kolpakov for his preparation of the basic details of the experimental equipment. Orig. art. has: 2 figures, 25 formulas, and 3 tables. [JPRS]

SUB CODE: 20, 09 / SUBM DATE: 09Jun64 / ORIG REF: 003 / OTH REF: 012

L 33062-66 EWT(m)/EWP(w)/T/EWP(t)/ETI JD

ACC NR: AP6024173 SOURCE CODE: UR/0369/66/002/001/0032/0039

24
B

AUTHOR: Kaminskiy, A. A.

ORG: Institute of Mechanics, AN UkrSSR, Kiev (Institut mekhaniki AN UkrSSR)

TITLE: Determination of the critical load for development of fissures around a curved aperture

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 2, no. 1, 1966, 32-39

TOPIC TAGS: brittleness, material fracture, cyclic load

ABSTRACT: The problem of brittle fracture, when the fissures form at the circumference of a rounded aperture, is analysed. The article is a continuation of an earlier work (A. O. Kaminskiy, Prikladnaya Mekhanika (Applied Mechanics), v. 10, no. 4, 1964). The critical loads necessary for formation of fissures are determined from the Barenblatt condition. Orig. art. has: 5 figures and 29 formulas. [JPRS]

SUB CODE: 20 / SUBM DATE: 25Aug65 / ORIG REF: 006 / OTH REF: 001

Card 1/1 pla

0915 1763

L 38120-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6024863 SOURCE CODE: UR/0056/66/051/001/0049/0058

AUTHOR: Kaminskiy, A. A.

ORG: Institute of Crystallography AN SSSR (Institut kristallografii akademii nauk SSSR).

TITLE: The study of stimulated emission of $Y_3Al_5O_{12}:Nd^{3+}$ crystals

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 51, no. 1, 1966, 49-58

TOPIC TAGS: solid state laser, ~~paramagnetic laser~~, neodymium laser, yttrium aluminum garnet, ~~YAG laser~~

ABSTRACT: The absorption, luminescence, and stimulated emission spectra of neodymium- and chromium-doped $Y_3Al_5O_{12}$ (YAG) crystals were obtained experimentally and analyzed in detail. The YAG single crystals were synthesized at the Institute of Crystallography, AN SSSR from melts in a solution of PbO and PbF_2, with Nd^{3+} and Nd^{3+}—Cr^{3+} dopant concentrations ranging from 0.2 to 0.5%. Stimulated emission of these crystals was observed in circular (2—5 mm in diameter) or rectangular (2.5 x 2.5 mm) rods 5—35 mm long. The parallelism of the rod ends (coated with silver mirrors) was not less than 15" and the optical quality of the crystals was satisfactory. Spectroscopic studies showed

Card 1/3

L 38120-66

ACC NR: AP6024863

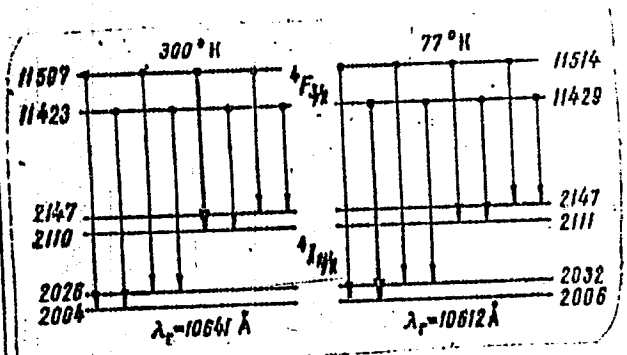

Fig. 1. Splitting of the $^4F_{3/2}$ and $^4I_{11/2}$ levels of $Y_3Al_5O_{12}$:Nd^{3+} crystals. Stimulated transitions are indicated in bold face arrows.

