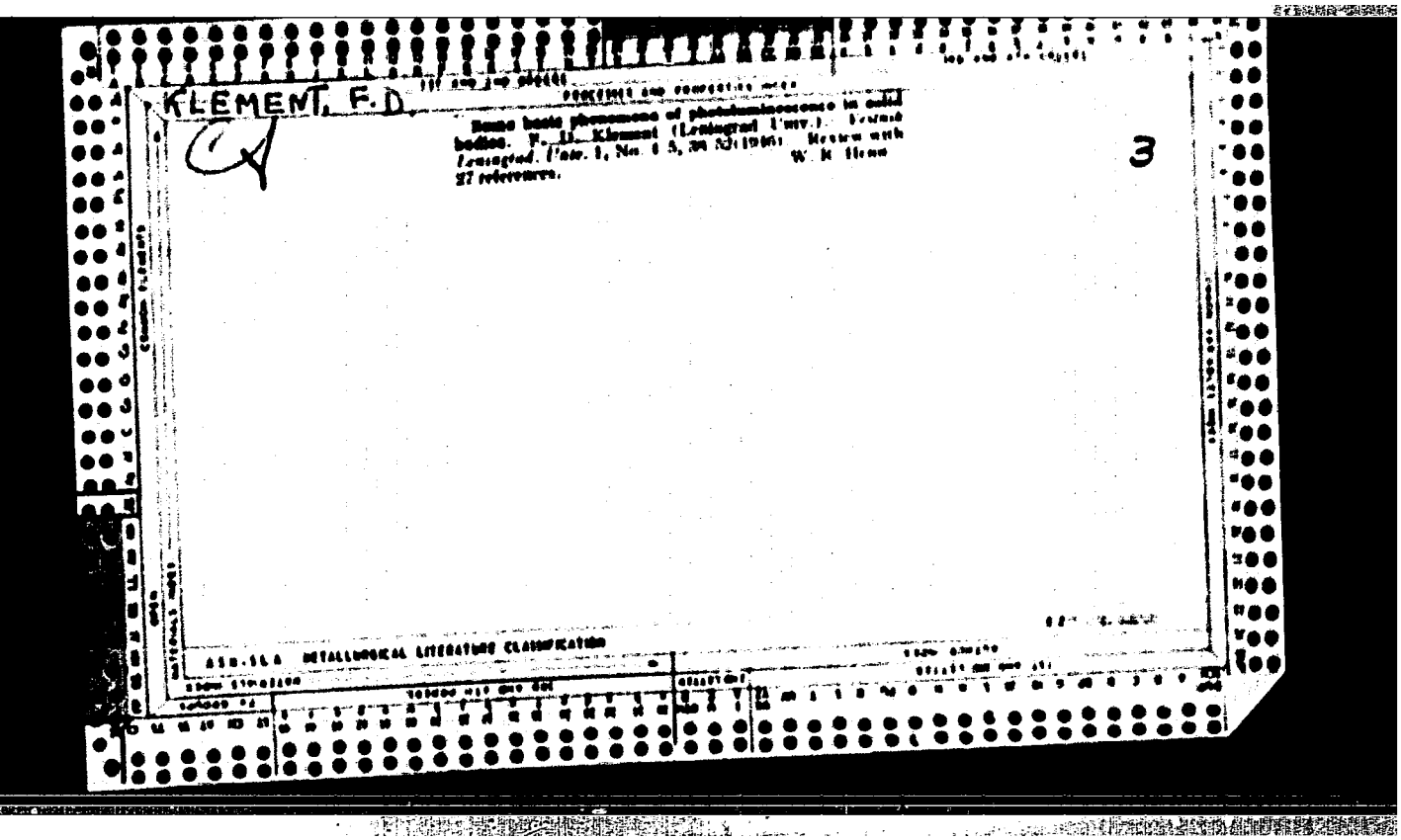


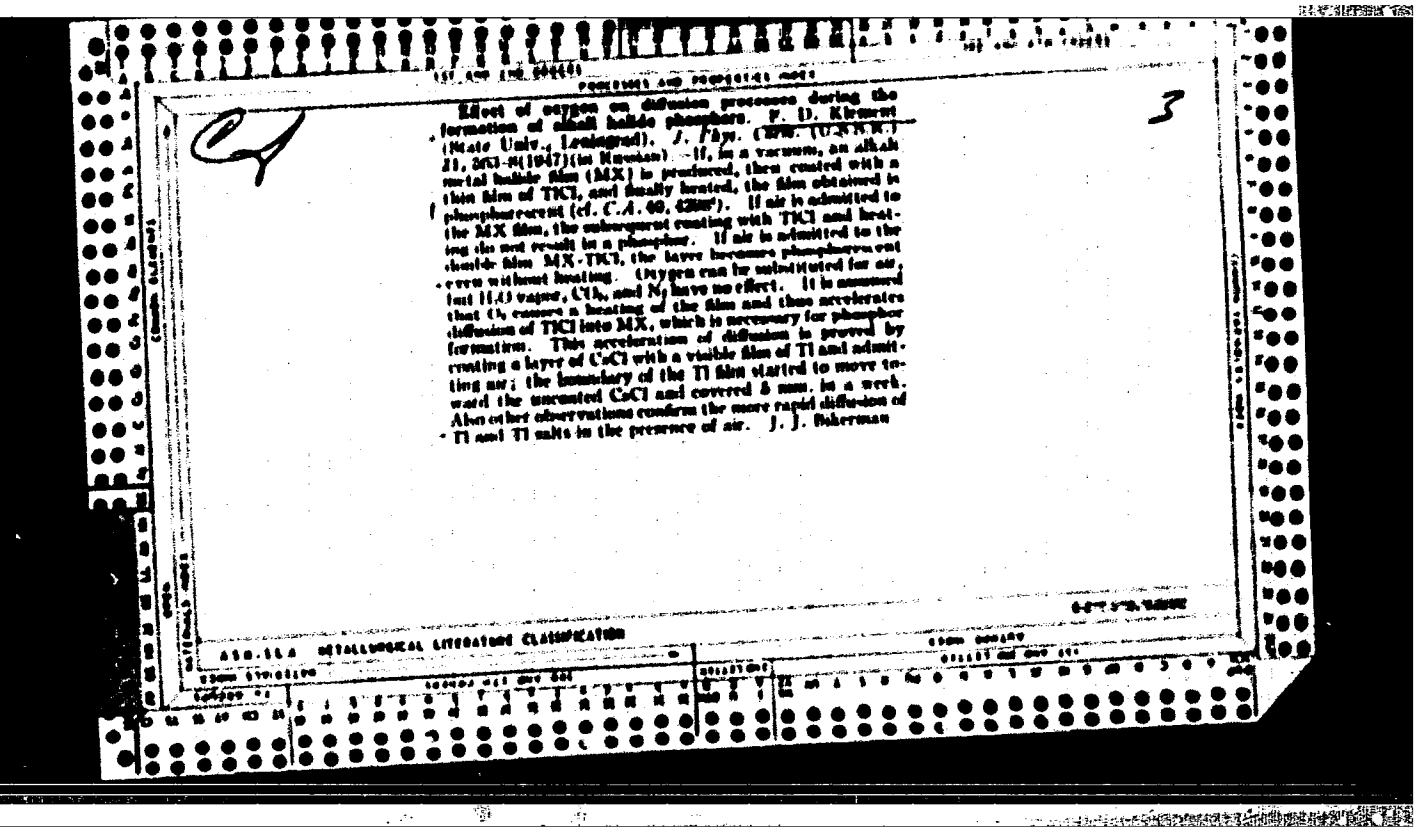
KLEMENT, F. D.

PROCESSES AND PROPERTIES INDEX

3

Effect of infrared rays on the excitation of luminescence of the calcium sulfide-lead phosphor. S. A. Popok and F. D. Klement. *Zhur. Eksptl. Teoret. Fiz.* 17, 915-22 (1947).—(1) In the equil. state, i.e., at the stage where the brightness *B* of the emission of the phosphor, under continuous irradiation by the exciting ultraviolet light, has reached its max. const. value, the coeff. *K* expressing the ratio of the intensity of the flash produced by simultaneous irradiation by infrared of 0.7-0.7 μ, to the intensity under ultraviolet irradiation alone, is, at const. intensity of the ultraviolet, a linearly increasing function of the infrared intensity; e.g., under an exciting ultraviolet λ = 3650 A., 0.34 × 10[illegible] m. cal. sec.$^{-1}$ cm.$^{-2}$, with infrared = 12 and 24 × 10[illegible], *K* = 0.95 and 1.85. (2) In ultraviolet alone, *B* increases initially very fast during the 1st 0.3 sec.; this is followed by an 8-10-min. period of very slow increase, during which *B* approx. doubles, and at the end of which it attains satn.; one-half of the final equil. *B* is attained in about 1-2 min. During that 1st half-time, infrared produces practically no flash; its intensity, at a given const. intensity of the exciting ultraviolet is the higher, the later the stage of growth of *B* in the 2nd half-period. In the equil. state, i.e. at satn. of *B*, the intensity of the flash is proportional to the intensity of the ultraviolet. Thus, the flash is proportional to the product of the intensities of the ultraviolet and infrared, and, consequently, the coeff. *K* is independent of the ultraviolet. (3) On simultaneous exposure to ultraviolet and infrared, the equil. *B* is the same as on excitation by ultraviolet alone. If, now, the infrared is discontinued, *B* falls to the value reached at the end of the 1st 0.3-sec. period of fast increase, i.e. to about one-half the satn. value. A fundamental difference between excitation in ultraviolet + infrared and in ultraviolet alone, lies in the law of decay after discontinuation of the exposure. Only in the 1st is the decay exponential; in the 2nd case, the curve of decay cannot be described by either an exponential or a hyperbolic law. In both cases, however, the spectral compn. of the emission is const. at all times. (4) All these phenomena are readily explained by the assumption that the 1st stage (that of rapid growth of *B*) is detd. by electrons which recombine very soon after the ionization, before becoming trapped at a local level, and which recombine with "their own" ion, whereas the 2nd stage (that of slow growth of *B*) proceeds through the usual trapping mechanism. Evidently, irradiation by infrared, while it affects the latter mechanism in the known way, can have no effect on the 1st process, which involves no trapping. It further accounts for the fall of *B*, back to value corresponding to the end of the fast period, on discontinuation of the infrared. After excitation by ultraviolet + infrared, the decay must be purely unimol., whereas after excitation with ultraviolet alone it is a combination of unimol. and bimol. processes. N. Thon