that pulsed stimulated emission occurred in the YAG:Nd^{3+} crystals (Nd^{3+} concentration 0.5%) at 10,612 Å (9423 cm^{-1}) at 77K, and at 10,641 Å (9398 cm^{-1}), at room temperature. The excitation thresholds at 77K and room temperatures were 2 and 6 J, respectively. A threefold increase in the pumping energy over the threshold resulted in the emission of laser pulses ~300 μsec in duration. Quasi-cw operation was observed at 300K in crystals from 5 to 18 mm long with external cavities, pumped by zirconium-burning lamps. Crystals 5 mm long lased when ~10 mg of zirconium was burned (using $KClO_4$ as an oxidizer). A tenfold increase in the zirconium charge resulted in a quasi-cw emission of pulses ~10 μsec in duration. Cw operation was observed in YAG crystals ~35 mm long and ~3 mm in diameter with ~0.3% dopant concentrations. The pumping was done by means of a system described elsewhere (A. A. Kaminskiy, L. S.

Card 2/3

L 38120-66
ACC NR: AP6024863

Korniyenko, G. V. Maksimova, V. V. Osiko, A. M. Prokhorov, G. P. Shipulo, ZhETF, 49, no. 31, 1965), except for the yellow filter around the active medium. In all operations, the cavity consisted of confocal external spherical mirrors (with 0.7% transmittance) with multilayer dielectric coatings. At room temperature generation occurred when the power supplied to the pumping source was 4 kw. The excitation threshold in the pulsed mode, using the same pump, was ~1 J. The emission linewidth at 300K was ~1 Å (0.9 cm^{-1}). The elevated excitation threshold in the cw operation was explained in terms of a poor matching of the source emission spectrum with the most intense absorption bands of the YAG:Nd^{3+} crystal, and in terms of inadequate optical quality of samples and less-than-optimal dopant concentrations. Spectroscopic studies showed that at room temperature and at 77 and 300K, stimulated emission occurs due to transitions between the $^4F_{3/2}$ and $^4I_{11/2}$ states of Nd^{3+} (Fig. 1). The results of studies of the optical centers of $Y_3Al_5O_{12}:Nd^{3+}$ crystals will be published in a future work. Orig. art. has: 2 tables and 7 figures.

[YK]

SUB CODE: 20/1 SUBM DATE: 03Feb66/ ORIG REF: 009/ OTH REF: 004
ATD PRESS: 5046

Card 3/3

L 41059-66 EWT(l)/EWP(e)/T /EWP(t)/ETI IJP(c) WG/JD/GG/WH/JG

ACC NR: AP6027762 SOURCE CODE: GE/0030/66/016/002/K165/K166

AUTHOR: Bobomolova, G. A.; Kaminskii, A. A.; Timofeeva, V. A.

ORG: Institute of Crystallography, Academy of Sciences USSR

TITLE: Optical centers in $Y_3Al_5O_{12}:Nd^{3+}$ crystals

SOURCE: Physica status solidi, v. 16, no. 2, 1966, K165-K166

TOPIC TAGS: laser r and d, paramagnetic laser, rare earth element, garnet, optical center, neodymium laser

ABSTRACT: Preliminary results are reported on investigation of Nd^{3+} optical centers in $Y_3Al_5O_{12}$ crystals grown at the Institute of Crystallography. The crystal specimens had an Nd^{3+} concentration from 0.2 to 12 wt%. The investigations of their absorption spectra were carried out at 300K in the 0.2—2.5 μm range using an SP-700 spectrophotometer. The most convenient groups of lines were selected for further detailed investigation ($^4D_{3/2}$ —3628 Å, $^2P_{3/2}$—3849 Å, $^2D_{5/2}$—4224 Å, $^2P_{1/2}$—4318 Å, $^4F_{3/2}$—8685, 8750, 8752, 8760, and 8862 Å). The absorption in these groups was recorded at 77K using a DFS-12 diffraction spectrometer with a resolution of 0.1 Å. Sb-Cs and O-Cs photocathodes were used as optical detectors. The crystal were mounted between two quartz light pipes and directly plunged into liquid nitrogen.