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Effect of oxygen on diffusion processes during the formation of alkali halide phosphors. P. D. Khavrut (State Univ., Leningrad). *J. Phys.* (USSR) 11, 263-8(1947)(in Russian). If, in a vacuum, an alkali metal halide film (MX) is produced, then coated with a thin film of TlCl, and finally heated, the film obtained is phosphorescent (cf. *C.A.* 40, 4286⁸). If air is admitted to the MX film, the subsequent coating with TlCl and heating do not result in a phosphor. If air is admitted to the double film MX-TlCl, the layer becomes phosphorescent even without heating. Oxygen can be substituted for air, but H_2O vapor, CO_2, and N_2 have no effect. It is assumed that O_2 causes a heating of the film and thus accelerates diffusion of TlCl into MX, which is necessary for phosphor formation. This acceleration of diffusion is proved by coating a layer of CsCl with a visible film of Tl and admitting air; the boundary of the Tl film started to move toward the uncoated CsCl and covered 5 mm. in a week. Also other observations confirm the more rapid diffusion of Tl and Tl salts in the presence of air. J. J. Bikerman

PROCESSES AND PROPERTIES INDEX

The nature of infrared extinction in phosphors. [illegible] Klement. *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 13, 161-7(1949). —K. postulates the presence in the phosphor of free electrons in excess of the no. corresponding to the no. of excited centers. These free electrons cause extinction [illegible] of the infrared radiation. In [illegible] even after cessation of the infrared [illegible] prior to the excitation [illegible] phosphors there is no photocond. [illegible] that of the phosphor. ZnS-Cu shows photocond. [illegible] even without excitation of the phosphor by ultraviolet. This indicates addnl. filled levels. The difference in the behavior of CaS-Bi and ZnS-Cu phosphors is explained by the fact that in the first material the levels are "acceptor" levels (holes), in the second case donator levels, although in both materials some small levels of the same type [illegible] exist. The quantum efficiency η of the luminescence can be expressed by [illegible] where a and β are the [illegible] transition probabilities from the [illegible] level and from the empty band to the filled band, resp., N is the no. of electrons in the conduction band and [illegible] the concn. of activated atoms. S. Pakswer

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1. KLEMENT, F. D.

2. USSR (600)

4. Phosphors

7. Connection between spectral properties and quenching in crystal phosphors, Izv. AN SSSR. Ser. fiz. 15 No. 5, 1951.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

USSR/Chemistry - Luminescence
Electronics - Crystal Phosphors

Jul 51

"Feasibility of and Conditions for "Cold" Preparation of Crystal Phosphors and the Luminescence Method for Investigating Diffusion in the Solid Phase," F. D. Klement, N. I. Ivanova, Phys Inst, Leningrad State U imeni Zhdanov

"Zhur Fiz Khim" Vol XXV, No 7, pp 869-877

Establishes feasibility of "cold" prepn of crystal phosphors by merely mixing basic component (halides of alkali metals, alk earth metals, and Cd) with activator (Tl, Pb, Mn, Cu, Ag halides)

206T28

USSR/Chemistry - Luminescence
Electronics - Crystal Phosphors (Contd)

Jul 51

and discusses necessary conditions. Discusses factors detg temp conditions (i.e., whether any components require heating) for luminescence. Suggests luminescence as method for study of diffusion in solid solns.

206T28

KLEMENT, F. D.

RAUDAM, E.I., dotsent, zaveduyushchiy; ROOSAARE, M.A.; KLEMENT, F.D., professor, rektor.

Central reflex modifications in leukocytes and erythrocytes in encephalography. Vop.neirokhir. 17 no.3:30-36 My-Je '53. (MLRA 6:8)

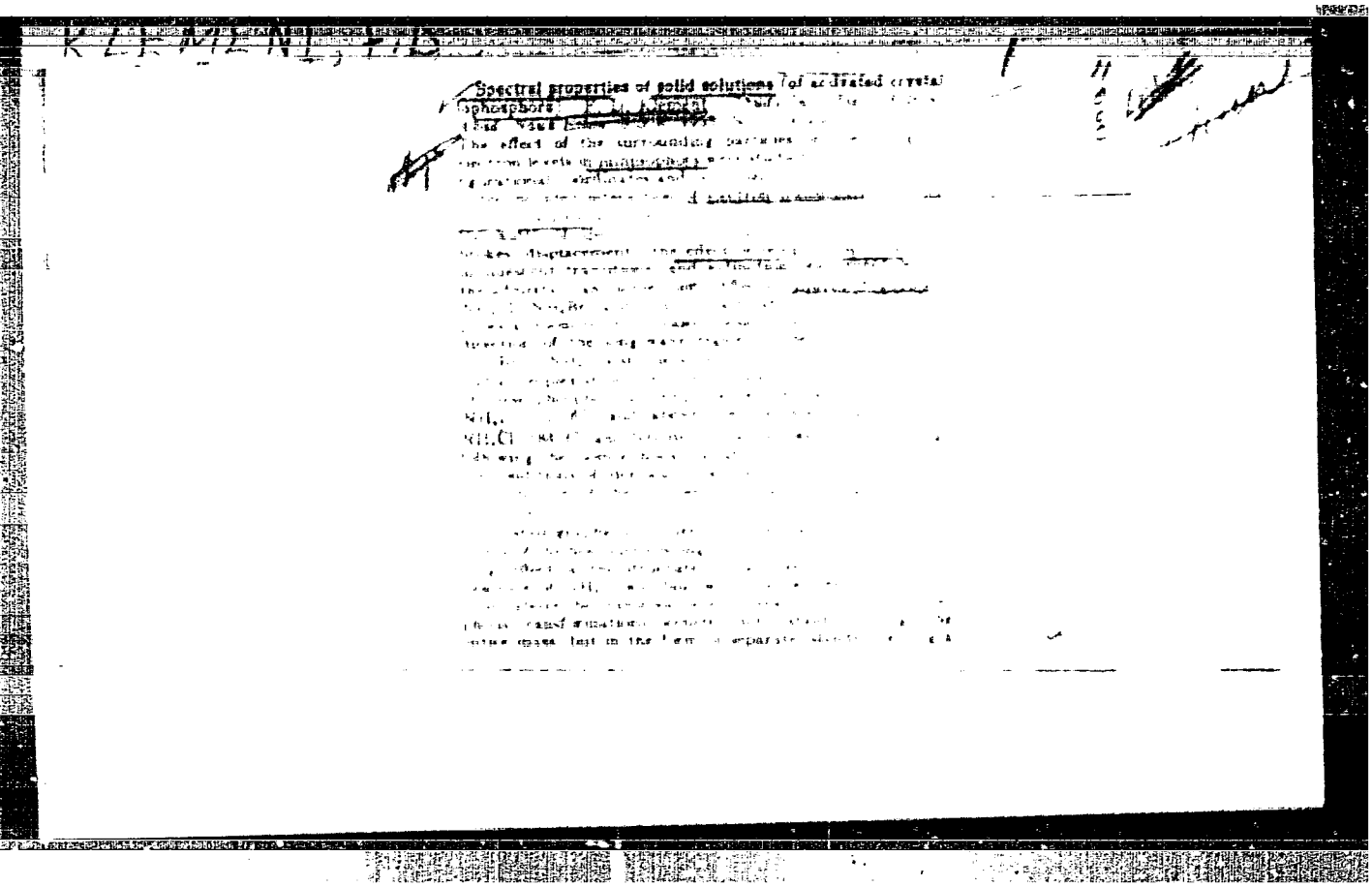
1. Kafedra nevrologii Tartuskogo universiteta (for Raudam and Roosaare).
2. Tartuskiy universitet (for Klement).
(Encephalography) (Blood)

KLEMENT, F.D.