Card 1/2

Fig. 1 represents an analysis of the $Y_3Al_5O_{12}:Nd^{3+}$ absorption spectra. A comparison of the curves shows clearly that they can be divided into three systems, designated

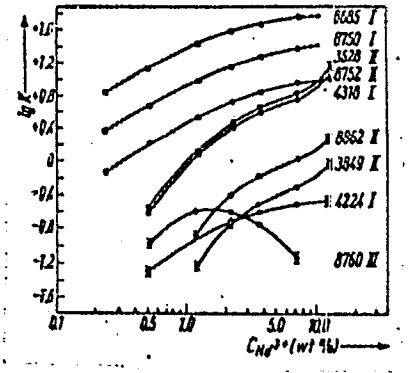

Fig. 1. Absorption coefficients at λ_{max} for lines of the $^4D_{3/2}$, $^2P_{3/2}$, $^2D_{5/2}$, $^2P_{1/2}$, and $^4F_{3/2}$ groups

I, II, and III in the figure. Each of these is a family of parallel curves which belong to optical centers with different structures. Orig. art. has: 1 figure. [YK]

SUB CODE: 20/ SUBM DATE: 06Jul66/ ORIG REF: 005/ OTH REF: 003/ ATD PRESS: 5256

Card 2/2

L 46107-66 EWT(l)/EWT(m)/T/EWP(t)/ETI LJP(c) JD/JW/GC

ACC NR: AP6023908 SOURCE CODE: UR/0363/66/002/007/1161/1170

AUTHOR: Voron'ko, Yu. K.; Kaminskiy, A. A.; Osiko, V. V.; Prokhorov, A. M.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences, SSSR (Fizicheskiy institut Akademii nauk SSSR); Institute of Crystallography, Academy of Sciences, SSSR (Institut kristallografii Akademii nauk SSSR)

TITLE: New type of crystals for lasers with optical excitation

56
55
B

SOURCE: AN SSSR. Izv. Neorg materialy, v. 2, no. 7, 1966, 1161-1170

TOPIC TAGS: fluoride, neodymium, laser optic material, lanthanum compound, cerium compound, yttrium compound, barium compound, strontium compound, calcium fluoride, mixed crystal

ABSTRACT: The paper reports new results obtained from a study of the optical properties and induced emission at 300°K of a group of crystals of mixed fluorides containing a neodymium admixture. All the crystals contained from 0.5 to 2.0% Nd^{3+} and had the following composition: CaF_2-YF_3 (1, 2, 3, 7%); CaF_2-CeF_3 (7%); SrF_2-LaF_3 (30%); BaF_2-LaF_3 (30%). The absorption and luminescence spectra of the crystals at 300 and 77°K were studied. The synthesized mixed fluorides constitute a new type of laser materials. Structurally they are typical crystals, but from the standpoint of their spectral properties, they occupy an intermediate position between crystals and glasses. The thresholds of generation excitation were found to be much lower than in crystals

Card 1/2 UDC: 546.161:548.55

L 45107-56
ACC NR: AP6023908

of pure fluorides, and the efficiency was found to be several times higher. The working concentrations of neodymium in the mixed fluorides are several times higher than in CaF_2-Nd^{3+}. The weaker concentration quenching is apparently due to the removal of the structural degeneracy of the optical centers. Migration of the excitation energy between various groups of In^{3+} optical centers is possible in the mixed fluoride crystals. The latter may prove effective as sources of excitation for semiconductor lasers. Orig. art. has: 7 figures and 2 tables.

SUB CODE: 20/ SUBM DATE: 30Dec65/ ORIG REF: 015/ OTH REF: 010

Card 2/2 JS

L 44703-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6031335 SOURCE CODE: UR/0386/66/004/003/0092/0096

AUTHOR: Kaminskiy, A. A.; Osiko, V. V.; Fursikov, M. M. 55 B

ORG: Institute of Crystallography, Academy of Sciences SSSR (Institut kristallografii Akademii nauk SSSR)

TITLE: The photoreduction $TR^{3+} \rightarrow TR^{2+}$ in fluorite crystals

SOURCE: Zh. eksper. i teoret. fiz. Pis'ma v redaktsiyu. Prilozheniye v. 4, no. 3, 1966, 92-96

TOPIC TAGS: fluorite, activated crystal, rare earth element, ionization, photoelectric effect

ABSTRACT: The authors describe the photoreduction of Nd^{3+} ions in CaF_2 crystals (type 1) to the divalent state under the influence of powerful light flashes. This effect has been observed so far only under the influence of hard radiation (γ, neutrons, deuterons, fast electrons), in chemical reactions, or in electrolysis. The investigations were carried out with CaF_2 crystals with 0.5 wt.% Nd^{3+} (type 1) at 300K. The crystals were synthesized by a procedure described earlier (Fizika tverdogo tela, v. 7, 267, 1965). In addition to $CaF_2:Nd^{3+}$, crystals containing, besides neodymium, small amounts of oxygen (O^{2-}) and cerium (Ce^{3+}) were also investigated. The powerful light flashes were produced by IFP-800 xenon lamps placed in an elliptical illuminator. The test procedure consisted in obtaining the absorption and luminescence spectra of the crystals prior to illumination at 77 and 300K, and comparing them with the spectra of

Card 1/2

ACC NR: AP6031335 0

the illuminated crystals. The exposure to light colored the $CaF_2:Nd^{3+}$ (type 1) crystals light brown. A detailed analysis of the optical spectra of these crystals has disclosed the appearance of absorption bands, characteristic of the Nd^{2+} ions in CaF_2, and no noticeable change in the intensities of the components of the initial Stark spectrum of the Nd^{3+} ions. The experimental results show that when $CaF_2:Nd^{3+}$ (type 1) crystals are exposed to powerful light flashes the Nd^{3+} is reduced to Nd^{2+}. This is attributed tentatively to free electrons produced by the illumination, either by a two-photon mechanism or by ionization of the impurity levels. The photoreduction is found to be influenced also by some extraneous impurities. Thus, for example, O^{2-} and Ce^{3+} impurities, which are assumed to produce additional levels of hole localization, by the same token increase the stability of the produced Nd^{2+} ions. The observed effect explains also the "aging" of $CaF_2:Nd^{3+}$ crystals (type 1) under stimulated emission conditions, as observed by one of the authors earlier (Kaminskiy et al., ZhETF v. 48, 476, 1965). A more detailed report of the study of the photoreduction in $CaF_2:TR^{3+}$ crystals will be published in a separate paper. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 24May66/ ORIG REF: 002/ OTH REF: 003

hs

Card 2/2

L 44795-66 EWT(1)/EEC(k)-2/T/EWP(k) IJP(c)

ACC NR: AP6030724 SOURCE CODE: UR/0368/66/005/002/0261/0263

AUTHOR: Kaminskiy, A. A. 47 B

ORG: none

TITLE: A laser with a wide-angle beam divergence

SOURCE: Zhurnal prikladnoy spektroskopii, v. 5, no. 2, 1966, 261-263

TOPIC TAGS: solid state laser, neodymium glass laser, laser output, laser beam, beam divergence

ABSTRACT: Preliminary data are given on the operation of a $CaF_2:Nd^{3+}$ laser with a wide-angle beam divergence in the 50—400K range (see Table 1). The test crystals were synthesized by means of a method described elsewhere (A. A. Kaminskiy, L. S. Korniyenko, and A. M. Prokhorov, ZhETF, v. 48, 1965, 476). The specimens were approximately 75 mm long and 6.5 mm in diameter and had highly polished sides. Two groups of crystals were studied: 1) those with poor end parallelism (1—5) and those with improved optical quality (6—10). The cavity in all cases consisted of 13-layer dielectric mirrors coated on the rod ends. Transmittivity was approximately 0.7% at 1.06 μ. Excitation at low temperatures was done by means of an elliptic cylinder reflector with an IFP-800 xenon lamp with an efficiency of about 15%. At 300K a similar but more efficient (50%) pumping source was used. The spectral composition of axial and extra-axial emission was recorded by means of a DFS-13 diffraction

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Table 1. Generation characteristics of the crystals