4

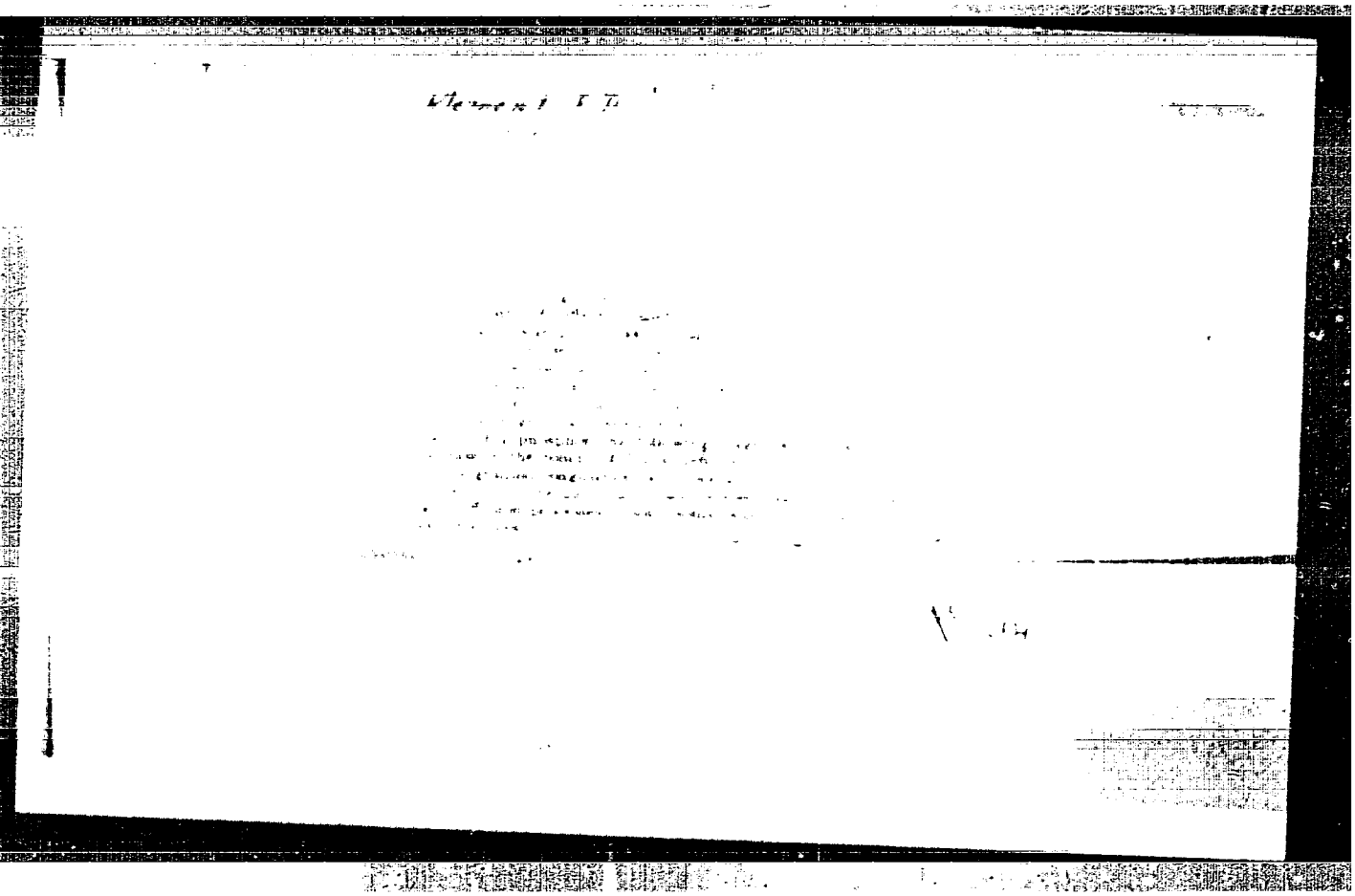
535.37 : 546.121.3 — 1670

Sublimate Phosphors based on Halide Salts of Group-2 Metals.—F. D. Klement & [illegible] (C. R. Acad. Sci. U.R.S.S. [illegible] 1954, Vol. 98, No. 3, pp. 465-468. In Russian.) The principal advantages of sublimate-phosphor screens are the high resolution, the stability and the even covering obtainable without the use of additional binding materials. Microphotographs (× 60) of CdI_2.PbI_2 phosphor deposited as sublimate and from a suspension are shown. Spectral characteristics and their variation by activators were investigated in (Cd-halide) (Hg-, Tl-, Pb-, Bi- or Mn-halide) and in TlCl. (Ca-, Sr-, or Ba-halide) compounds. Results are shown graphically and are discussed from the point of view of lattice structure.



Spectral properties of solid solutions of activated crystal

phosphors



Klement, F.D.

USSR/Optics - Physical Optics

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 12921 K-5

Author : Klement, F.D., Malysheva, A.F.
Inst :
Title : Nature of Excitation Spectra of Certain Crystal Phosphors.

Orig Pub : Tr. In-ta fiz. i astronom. AN EstSSR, 1955, No 1, 44-46

Abstract : An investigation was made of the absorption and excitation spectra in a series of sublimate phosphors. A double-layer comprising a "base plus activator" CdI_2 -- PbI_2, luminesces only after being sufficiantly heated to diffuse the activator into the lattice of the base and to form a solid solution. As a result, a new narrow absorption band appears at 390 millimicrons, ascribed to the ions Pb^{2+} in the CdI_2 lattice. Unlike the CdI_2 -- PbI_2, the activator bands of the activator inserted in the base of a sublimate phosphor $CdBr_2$ -- $PbBr_2$ or $CdCl_2$ -- $PbCl_2$, retain the same position as in the pure activator. The excitation spectra

Card 1/2

USSR/Optics - Physical Optics
APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000723010019-8"

Abs Jour : Ref Zhur - Fizika, No 5, 1957, 12921 K-5

of CdI_2 -- PbI_2 and $CdBr_2$ -- $PbBr_2$ have each two bands at 350 and 400 millimicrons in the former phosphor and at 265 and 320 millimicrons in the latter. The long-wave bands coincide with the absorption bands of the activator ion in the phosphors. The short-wave bands coincide with the absorption bands of pure PbI_2 and $PbBr_2$, but not with the bands of the phosphors and the bases. The authors believe that in the short-wave band, the excitations are due to absorption in the activator, but they are not caused in the absorption spectrum of the phosphors, owing to the superposition of the absorption of the base on the absorption of the activator.

Card 2/2

USSR / Optics

Abs Jour: Referat Zhur-Fizika, 1957, No 4, 10380 K

Author : Klement, F.D.

KLEMENT, F.D.

USSR/Crystals.

B-5

Abs Jour : Referat Zhur - Khimiya, No 6, 1957, 18346

Author : F.D. Klement.

Title : Some Peculiarities of Sublimate Phosphors and Methods of Their Production.

Orig Pub : Optika i spektroskopiya, 1956, 1, No 4, 571-577

Abstract : The methods of production and the properties of sublimate phosphors are discussed. At a succesive sublimation of the base and the activator, the major part of two-layer systems needs heating for their transformation into a phosphor. The influence of O_2 and F_2 as mineralizators was studied in order to prove the necessity of the activator diffusion into the lattice of the base in the process of sublimate phosphor formation. Some systems ($CaCl_2$-TlCl, halides Ca, Ba, Sr with the activators Pb, Cu, Mn) transform practically instantaneously into a phosphor in O_2 or F_2 atmosphere without heating, but

Card 1/2

Klement, F.D

USSR / Optics

Abs Jour: Referat Zhur-Fizika, 1957, No 4, 10381 K

Author : Klement, F.D., Gindina, R.I.
Inst : Not Given
Title : Nature of Influence of Mechanical Crumbling on Properties of Certain Crystal Phosphors.

Orig Pub: Tr. In-ta fiz. i astron. AN EstSSR, 1956, No 4, 3-25

Abstract: The change in the radiation spectra of the phosphors KCl-AgCl, NaCl-TlCl, NaCl-AgCl and KCl-TlCl when pulverized is compared with the known redistribution of the intensities of the bands of radiation of these phosphors upon change of concentration of the activator. It is concluded that in phosphors with poor miscibility of components (KCl-AgCl and NaCl-TlCl), the quenching to the pulverizing is explained by the partial decomposition of the solid solution with liberation of the activator in the form of an impurity that is not ordered in to the base. In phosphors

Card : 1/2

KLEMENT, F. D.

USSR/Physical Chem. Crystals

B-5

Abs Jour : Ref Zhur - Khimiya, No 7, 1957, 22127

Author : F. D. Klement, A. F. Malysheva, S. Milova, A. A. Solov'eva
Inst : Not given
Title : The influence of gases on the process of origination of some crystallO phosphors.

Orig Pub : Tr. In-ta fiz. astron. AN. Est SSR, 1956, No 4, 36-41.

Abstract : Two layer systems trunsformed into phosphor after a preliminary heating were produced by successive volatilization of the base ($CaCl_2$, $CdCl_2$, $CdBr_2$ and Cd) and of the activator (halides Tl, Cu, Pb and Mn). O_2 and F_2 contribute to the production of phosphors even at normal temperatures, or diminish the needed temperature of heating (N_2,CO_2,C_2 and Cl_2 do not have an effect comparable to that of O_2 and F_2). It is established from the analysis of the emission spectrum that O_2 and F_2 contribute to the concentrating redistribution of the intensity of the bands due to the diffusion of the activator from the surface in to the volume. In the atmosphere of F_2 a recrystallization of the volatilized layer in systems $CdBr_2$-$MnCl_2$, $CaCl_2$-TlCl and $CaCl_2$-CuCl as well as the appearance of needle-

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-41-

Klement, F. D.

USSR/Optics - Physical Optics

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 12939 K-5

Author : Klement, F.D.
Inst :
Title : Processes of Formation of Crystal Phosphors and Certain Methods of Their Preparation.

Orig Pub : ENSV teadusti Akad. toimetised. Tehn. ja funs.-matem. teadusti seer., Izv. AN EstSSR, ser. tekhn. i fiz.-matem. N., 1956, 5, No 1, 3-11

Abstract : The author reports on the results of the work in his laboratory on the study of the conditions of formation and development of methods for obtaining crystal phosphors. These investigations show that the activator phosphors are solid solutions and that the first stage of the formation, under ordinary conditions of manufacture, is the diffusion of the activator in the lattice of the base. The temperature conditions for the formation of the

Card 1/2

KLEMENT, F.; MALYSHEVA, A.; ILEVA, I.