No. of Crystals	Concentration of Nd^{3+}, wt%	Rod end parallelism	Generation threshold, j and temperature, °k (in parentheses)		Beam Divergence	
			extra-axial	axial	extra-axial	axial
1	0.35	1' 20"	420(300)	300(77)	5°30'	25'
2	0.35	2'	330(300)	1100(300)	6°20'	33'
3	0.4	2' 20"	350(300)	—	12°40'	—
4	0.4	2'	350(300)	1100(300)	7°	35'
5	0.6	1' 40"	450(300)	420(77)	5°30'	30'
6	0.5	7"	—	110(300)	—	12'
7	0.5	9"	—	130(300)	—	12'
8	0.5	8"	—	120(300)	—	9'
9	0.5	7"	—	104(300)	—	12'
10	0.5	10"	—	70(300)	—	9'

spectrograph with a dispersion of approximately 1.6 Å/mm. Axial emission of crystals was observed in certain crystals as a family of concentric rings with angular diameters of several degrees. Axial and extra-axial emission occurred at increased

ACC NR: AP6036460 SOURCE CODE: UR/0198/66/002/011/0063/0067

AUTHOR: Kaminskiy, A. A. (Kiev)

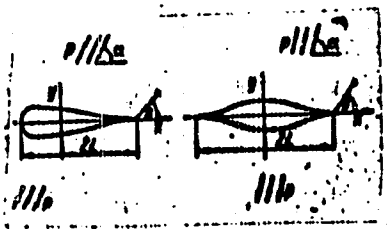
ORG: Institute of Mechanics, Academy of Sciences UkrSSR (Institut mechaniki AN USSR)

TITLE: Determining the critical loads which produce development of widened cracks

SOURCE: Prikladnaya mekhanika, v. 2, no. 11, 1966, 63-67

TOPIC TAGS: crack, widened crack, crack propagation, elasticity

ABSTRACT: The plane problem of the theory of elasticity concerning an infinite plane subjected to tension "at infinity", and weakened by an arbitrary cutout having one axis of symmetry is discussed. The problem is reduced to solving two systems ... of linear algebraic equations which are applied to an analysis of the behavior of two cutout shapes shown in the figure. The tensile forces p at infinity are inclined at



Card 1/2

ACC NR: AP6036460

an angle α to the X-axis. The angle β gives the direction of crack propagation (the tensile stresses normal to this direction are maximal). Expressions are derived for the critical tension p_{cr} at which the crack starts to propagate and for the angle β; their analysis leads to the conclusion that widening the crack has little effect on p_{cr}. A particular case when the tension in infinity is parallel to the y-axis ($\alpha = 90°$, $\beta = 0$) is also considered, formulas for p_{cr} for both cutouts (with one and with two cusps) are deduced, and it is found that the values of p_{cr} are only slightly less than those obtained for a Griffith's crack. This fact justifies the representation of a crack as a cutout of zero width, even in cases of essentially widened cracks. Orig. art. has: 1 figure and 29 formulas.

SUB CODE: 20/ SUBM DATE: 12Feb66/ ORIG REF: 008/ ATD PRESS: 5107

Card 2/2

ACC NR: AP7000005 SOURCE CODE: UR/0070/66/011/006/0936/0938

AUTHOR: Voron'ko, Yu. K.; Kaminskiy, A. A.; Osiko, V. V.; Fursikov, M. M.

ORG: Physics Institute im. P. N. Lebedev (Fizicheskiy institut); Institute of Crystallography, AN SSSR (Institut kristallografii AN SSSR)

TITLE: Cerofluorite with neodymium admixture as active laser material

SOURCE: Kristallografiya, v. 11, no. 6, 1966, 936-938

TOPIC TAGS: crystal laser, laser optic material, laser emission, calcium fluoride, fluorite, cerofluorite, absorption spectrum, luminescence spectrum

ABSTRACT: Preliminary data were reported on absorption and luminescence spectra and stimulated emission of neodymium activated cerofluorite (CaF_2—CeF_3) crystals. The material was selected for the study because earlier studies of the mixed fluoride crystals of elements of groups II and III indicated the possibility of obtaining laser action with a low (~10 j) generation threshold at room temperature. The cerofluorite crystals activated with 0.5—1.0 wt% Nd were grown by a method previously described [A. A. Kaminskiy, V. V. Osiko. Neorganicheskiye materialy, 1, 2043, 1965]. Crystal rods ~45 mm long and ~55 mm in

Card 1/2 UDC: 548.0:535:80

ACC NR: AP7000005

diameter were used in the experiments. Very broad peaks characterized the electronic spectra of cerofluorite crystals as of the similar mixed fluoride crystals. The peaks were unresolved even at 77K. Spiked output was obtained on the ~10657 Å line from the cerofluorite crystal activated with ~1.0% Nd at a pump energy of ~50 j delivered to an IFP-800 xenon flash lamp. The cavity was formed by confocal spherical mirrors with dielectric coating. Width of the emission line was ~3 cm^{-1} for an excitation energy nearly equal to the threshold energy. Generation characteristics of the crystal were not inferior to those of the best CaF_2—Nd^{3+} crystals, although the cerofluorite crystals used were optically heterogeneous. Energy transfer between different optical centers of Nd was assumed to be the mechanism of the generation mode. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 27Nov65/ ORIG REF: 008/ OTH REF: 003/
ATD PRESS: 5107

Card 2/2

ACC NR: AP7006131 SOURCE CODE: UR/0056/67/052/001/0103/0111

AUTHOR: Kaminskiy A. A.; Shpakov, V. N.

ORG: Institute of Crystallography, Academy of Sciences SSSR (Institut kristallografii Akademii nauk SSSR)

TITLE: Investigation of new crystals in Q-switched lasers

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 52, no. 1, 1967, 103-111

TOPIC TAGS: laser, solid state laser, laser optic material, mixed crystal, activated crystal

ABSTRACT: An investigation was made of the possibility of producing a Q-switched laser based on a series of crystals operating at 300°K. The crystals consisted of mixed fluoride systems CaF_2—YF_3—Nd^{3+}, CaF_2—CeF_3—Nd^{3+}, BaF_2—LaF_3—Nd^{3+}, types I and II CaF_2—Nd^3 crystals, and garnet crystals ($Y_3Al_5O_{12}$), scheelite crystals ($CaWO_4$), and glasses activated with Nd^{3+} ions. A study was also made of the relationship between the numerous optical centers which are present in mixed fluoride crystals in the free-running and Q-switched modes. The threshold values of excitation energy in the investigated modes were

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comparatively low. These values increase slightly as the Q-switched mode is approached. All of the active media investigated can be divided into two groups, according to the variety of optical activator centers. The first group includes crystals which produce a small quantity of centers (1 to 7) at the activator concentration used in lasers (0.5—5%). This group includes types I and II $CaF_2—Nd^{3+}$, as well as $Y_3Al_5O_{12}—Nd^{3+}$ and $CaWO_4—Nd^{3+}$. The second group includes mixed fluoride crystals in which the number of optical centers can reach 100. In the crystals of the first group only one type of optical centers participates in the generation at 300°K. In the crystals of the second group, which are characterized by a variety of optical centers, energy transfer between centers takes place. In addition, a sharp narrowing of the generation line is observed. The authors thank V. V. Osiko for fluoride crystals, V. S. Zuyev for discussing the results, and G. A. Bogomolova for help in carrying out the experiments. Orig. art. has: 4 figures and 1 table. [JA]

SUB CODE: 20/ SUBM DATE: 15Aug66/ ORIG REF: 001/ OTH REF: 003/
ATD PRESS: 5117

L 3770-65 EWI(m)/EWT(m)/EWA(d)/EWP(t)/EWP(b) ASD(d)/ASD(f)-2/AFTC(p)/ESD(dp)
ACCESSION NR: AP4047796 JD/EM S/0021/64/000/010/1301/1305

AUTHOR: Kaminskiy, A. O. (Kaminskiy, A. A.)