"Multilayer luminescent screens for ultraviolet microscopy."

p. 193 (Uurimused. Trudy) No. 6, 1957
Tartu, Estonia

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4, April 1958

KLEMENT, F.D. 3-11-7/17

AUTHOR: Klement, F.D., Professor, Rector of the Tartu State University Full Member of the Academy of Sciences, Estonian SSR

TITLE: This Was Given by the Soviet Rule (Eto dala sovetskaya vlast')

PERIODICAL: Vestnik Vysshey Shkoly, 1957, # 11, pp 40 - 47 (USSR)

ABSTRACT: Describing the culture and education of Estonia, the author states that in 1955/56 the number of students in special educational institutions increased by 7.6 times. In 1946 the Academy of Sciences was founded with numerous scientific institutes conducting research in the fields of astronomy, physics, chemistry, biology, medicine, technology of oil shale, construction, new building materials etc. There were 6 vuzes in Estonia, with 119,000 students in 1956/57 (41,000 in 1940). The most important vuz is Tartu University, founded in 1632, where 3,040 students are enrolled in day courses and 1,550 in correspondence courses. There are 60 chairs and 370 teachers for the five faculties: physics-mathematics, history-linguistics, jurisprudence, medicine, economy. Conferences on scientific subjects take place every year, such as the ninth All-Union conference on spectroscopy in 1954 and the fifth All-Union conference on luminescence in 1956. The second important vuz in Estonia is the Tallin Polytechnic

Card 1/3

This Was Given by the Soviet Rule

Institute, founded in 1936. In 1956 there were 2,130 students, 200 attending evening courses and 330 correspondence courses. There are 4 faculties: mechanics, construction, mining chemistry, and ship reconditioning. Of 200 teachers 90 are doctors and candidates of sciences. The main subject of investigation conducted by the institute is the mining and utilization of oil shales. Research in this field is conducted by Professor Kh. T. Raudsepp, Professor A.Ya. Aarna, Dotsent K.A. Kask, and Dotsent I.P. Epik. In 1951 the Estonian Academy of Agriculture was founded, in which 2,330 students are being trained in 6 faculties. Within 6 years 1,600 specialists were trained at this Institute. Among the Academy teachers there are important scientists like: Professor Doctor O. Khallik (Soil expert, member-correspondent of VASKhNIL), Professor Doctor Pung (Member-correspondent of the Estonian SSR Academy of Sciences), Professor Doctor Yu. Tekhver. There are altogether 180 professors and lecturers. The Tallin Pedagogical Institue was founded in 1952. In 1957 there were 900 students and 103 instructors. The Tallin State Conservatory exists since 1919 and the State Institute of Fine Arts was opened

Card 2/3

This Was Given by the Soviet Rule

3-11-7/17

in 1950.

ASSOCIATION: Akademiya nauk Estonskoy SSR (Academy of Sciences, Estonian SSR), Tartuskiy gosudarstvennyy universitet (Tartu State University)

AVAILABLE: Library of Congress

Card 3/3

Klement, F.D.

SUBJECT: USSR/Luminescence

AUTHOR: Klement F.D. 48-4-2/48

TITLE: On Some Peculiarities of Sublimate-Phosphors and Methods of their Production (O nekotorykh osobennostyakh sublimat-fosforov i metodakh ikh polucheniya)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1957, Vol 21, #4, p 485 (USSR)

ABSTRACT: The report summed up results of a laboratory headed by the author on sublimate-phosphors, new data as to their production methods and properties. General characteristics for this class of crystallophosphors are given.

The report contains characteristics of structural-technical peculiarities of sublimate-phosphors and their technical applications (determination of coefficients and absorption spectra, obtaining of multi-layer and multi-color screens, regulation of crystalline structure); characteristics of sublimation methods for studying the processes of producing crystallophosphors, and explains effects of gaseous media on these

Card 1/2

KLEMENT, F.D.

SUBJECT: USSR/Luminescence 48-5-41/56

AUTHORS: Klement F.D. and Gindina R.I.

TITLE: On the Nature of Influence of Mechanical Crushing on the Properties of Some Crystallophosphors (O prirode vliyaniya mekhanicheskogo razdrobleniya na svoyetva nekotorykh kristallofosforov)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1957, Vol 21, #5, p 748 (USSR)

ABSTRACT: This investigation was aimed at clarification of the nature of the quenching effect of mechanical crushing on the luminescence of some crystallophosphors. It was assumed that the crushing induces the dissociation of a solid solution when a crystallophosphor can be considered as a supersaturated solid solution of an activator in a basic substance.

This hypothesis was tested experimentally on 4 phosphors: KCl, AgCl; NaCl.TlCl; KCl.TlCl and NaCl.AgCl.

The result was checked by means of "annealing" the phosphors (slow heating at a low temperature, which leads also to decomposition of the supersaturated solution and decrease of brightness.)

Card 1/2

AUTHOR KLEMENT, F. D.

TITLE Important Problems of Luminescence. PA - 2459
(Vyzhnyye problemy lyuminyestsyentsii).
Research work caried out by Esthonian Scientists.

PERIODICAL Vestnik Akademii Nauk SSSR, 1957, Vol.27, Nr.1, pp 39 - 47, (U.S.S.R.)

Received 5 / 1957 Reviewed 5 / 1957

ABSTRACT The effect of luminescence is one of the sections of physics, which showed considerable progress within recent years. The conversion of energies of invisible radiation, as X-rays, electron rays, ultraviolet radiation, radioactive emissions to visible light radiation is of special practical importance. These effects are applied in radioscopic apparatus, cathode ray oscillographs, television, electron microscopes, RADAR, electron-optical converters, ultraviolet microscopes etc. Furthermore data obtained from the theory of luminescence, from the theory of light spectra, the analyses of luminescent spectra, and on luminescent plastic materials and colors, on light energy accumulation and on dosimetric facts of X-rays and radioactive radiation are given.
In the course of recent years a special laboratory was established at the Physical and Astronomical Institute of the Esthonian Academy of Science. The main objective of research were the luminescent properties of solids, particularly of activated crystal phosphors. This branch of research is already well

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known, but little theoretical investigation has been carried out up to now. Research was mainly directed on the development of luminescent systems and the method of their production. Experimental results mostly yield only empiric recipes, the underlying physical meaning of which remained unexplained. N.E. and Ch.B. Lushchik in Tartu investigated the mechanism of self-diffusion in alkali-halogenide crystals and the interaction of the activator-ions with the temperature of the formation of crystal phospher. The authors developed a new absorption - method for studying the diffusion of the activator-substance to different depths of penetration within the monocrystalline basis in relation to the ion radii of the diffusing ions and the cations of the basis. At the same time a new method for the production of monocrystalline phosphers with high concentrations of activators was developed.

Further research was carried out on the effects of mechanical grinding on the processes of the formation and destruction of crystal phosphers, on the production of phosphers by sublimation of the constituents in a vacuum. (These results were given by the author in a lecture at the International Conference on Luminescence in Paris in 1956).

Another group of scientists lead by A. Meekewin dealt with chemical methods of producing luminescent compounds.

Important Problems of Luminescence PA - 2459

Investigations were conducted on crystalline and vitreous borates, calsium silicates, antimony oxide, phosphates, and the effects of admixtures on alkali- halogenic crystals.
With regard to the spectral analysis of luminescence the author proposed the formation of a new branch of spectroscopy at the IX th consultative conference of the USSR on spectroscopy in Tartu, including the spectral analysis of the radiation of solids and solid solution. The results obtained by Lushchnik in the research on spectral dependencies in the spectra of homologous series of alkali- halide phosphors with different activators, were of great interest.
The third branch of research, under the supervision of Ch.B. Leshchikow dealt with the kinetics of light excitation and the nature of excitation centers, which determine the inertial properties of phosphors, including the method of thermal deexcitation and of excitation by ultrared radiation.

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KLEMENT, F. D.

Crystal Structure and Spectra of Alkali Halide Phosphors

F. D. Klement, Physics and Astronomy Institute, Academy of Sciences of the Estonian S.S.R., Tartu, U.S.S.R.

Luminescence studies were made in crystals undergoing polymorphic transitions induced by temperature and pressure. The effect of hydrostatic pressure on luminescent spectra was also investigated. Vacancies formed in alkali halides activated by divalent impurities were found to associate with the activator ions, and give rise to characteristic emission bands. Luminescence in mixed crystals were studied and indications of decomposition of the solid solutions under certain treatment were obtained. These studies also showed that there were preferential sites in the lattice for the activator impurity.

Report presented at the 117th Meeting of the Electrochemical Society, Chicago, 1-5 May 1960.

AUTHORS: Klement, F., Lushchik, Ch.