TITLE: Elliptical hole with cracks

SOURCE: AN UkrRSR. Dopovidi, no. 10, 1964, 1301-1305

TOPIC TAGS: thin infinite plate, thin plate, hole weakened plate, edge crack, cracked hole edge, elliptic hole weakened plate

L 16770-65
ACCESSION NR: AP4047796

AS$OCIATION: Instytut mekhaniky AN UkrSSR (Institute of Mechanics, Academy of Sciences UkrSSR)

SUBMITTED: 31Mar64 ATD PRESS: 3132 ENCL: 00

SUB CODE: AS NO REF SOV: 004 OTHER: 001

Card 2/2

L 2141-66 EWT(d)/EWT(m)/EWP(w)/T/EWP(t)/EWP(b) JD/EM

ACC NR: AP5024938 SOURCE CODE: UR/0198/65/001/009/0124/0127

38
B

AUTHOR: Babich, I. Yu. (Kiev); Kaminskiy, A. A. (Kiev)

ORG: Institute of Mechanics, AN UkrSSR (Institut mekhaniki AN UkrSSR)

TITLE: On critical loads causing advance of a crack at the edge of an elliptic hole

SOURCE: Prikladnaya mekhanika, v. 1, no. 9, 1965, 124-127

TOPIC TAGS: crack development, crack advance

ABSTRACT: The development of cracks in the zone of stress concentration around an elliptic hole is studied. The problem of equilibrium cracks of brittle origin formed at the edge of the hole is discussed as a two-dimensional problem of the theory of elasticity for an infinite plane weakened by an elliptic hole with a crack of given length ℓ formed at its vertex. It is assumed that the solid remains elastic up to the instant of rupture, and that there is no loading by external forces either at the edge of the hole or at the edges of the crack. Constant tensile forces normal to the edges of the crack are applied at infinity. Expressions are derived by using the conformal mapping from which the stress distribution around the point of the crack and the value of the critical loading P_{cr} (at which the crack starts to advance) can be determined. These expressions contain a parameter

$$m = \frac{a-b}{a+b},$$

Card 1/2

where a and b are the semiaxes of the ellipse, so that these formulas can be used for a horizontal crack (m = 1), an elliptic hole (m = 0.5), a circular hole (m = 0), and a very narrow vertical ellipse (m = -1). The dependence of the critical loading on a parameter $\lambda = l/R$ (where $R = (a + b)/2$) is shown in Fig. 1 for all these cases.