S/053/60/070/04/008/011
B006/B011

TITLE: Conference on the Physics of Alkali Halide Crystals

PERIODICAL: Uspekhi fizicheskikh nauk, 1960, Vol 70, Nr 4, pp 733-738 (USSR)

TEXT: This Conference was held at Tartu from June 30 to July 4, 1959; it had been convened by the Nauchnyy sovet po lyuminestsentsii pri Otdelenii fiziko-matematicheskikh nauk AN SSSR (Scientific Council for Luminescence at the Department of Physical and Mathematical Sciences of the AS USSR), the Akademiya nauk Estonskoy SSR (Academy of Sciences, Estonskaya SSR), and the Tartuskiy gosudarstvennyy universitet (Tartu State University). Alkali halide crystals constitute the classical investigation object of the properties of solids; basic research in this field has been made by A. F. Ioffe, V. D. Kuznetsov, and P. S. Tartakovskiy along with their students. The delegates at this Conference, totalling over 100 persons, represented the following institutes: Moscow: Fizicheskiy institut (Physics Institute), Institut kristallografii AN SSSR (Institute of Crystallography of the AS USSR), Vsesoyuznyy institut mineral'nogo syr'ya (All-Union Institute for Mineral Raw Materials), and others; Leningrad: Universitet (University), Elektrotekhnicheskiy institut (Institute of Electrical Engineering), and others; Tomsk: Politekhnicheskiy institut (Polytechnic Institute), Universitet (University); Khar'kov: Filial IREA (IREA Branch) and others; Kiyev: Universitet (University), Politekhnicheskiy insti-

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Conference on the Physics of Alkali Halide Crystals

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tut (Polytechnic Institute), the Universities of Saratov, Irkutsk, and Riga, the Institut fiziki AN Latv.SSR (Physics Institute of the AS Latvian SSR) in Riga; Baku: Institut fiziki AN AzSSR (Physics Institute of the AS AzSSR); Minsk: Institut fiziki AN BSSR (Physics Institute of the AS BSSR); Lvov: Universitet (University); Alma-Ata: Pedagogicheskiy institut (Pedagogical Institute); Tartu: Institut fiziki i astronomii AN ESSR (Institute of the Physics of Astronomy of the AS ESSR) and University. Altogether 36 lectures were delivered. They were devoted to the following main subjects: 1) Local conditions in crystals; luminescence; and color centers, 2) Electron-hole and exiton processes, 3) crystal structure, ionic and dislocation processes. The lecturers were: M. I. Petrashen' (Leningrad) on the quantum-mechanical calculation of certain optical properties of the impurity centers in crystals (the school of S. I. Pekar is mentioned), N. N. Kristofel' (Tartu) on the quantum-mechanical calculation of the adiabatic potentials and of the absorption- and emission spectra of the luminescence centers in KCl-Tl, I. V. Abarenkov (Leningrad) on the calculation of the adiabatic potentials of the F-centers in point-lattice approximation, N. Ye. Lushchik and Ch. B. Lushchik on the spectroscopy of luminescence centers, K. K. Shvarts (Riga) on luminescence extinction processes, I. K. Plyavin' (Riga) on the kinetics of short-time luminescence, Ya. Ya. Kirs and A. I. Laysaar (Tartu) on the influence of a uniform pressure

Card 2/5

(up to 6000 atm) on the excitation and emission spectra of alkali halide phosphors, T. A. Abdusadykov (Alma-Ata) on the spectral characteristics of the luminescence centers with high activator content in the crystal, A. F. Malysheva (Tartu) on the spectral characteristics of crystal phosphors activated with Tl^+ and Pb^{++} (L. A. Rebane took part in the discussion), Z. L. Morgenshtern on the part played by various defects in ion crystals (P. P. Feofilov is mentioned), A. A. Kaplyanskiy (Leningrad) on a novel method of investigating the anisotropy of the centers in cubic crystals, O. A. Shmit (Riga) on the real and "induced" anisotropy of the centers, A. A. Shatalov (Kiyev) on photochemical and thermal transformations of "defect centers", L. M. Shamovskiy (Moscow) on the energy of thermal ionization of the F-centers in alkali halide crystals and A. Kh. Khalilov, E. Yu. Salayev, T. D. Aliyeva, A. P. Mamedov, and F. A. Isayev (Baku) on comprehensive investigations of the spectral characteristics of NaCl, KCl, and KBr. To the second main subject belonged the lectures delivered by A. N. Arsen'yeva-Geyl' (Leningrad) on the outer photoelectric effect on alkali halide crystals, Ch. B. Lushchik, G. G. Livdye, I. V. Yaek, and E. S. Tiysler (Tartu) on the part played by electron-hole and exiton processes in the luminescence of Ga^-, Ge^{++}, In^+, Sn^{++}, Tl^+, and Pb^{++} ions, I. V. Yaek (Tartu) concerning photothermal processes leading to the recombination luminescence and electron color centers; V. V. Antonov-Romanovskiy on

Conference on the Physics of Alkali Halide Crystals

S/053/60/070/04/008/011
B006/B011

his method of ionizing Eu^{++} in Sr-Eu phosphors by means of paramagnetic resonance, G. G. Livdiye (Tartu) on dislocation and annihilation of exitons in the interaction with crystal defects, M. L. Kats (Saratov) on the change in absorption spectra brought about by the action of ionizing radiation, Ye. I. Shuraleva (Irkutsk) on the luminescence of atomic centers in NaCl-Ni phosphors, I. A. Parfianovich (Irkutsk) on the mechanism of optical scintillation (P. A. Khellenurme took part in the discussion), I. K. Vitol, Ch. B. Lushchik, I. V. Yaek, and M. A. Elango (Riga, Tartu) on comprehensive investigations of relaxation processes with electric and magnetic methods (P. A. Yurachkovskiy took part in the discussion), and T. K. Vitol (Riga) spoke on the photoelectric properties of "defect-gradient" layers in alkali halide crystals. The following lectured on the third subject: M. V. Klassen-Neklyudova, G. V. Berezhkova, V. G. Govorkov, G. F. Dobrzhanskiy, Yu. L. Idenbom, V. G. Hegel', G. Ye. Tomilovskiy, A. A. Urusovskaya, and M. A. Chernyshev (Moscow) on the mechanical properties of alkali halide crystals, L. M. Shamovskiy and A. S. Shibanov (Moscow) on dislocation and polyhedral substructure of crystals in the presence of surface-active impurities (KJ), A. A. Shatalov (Kiyev) on the development of lattice defects, R. Ya. Gindina (Tartu) on the marking of defects in NaCl and KCl by nonisomorphic impurities, A. Ya. Pae and A. A. Khaav (Tartu) on results of X-ray structural analyses, O. G. Mankin and N. Ye. Lushchik (Tartu) on absorption

Card 4/5

Conference on the Physics of Alkali Halide Crystals

S/053/60/070/04/008/011
B006/B011

investigations of the diffusion of Ca^+, In^+, Sn^{++}, Cu^+, and Ag^+ ions, L. M. Belyayev, G. P. Dobrzhanskiy, V. V. Chadayeva, V. P. Panova, Z. B. Perekalina, and V. N. Variolomeyeva (Moscow) on the activation of lithium fluoride, A. A. Vorob'yev, P. A. Savintsev, V. Ye. Averichev, A. A. Botaki, V. Ya. Zelenko, and M. N. Ignat'yeva (Tomsk) on the relationship of electrical, optical, mechanical, and other properties with the composition of crystals, Ye. K. Zavadovskaya, M. S. Ivankina, I. Ya. Melik-Gaykazyan, and M. N. Treskina (Tomsk) on the influence of the decomposition of solid solutions upon their properties, and A. A. Vorob'yev, G. A. Vorob'yev, K. K. Sonchik, V. D. Kuchin, A. V. Astafurov, and M. A. Melnikov (Tomsk) held the final speech, which was followed by a discussion.

Card 5/5

9.6150 (also 1137, 1395)

S/048/61/025/001/004/031
B029/B067

AUTHORS: Klement, F. D., Teyes, L. A.

TITLE: Effect of isostructures on the spectra of activated mixed crystals

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25, no. 1, 1961, 28-30

TEXT: The authors studied the effect of isostructures on the emission spectrum of the KCl.KBr-Tl crystal phosphor. This phosphor was excited in various narrow regions within the excitation band of the activator. If the excitation band is a superposition of bands emitted by centers with different isostructures, the shape is bound to change or the maximum of the emission band is bound to be shifted. Fig. 1 shows the short-wave emission band of the 80 KCl.20 KBr- 0.05 Tl phosphor. In the case of a shift of the excitation range toward longer waves, the maximum of the emission band is also shifted toward longer waves in the same direction. The positions of the maxima of the emission band cover almost the entire region between the positions of these maxima in the corresponding single-component phosphors,

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89238

Effect of isostructures on the spectra ....

S/048/61/025/001/004/031
B029/B067

i.e., in the emission spectrum of a mixed crystal, the centers with different isostructures up to isostructures with 6 Br^- ions are arranged round a Tl^+ ion. In spite of the low content of 20 mole% KBr, the phosphor emission spectrum is similar to that of isostructures with predominating bromine content, and the band corresponding to the pure KCl is lacking. According to the authors, Tl^+ is mainly contained in the isostructures with the highest number of heavy Br^- ions. Also the second maximum of the ultraviolet emission bands characteristic of the KBr - Tl phosphor is lacking. Similar experiments were made with other ratios of the components KCl + KBr, as well as with phosphors of the type NH_4Cl + NH_4Br - Tl, in which mainly the same results were obtained. At a Br^- content of 50 mole%, the position of the emission band does not depend any more on the region of excitation and agrees fully with the corresponding position in pure KBr. If, at a low KBr content, the activator concentration is increased, the filling of the isostructures with 5 Br^- is bound to occur after the filling of the isostructures with 6 Br^-, etc. The existence of isostructures of different composition in the mixed crystals makes it possible to explain various other phenomena (increased width of the absorption and

Card 2/4

emission bands of the activator, as well as of the F-bands in mixed crystals). Ch. B. Lushchik mentioned the influence of isostructures on the width and shape of the peaks of thermal illumination. According to the authors, spectroscopic treatment of isostructures in mixed crystals with activators consisting of rare-earth elements is especially promising. This is the reproduction of a lecture read at the Ninth Conference on Luminescence (Crystal Phosphors), Kiyev, June 20-25, 1960. There are 2 figures and 3 Soviet-bloc references.

Legend to Fig. 1: 1) 240 mμ; 2) 245 mμ; 3) 250 mμ; 4) 255 mμ; 5) 260 mμ; 6) 265 mμ exciting wavelength.
Legend to Fig. 2: emission spectra of 87 KCl . 13 KBr -Tl 1) 0.0005; 2) 0.019; 3) 0.2 mole% Tl

Effect of isostructures on the spectra...

S/048/61/025/001/004/031
B029/B067

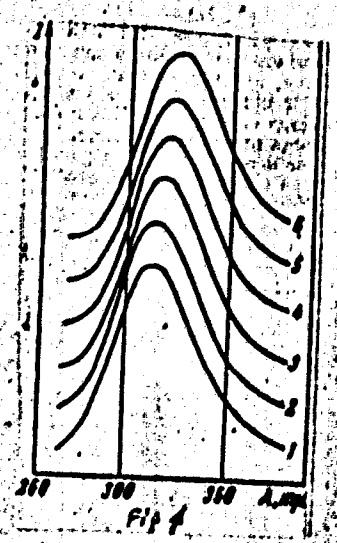

Fig 1

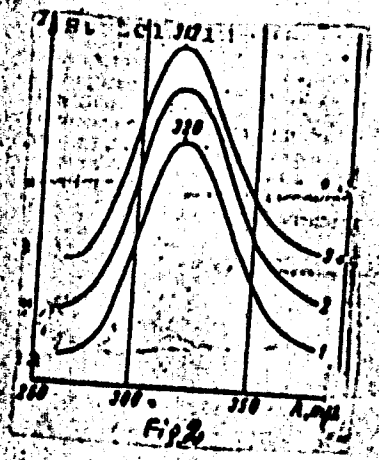

Fig 2

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S/613/61/000/014/004/019
D207/D303

AUTHORS: Klement, F. D., and Teyss, L. A.

TITLE: The effect of "isostructures" on the spectra of activated mixed crystals

SOURCE: Akademiya nauk Estonskoy SSR. Institut fiziki i astronomii. Trudy. No. 14, 1961. Issledovaniya po lyuminestsentsii, 76-86

TEXT: The authors report an investigation and interpretation of changes in the luminescence emission spectra of (KBr + KCl):Tl and NH_4Cl + NH_4Br):Tl mixed phosphors with variation of the excitation wavelength. Mixed crystals exhibit the phenomenon of "isostructures" which are regions with different compositions. For example, in KBr + KCl there are seven possible isostructures with K^+ ions surrounded by: (I) 6 Cl^- ions, (II) 5 Cl^- ions and 1 Br^- ions, and so on down to (VII) 6 Br^- ions. The authors suggest that every luminescence band of KBr + KCl crystals consists of several sub-bands, each of these sub-bands representing activator ions occupying sites

Card 1/ 3

in a particular isostructure. The sub-bands could not be distinguished in photoelectric observations of ultraviolet luminescence (~310 mμ) of (KCl + KBr):Tl by means of a СФ-4 (SP-4) spectrophotometer and a ФЭУ-18 (FEU-18) photomultiplier. The sub-bands overlapped too much. The proof of the existence of the sub-bands came from reduction of the wavelength and intensity of the ultraviolet emission peak when the exciting wavelength (λ_e) was varied from 265 to 240 mμ. The emission peak shifted with variation of λ_e because different values of λ_e excited activator centers in different isostructures. It was also found that Tl ions were concentrated preferentially in isostructures with the largest numbers of the heavier (Br) anion which is represented by the longer emission wavelengths. The emission peak wavelength was also reduced by an increase of the activator concentration from 5×10^{-4} to 0.2 mol.%. This was because at higher Tl concentrations more activator ions were available to occupy sites in isostructures for which Tl had less affinity, i.e. isostructures with more Cl ions, which are re-

presented by the shorter emission wavelengths. Similar results were obtained for (NH_4Cl + NH_4Br):Tl phosphors. Acknowledgment is made to N. Kristofel' and K. Rebane for communicating their formula on the number of isostructures in mixed crystals. There are 3 figures and 8 references: 5 Soviet-bloc and 3 non-Soviet-bloc. The reference to the English-language publication reads as follows: G. Durham and J. Hawkins, J. Chem. Phys., 19, 149 (1951).

SUBMITTED: July 16, 1960

Card 3/3

S/048/62/026/004/007/014
B104/B102

AUTHOR: Klement, F. D.

TITLE: Crystal structure and spectrum of alkali-halide and ammonium-halide phosphors

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 26, no. 4, 1962, 480-487

TEXT: This is a review of investigations of Tartuskiy universitet (Tartu University), Institut fiziki i astronomii AN ESSR (Institute of Physics and Astronomy, AS Estonskaya SSR), and Leningradskiy universitet (Leningrad University) on the relationship between the crystal structure and the spectrum of luminescent substances. Special attention is devoted to the point of view that crystal phosphors are solid solutions of activator ions in the fundamental lattice. There are 9 figures.

ASSOCIATION: Tartuskiy gos. universitet (Tartu State University)

Card 1/1

KLEMENT, F.D.

Crystalline structure and spectra of alkali halide and ammonium halide phosphors. Izv. AN SSSR. Ser. fiz. 26 no.4:480-487 Ap '62. (MIRA 15:4)

1. Tartuskiy gosudarstvennyy universitet.
(Alkali metal halides--Spectra) (Ammonium halides--Spectra)

L 26949-65 EWT(l)/EWT(m)/EWP(t)/EWP(b)

ACCESSION NR: AP5004529

S/0048/65/029/001/0086/0092

AUTHOR: Klement, F.D

TITLE: Concerning the nature of luminescence centers in alkali halide crystals
Report, 12th Conference on Luminescence held ...

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 1, ... 86-92

TOPIC TAGS: luminescence center, alkali halide, luminescence conference

ABSTRACT: The nature of luminescence centers in crystal phosphors has long been a subject of controversy among luminescence ... [illegible] ... concerned, most authors ... [illegible] ... there is no ... [illegible] ... lattice or forms ... [illegible] ... cation site ... [illegible] ... where the ... [illegible] ... model proposed ... [illegible] ... In this model the ... [illegible] ... and surrounding anions and ... [illegible] ... are re-

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L 21749-65
ACCESSION NR: AP5004529

viewed. Then evidence against this model is cited. Next, the model proposed by Ivanova and her coworkers is described (Fizika [illegible] Riga, No 2 [illegible]

[illegible] the first Estonian SSR) group [illegible] view the centers are formed by [illegible] crystal phosphor [illegible] and the luminescence [illegible] of the [illegible] defrauded by the [illegible] ro of each luminescence center [illegible] and the difference between different types of luminescence centers is [illegible] the different effects of the neighboring ions [02]

Card 2/3

L 26949-65

ACCESSION NR: AP600[illegible]

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: SS, GP

NR REF SOV: 014 OTHER: 004 ATD PRESS: 3180

Card 3/3

L 28332-66 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6013083 SOURCE CODE: UR/0048/66/030/004/0692/0694

AUTHOR: Klement, F.D.; Lembra, L.A. 21 B

ORG: Tartu State University (Tartuskiy gosudarstvennyy universitet)

TITLE: Polarized luminescence of mixed KCl-KBr:Tl crystals (Report, Fourteenth Conference on Luminescence held in Riga 16-23 September 1965)

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 4, 1966, 692-694

TOPIC TAGS: polarized luminescence, crystal phosphor, potassium chloride, potassium bromide, mixed crystal

ABSTRACT: The purpose of the work was to investigate the polarized luminescence of mixed alkali halide phosphors in which the luminescence centers are activator particles whose nearest neighbors are host anions. In view of earlier studies it was assumed that this would be conducive to the kind of anisotropy capable of producing polarized emission. Specifically, there was studied the KCl-KBr:Tl system, which has coordination number 6. In this system the ambience of a Tl^+ ion may differ as regards the relative numbers of Cl^- and Br^- ions, depending on the proportions of KCl and KBr. A series of thallium activated mixed crystals were grown and it was found that their luminescence is polarized. The composition dependences for two excitation energies are shown in the figure. The peak values are 35% for the "chlorine" band and 17% for