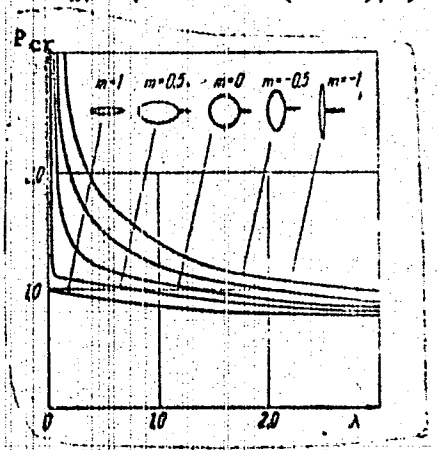
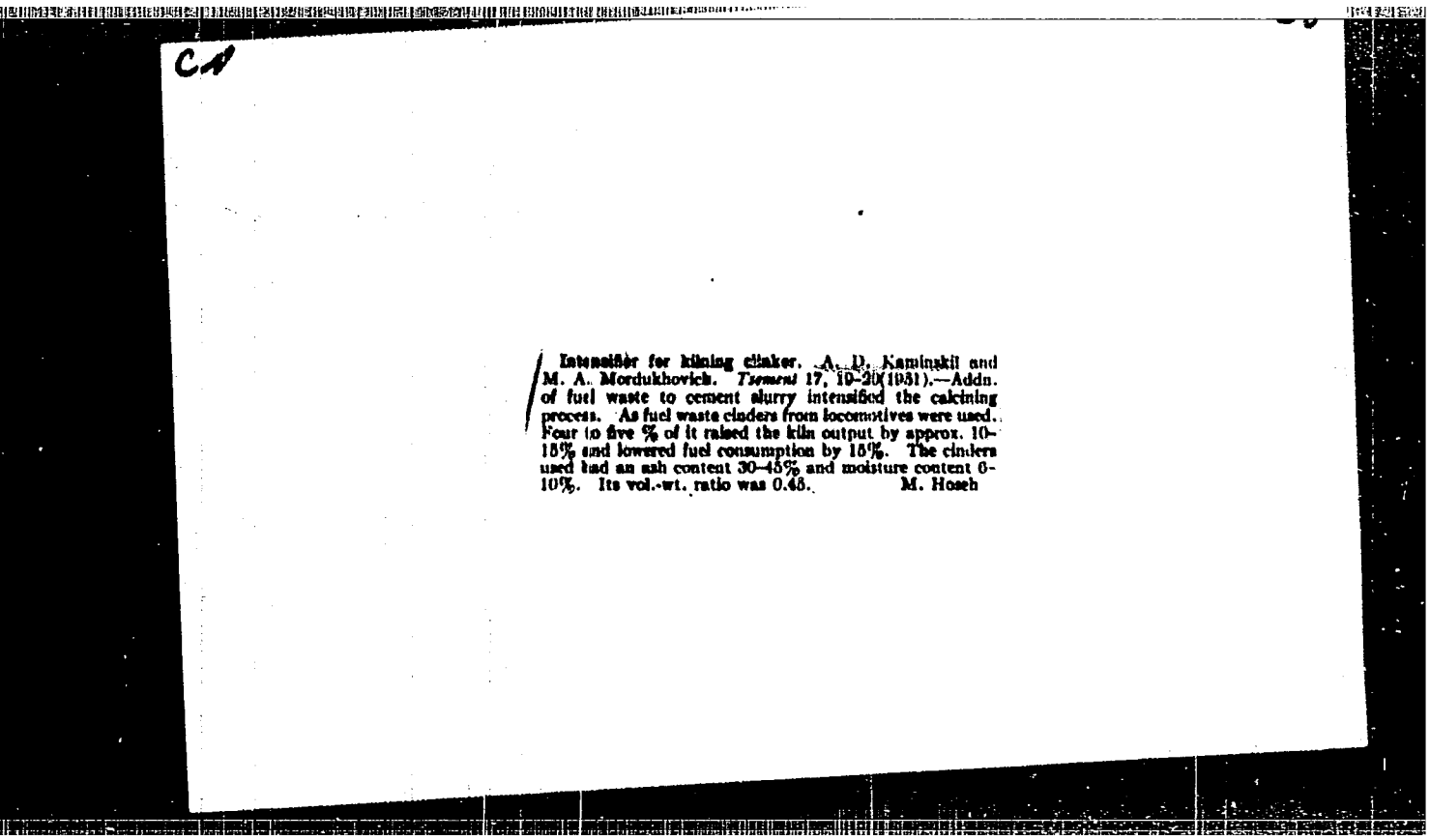


Fig. 1. $P_{cr} = f(\lambda)$

For m = 1, the values of P_{cr} are identical with those obtained by A. A. Griffith, and for m = 0, they are in good agreement with those obtained by O. L. Bowie. Orig. art. has: 2 figures and 15 formulas. [VK]

SUB CODE: AS/ SUBM DATE: 29Mar65/ ORIG REF: 005/ OTH REF: 001/ ATD PRESS: 4122

Card 2/2



CA

Intensifier for kilning clinker. A. D. Kaminskii and M. A. Mordukhovich. *Tsement* 17, 19-20(1951).—Addn. of fuel waste to cement slurry intensified the calcining process. As fuel waste cinders from locomotives were used. Four to five % of it raised the kiln output by approx. 10-15% and lowered fuel consumption by 15%. The cinders used had an ash content 30–45% and moisture content 6-10%. Its vol.-wt. ratio was 0.48. M. Hoseh

KAMINSKIY, A.D.

Our practices in mechanizing and automating industrial processes.
TSement 26 no. 6:8-11 N-D '60. (MIRA 13:12)

1. Leningradskiy tsementnyy zavod.
(Leningrad--Cement plants--Equipment and supplies)
(Automation)

KAMINSKIY, A.D.

Decreasing waste in production. TSement 27 no. 2:6-8 Mr-Ap '61.
(MIRA 14:5)
(Dust--Prevention) (Cement plants)