Card 1/2

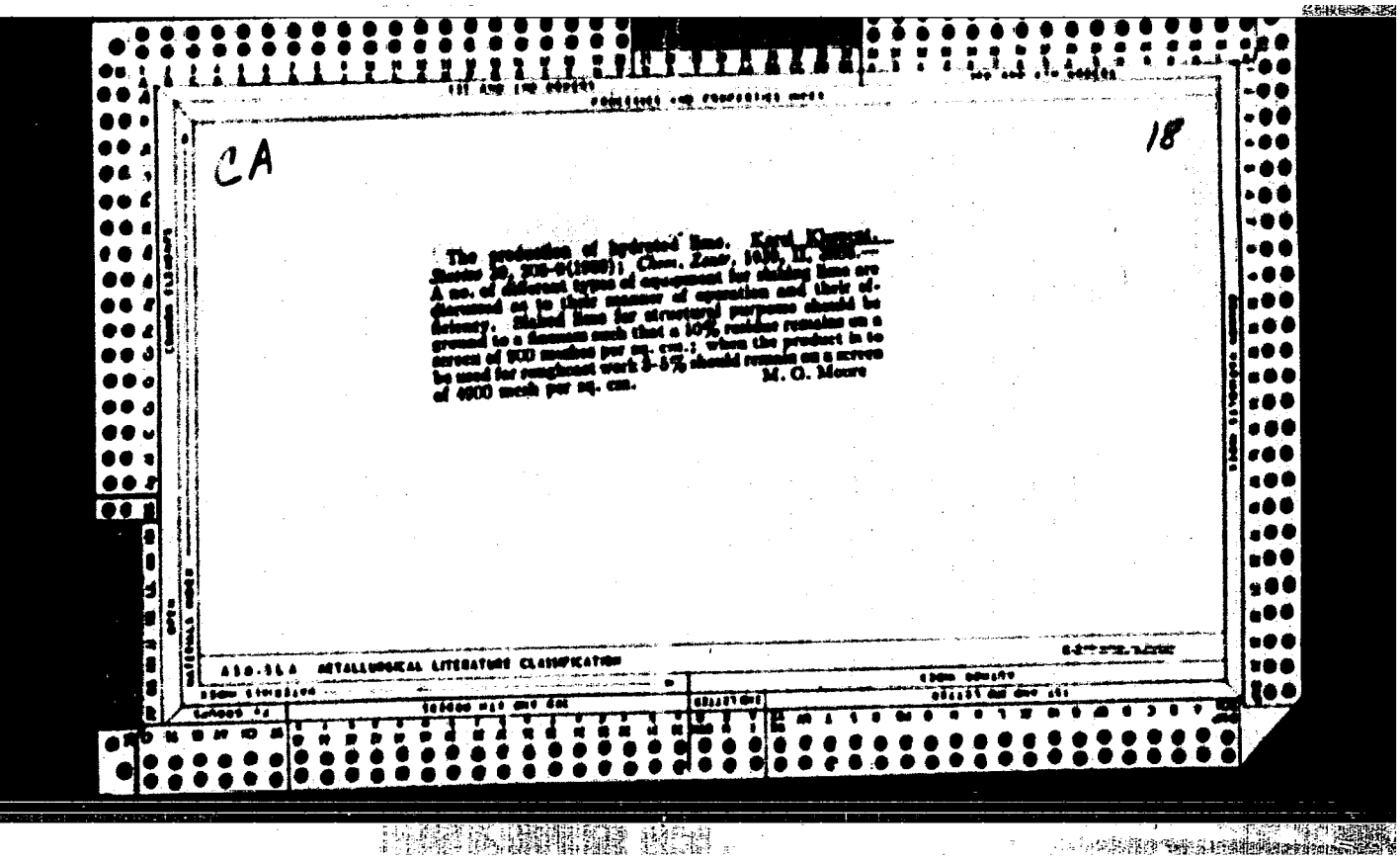
L 28332-66
ACC NR: AP6013063

Composition dependences of the degree of polarization of the luminescence: excitation: 1 - 4.55 eV, 2 - 5.0 eV.

the "bromine" band. For single host phosphors the polarization is nil. It is inferred that the most favorable conditions for appearance of polarized luminescence are formation of centers with a Tl^+ ion surrounded by 5 Cl^- and 1 Br^- or by 1 Cl^- and 5 Br^- ions, i.e., conditions of maximum anisotropy. A figure in the original text gives the polarization spectra and the dependences of the degree of polarization on the frequency of the emitted light for a series of mixed crystals. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 003/ OTH REF: 001

Card 2/2



Plastics

Calcium hydrate. K. Klemont. *[illegible]*, 27, 232 (19[illegible]); *Brit. Ceram. Abstracts*, 40 [illegible] (19[illegible]). Some considerations are given on the manufacture of lime hydrate. After discussing the correct proportions of lime and water, and the heat evolved, K. suggests that attention should be paid to (1) the varying composition of lime, especially of unslakable substances, CaO and MgO, (2) variations in the rate of delivery of the lime, (3) variations in the quantity of water, (4) differences in the grading of the crushed lime resulting in variations in the surface reactivity, and (5) differences in the temperature of the lime and water.

[illegible] T, E.

"Heat Technique in Lime Burning (To Be Cont'd)", p. 248, [illegible], Vol. 6, No. 7, July 19[illegible]4, Budapest, Hungary)

SO: Monthly List of East European Accessions (EEAI), LC, Vol. 4, No. 3, March 1955, Uncl.

KLEIN, K.

"New trends in the production of lime and possiblities of their application in our country."
Stavivo, Praha, Vol 32, No 6, June 1954, p. 203

SO: Eastern European Accessions List, Vol 3, No 10, Oct 1954, Lib. of Congress

KLEMENT,K.

Artificial roughcasts and stones. p.145(Pozemni Stavby, Vol.5, no.3, Mar. 1957) Praha

SO: Monthly List of East European Accession (EEAL) LC, Vol.6, no.7, July 1957. Uncl.

Klement, K.

Klement, K. Practical and theoretical problems of the lime-burning industry. p. 2.

Vol. 35, no. 1, Jan. 1957
STAVIVO
TECHNOLOGY
Czechoslovakia

So. East European Accessions, Vol. 6, May 1957
No. 5

CZECHOSLOVAKIA/Chemical Technology. Chemical Products and Their Application. Ceramics. Glass. Binding Materials. Concrete. H-13

Abs Jour: Ref Zhur-Khim., No 2, 1959, 5555.

Author : Klement, Karel.
Inst : Scientific Research Institute of Building Materials, Brno.
Title : Hydraulic Lime.

Orig Pub: Stavba, 1958, 5, No 5, 146-149.

Abstract: A brief historical note concerning the manufacturing of hydraulic lime (HL) in Czechoslovakia is presented. HLs of various kinds are described and data concerning the experimental work carried out in cement shaft furnaces at the Scientific Research Institute of Building Materials (Brno) are given. In the conclusion, the author points out the great possibilities of manufacturing arti-

Card : 1/2

Card : 2/2

Country	: Czechoslovakia	H-13
Category	:	
Abs. Jour.	:	39454
Author	: Klement, K.	
Institut.	: Not given	
Title	: Efficient Lime Kilns	
Orig Pub.	: Stavivo, 36, No 10 399-401 (1958)	

Abstract : The author presents data supporting the possibility of the utilization of the under-80 mm limestone fraction in shaft kilns (SK) of various constructions. The author has shown that in properly constructed Zeegerov SK with correctly designed loading mechanisms a partial utilization of the 30/80-40/80 mm fraction can be achieved. In cross draft SK operating on the Heiligenstadt principle and using blast furnace gas, limestone of 15-50 mm size is used. A brief description is also given of the burning of lime in rotary kilns and in combined [?] kilns.

Ya. Satunovskiy

Card: 1/1

KLEMENT, Karel, ing.

The quartz deposit of Velka Kras. Sklar a keramik 12 no.2: 46-48 F '62.

1. Geologicky pruzkum, narodni podnik, Brno

KLEMENT, Karel

Disintegrating chalky clays, an important natural chalk fertilizer. Geol pruzkum 6 no.2:60 F'64

KLEMENT, K., ins.

Jet pulveriser for very fine grinding. Sklar a keramik 13 no.8:214 Ag '63.

KLEMENT, K., ing.

Opening of a limestone deposit with regard to industrial safety.
Stavivo 42 no.5:179 My '64.

1. Geologicky pruzkum National Enterprise, Brno.

KLEMENT, Karol, Ing. (Brno)

The HOSOKAWA laboratory equipment for grinding and separation. Sklar a keramik 14 no.10:291 O '64.

KLEMENT, Karel, ing.

What is the next step in experimental clinker firing? Geol pruskum 6 no.11:342 N '64.

1. Geologicky pruzkum National Enterprise, Brno.

KLEMENT, Karel; VACHOUT, Ladislav

A new assembly line of injection pumps. Stin doprava 12 no.12: 6-7 D '64.

1. Ceskoslovenske automobilove opravny, Prague.

KLEIBER, L.

(1)

Journal of the Science of Food and Agriculture
April 1954
Agriculture and Horticulture

KLEMENT, M.

KLEMENT, M.

New method for utilization of walls in our building. p.117 (Inzenyrske Stavby. Praha. Vol. 2, no. 6, June, East 1954)
SO: Monthly List of European Accessions (EEAL), LC, Vol. 4, No. 4, June 1955, Uncl.

KLEMENT, M.

The sinking of a well in cohesive earth. p.128 (Inzenyrske Stavby, Vol. 5 no. 3 March 1957) Praha

SO: Monthly List of East European Accession (EEAL) LC, Vol. 6 no. 7, July 1957. Uncl.

KLEMENT, H.

Preparation of agricultural specialists with higher education develops successfully.

P. 449 (Sotsialistlik Pollumajandus. Vol. 12, no. 10, Oct. 1957. Tallinn, Estonia)

Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 2, February 1958

KLEMENT, Miloslav, MUDr.

Fractures of the talus. Acta chir. orthop. traum. cech. 22 no.3: 78-86 May 55.

1. Z Vyskumneho ustavu traumatologickeho v Brne, reditel prof. MUDr. Vlad. Novak.
(ASTRAGALUS, fractures
ther.)
(FRACTURES
astragalus, ther.)

KLEMENT, Milosalv, MUDr.; Na Statistice Spolupracovaly: TRNKOVA, B.; VRLAKOVA, M.; KLIMOVA, E.

Hidden fractures of the fingers and wrist. Acta chir. orthop. traum. cech. 23 no.2:61-64 Feb 56.

1. Z Vyskumneho ustavu Traumatologickeho v Brne, reditel prof. MUDr. Vladimir Novak.

(FINGERS, fract.
hidden, statist. (Cz))
(WRIST, fract.
same
(FRACTURES,
fingers & wrist, hidden, statist. (Cz))

Report on 812 cases of fracture of these small bones, 394 of which were closed. In the distal direction, open fractures increased in frequency. In 1/3 of the cases of metacarpal fracture the first metacarpal bone was involved. Typical fractures of the base, mainly the Bennet fracture, were always cured with a non-padded plaster dressing without splints; there was no necrosis of the skin and the functional result was good. The same applied to fractures of the diaphyses. Fractures of the neck of the metacarpal bones were treated with plaster and splint or with Jahse's method. The most frequent fracture of the 2nd to 5th diaphyses was the oblique or spiral fracture, which was successfully treated with medullary nailing. Closed fractures of the fingers were treated with plaster of Paris and a splint, with adhesive-plaster extension.

Pavlansky - Prague

KLEMENT, Miloslav, MUDr.

Graphic illustration of importance of the stiffening of phalangeal joints. Acta chir. orthop. traum. cesk. 23 no.5: 236-243 Sept 56.

1. Vyskumny ustav traumatologicky v Brne, reditel prof. Dr. Vladimir Novak.

(FINGERS, dis.
stiffening of phalangeal & metacarpophalangeal joints, eff. on funct. of hand (Cz))
(JOINTS, dis.
of phalangeal & metacarpophalangeal joints, eff. on funct. of hand (Cz))
(HAND, physiol.
funct., eff. of stiffening of phalangeal & metacarpophalangeal joints (Cz))

KLEMENT, M.; DOHNALEK, J.

Certain aspects in the utilization of radioactive chromium isotopes in the determination of blood volume. Cesk. fysiol. 7 no.4:316-320 July 58.

1. Vyzkumny ustav traumatologicky, Ustav pro experimentalni patologii lekarske fakulty MU, Brno.
(CHROMIUM, radioactive,
blood volume determ. (Cz))
(BLOOD VOLUME, determ.
radiochromium technic (Cz))

KLEMENT, MILOSLAV

EXCERPTA MEDICA Sec 9 Vol 13/8 Surgery August 59

4217. (1077) CIRCULATORY DISORDERS IN THE TALUS AFTER FRACTURES OF THE NECK OF THE BONE - Poruchy krevního oběhu v hlezenní kosti po zlomeninách krčku - Klement M. Vysk. Ust. Traumatol., Brno - ACTA CHIR. ORTHOP. TRAUM. CECH. 1958, 25/6 (449-450) illus. 6

In fractures of the neck of the talus with backward dislocation and rotation, necrosis of this part of the bone develops in about half the patients. The blood supply of the talus is ensured mainly by branches of the anterior and posterior tibial artery. These are connected by the arteria anastomotica tarsi which runs in the sinus tarsi. The peroneal artery is of lesser importance for this bone. Closed reduction must be followed by immobilization. If necrosis develops immobilization should be maintained till circulation is re-established in the fragment. Primary arthrodesis is recommended in those cases where the fragment has become separated from the soft parts surrounding the neck, the medial plane and the sulcus tali. There is no reason to remove the body of the talus in view of the circulatory disorder.

(IX, 18, 19)

KLEMENT, M.

HAVLIN, Igor; KLEMENT, Miloslav

Ethylcoman prevention of traumatic shock. Roshl. chir. 37 no.1: 7-9 Jan 58.

1. Vyskumny ustav traumatologicky v Brne, reditel prof. MUDr Vladimir Novak. I. H., VUT, Brno 14, Vranovska 90.

(SHOCK, prev. & control
ethanol in isotonic saline solution in prev. of traum. shock (Cz))
(ISOTONIC SOLUTIONS, ther. use
ethanol in isotonic saline solution in traum. shock, prev. (Cz))
(ALCOHOL, ETHYL, ther. use
same)
(WOUNDS AND INJURIES, compl.
post-traum. shock, prev., ethanol in isotonic saline solution (Cz))

KLEMENT, M.(Brno 14, Hansmannova 9)

Our experiences with shock. Roshl. chir. 37 no.1:3-6 Jan 58.

1. Vyskumny ustav traumatologicky v Brne, reditel profesor MUDr Vl. Novak.
(SHOCK
traum., clin. manifest & ther. (Cz))
(WOUNDS AND INJURIES, compl.
post-traum. shock, clin. manifest. & ther. (Cz))

KLEMENT, M.; DEPRAK, R.; DOHNALEK, J.

Certain aspects of the utilization of Cr51 for the determination of circulating blood volume. Cesk. fysiol. 8 no.6:536-537 N '59

1. Vyskumny ustav traumatologicky, Transfusnistanice Vojenske nemocnice, Ustav pro experimentalni patologii Lek. fak. MU, Brno.
(BLOOD VOLUME)
(CHROMIUM radioactive)

KLEMENT, M.; HONSA, K.; MASTNY, V.

Further studies on traumatic shock. Rozhl. chir. 38 no.7:447-452 July 59.

1. Vyskumny ustav traumatologicky, reditel prof. dr. Vl. Novak (SHOCK)

KLEMENT, M.; HOMSA, K.; HAVLIN, I.

Early signs of traumatic shock in experimental conditions. Rozhl. chir. 39 no.1:1-4 Ja '60

1. Vyskumny ustav traumatologicky v Brne, reditel prof. MUDr. Vl. Novak.

(SHOCK, exper.)

KLEMENT, M.;DOHNALEK, J.;KOCOUREK, M.;SPONAR, J.

Contribution to the estimation of the volume of circulating blood following injuries. Roshl. chir. 39 no.1:5-8 Ja '60

1. Vyskumny ustav traumatologicky v Brne, reditel prof. MUDr. Vl. Novak Radioizotopove odd. Lekarske fakulty v Brne, vedouci MUDr. PhMr. J. Dohnalek.
(BLOOD VOLUME)
(WOUNDS AND INJURIES. blood)

KLEMENT, M.; DOHNALEK, J.; KOCOUREK, M.; SPONAR, J.

Experiences with the prevention of traumatic shock with suprogan. Roshl. chir. 39 no.1:9-13 Ja '60

1. Vyskumny ustav traumatologicky v Brne, reditel prof. MUDr. Vl. Novak Traumatologicke odd. KUNZ, Pardubice, prednosta MUDr. Cerny Chirurgicke odd. OUNZ, Decin, prednosta MUDr. J. Rousek
(SHOCK prev & control)
(ANALGESICS AND ANTIPYRETICS, ther)

KONRAD,B.; HONSA,K.; KLEMENT, M.

Effect of neuroplegia on wound healing. (Communication 2). Rozhl. chir. 39 no.6:380-383 Je '60.

1. Kozni klinika university v Brne, prednosta prof. MUDr. J.Horacek Vyzkumny ustav traumatologicky, reditel prof. MUDr. V.Novak.
(WOUND HEALING)
(HIBERNATION ARTIFICIAL)

KROUPA, J.; KLEMENT, M.

Evaluation of sequelae of soft joint injury. Rozhl.chir.39 no.12:833-841 D '60.

1. Vyskumny ustav traumatologicky v Brne, reditel prof. MUDr. Vladimir Novak.
(JOINTS wds & inj)

KLEMENT, M.; HONSA, K.; MASTNY, V.

Estimation of disorders of mobility of the large joints. Rozhl. chir. 43 no.11:759-763 N '64.

1. Vyzkumny ustav traumatologicky v Brne (reditel prof. dr. V. Novak, DrSc.).

KLEMENT, R.

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TITLE: Absorption of Radio Waves in the Ionosphere From the Radio-Observations on the Artificial Earth Satellites (Pogloshcheniye radiovoln v ionosfere po radionablyudeniyam za iskusstvennymi sputnikami zemli)

PERIODICAL: Radiotekhnika i elektronika, 1958, Vol 3, Nr 9, pp 1107-1121 (USSR)

ABSTRACT: The radio waves propagated in an ionised medium are attenuated due to the collisions of the charged particles which undergo harmonic motion under the influence of the field. In this work the absorption coefficients of radio waves in the ionosphere are calculated by employing the Kazantsev method (Refs.1, 2 and 3). The method is valid under the following assumptions: (1) the absorption is determined for those segments of the radio wave trajectory at which it actually takes place, that is, in the ionised layers of the atmosphere; (2) two types of overall absorption are considered; these have a different frequency dependence. The absorption of waves radiated from the artificial Earth satellites in the ionised layers lying below the layer F_2 (layers D, E and F_1) was the absorption of the first type (transmission of waves through a layer). As

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regards layer F_2 , the two Soviet satellites were sometimes above it (especially in the Northern Hemisphere) and sometimes below it. The following three cases of the absorption coefficient are therefore considered: a) transmission of waves through layers D, E, and F_1, b) reflection of waves from the F_2-layer, and c) transmission of waves through layer F_2 . First, expressions for the attenuation coefficients are derived theoretically. For this purpose it is assumed that the electron concentration of an ionised layer can be expressed by:

$$N = N_{max}\left(\frac{2h}{h_m} - \frac{h^2}{h_m^2}\right)^2 \qquad (1)$$

where h is the height of the lower boundary of the layer and h_m is the half-thickness of the layer. For the

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transmission of waves through layers D, E, F_1, the number of electron collisions at a height h can be expressed by Eq.(2) and the integral absorption coefficient by Eq.(3), where H is the height of the atmosphere and $a = f/f_{kp}$, where f_{kp} is the critical frequency. Eq.(3) can be expanded into Eq.(4) or for the case of $f \gg f_{kp}$ it can be expressed by Eq.(5). The absorption coefficient for the case of the waves reflected from layer F_2 is expressed by Eq.(8), where h_o is the true height of reflection above the lower boundary of the layer. If the electron concentration is given by the bi-parabolic law (see Eq.1), this absorption coefficient is expressed by Eq.(10), where F and E are complete elliptical integrals of the first and the second kind, respectively. The absorption during the passage of waves through F_2 is expressed by Eq.(14) for the lower region of the layer and by Eq.(15) for the upper region; a parabolic law for the electron concentration (see Eq.13) was assumed in these equations. If the