16(2) SOV/2-59-3-5/13

AUTHORS: Balevskiy, D., and Tsonev, V.

TITLE: Experience With Spot-Summary of Census Results in the Bulgarian Republic. (Opyt vyborochnoy svodki materialov perepisi naseleniya Narodnoy Respubliki Bolgarii).

PERIODICAL: Vestnik statistiki, 1959, Nr 3, pp 41-48 (USSR)

ABSTRACT: Preliminary approximate results of the 1956 census in Bulgaria were obtained in a 5% spot summary (method of Indian Professor P.Ch.Mekhalonobis). A preliminary summary for all the 20,000 indices used in that census being impossible, the preliminary summary was calculated for only 30 major indices. The article includes the calculations and the formulae used. It was stated after the complete data procession, that the errors of the preliminary summary were correctly estimated and did not exceed practically permissible values. The method is recommended for the use in future.

Card 1/2

PATARINSKI, PENKO D.

Tekhnicheski izmervaniia na razmerite. [Sofiya] Nauka i izjustvo [1951]
(Vzaimozamenlaemost v mashinostroeneto) [The technical measurement of dimensions; precision instruments in the construction of tools. Vol. 1. Measurement of lengths.]

SO: Monthly List of East European Accessions, Vol. 3, No. 2, Library of Congress, February, 1954, Uncl.

PATARINSKI, P.D.; NIKOLOV, R.Kh. (Bolgarskaya Narodnaya Respublika)

Noncontact measurement of displacements in machine tools. Stan.i instr. 33 no.6:36-37 Je '62. (MIRA 15:7)
(Machine tools) (Strain gauges)

PATARKALISHVILI, N.M.

Pathogenesis and clinical treatment of relapses of typhoid and paratyphoid fever. Soob. AN Gruz. SSR 28 no.5:621-627 My '62. (MIRA 18:5)

1. Tbilisskiy gosudarstvennyy meditsinskiy institut. Submitted March 15, 1961.

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Addition of hydrogen to acetylene derivatives. Catalytic hydrogenation of [illegible]. I. N. Gverdtsiteli and N. G. Paterva (*J. gen. Chem., U.S.S.R.*, 1949, 19, 1679—1682 (U.S. transl., 1481—1484)).—The effect of substituents on the hydrogenation of acetylenic glycols is studied by the hydrogenation of 1-(3'-hydroxy-3'-methylpent-1'-yn-1'-yl)cyclopentan-1-ol in the presence of colloidal Pd and Pt black. The rate of hydrogenation of tetramethylbutyne-1 : 4-diol is compared and the products described.

EtMgBr is treated with 3-hydroxy-3-methylpent-1-yne and, after heating for 4 hr., cyclopentanone is added and the product decomposed with moist Et_2O, giving 1-(3'-hydroxy-3'-methylpent-1'-yn-1'-yl)cyclopentan-1-ol, $C_{11}H_{18}O_2$ (43·7%), m.p. 80—83°. This is hydrogenated in EtOH; with colloidal Pd, one mol. of H_2 adds rapidly and the velocity then decreases; with Pt black H_2 adds smoothly, without a break, to saturation. On evaporation of the EtOH from the half-saturated product 1-(3'-hydroxy-3'-methylpent-1'-en-1'-yl)cyclopentan-1-ol, $C_{11}H_{20}O_2$, m.p. 84—86°, is obtained, and from the saturated product, 1-(3'-hydroxy-3'-methylpentyl)cyclopentan-1-ol, $C_{11}H_{22}O_2$, m.p. 83—84°, is obtained.

E. J. H. Birch.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

VESELOV, S.I.; GUSHCHINA, N.; MAKUSHKIN, L.G.; RULINA, L.B.; CHICHILO, I.K.; SHABUNIN, Ye.M.; CHILIKIN, M.G., prof.; YUSHKOV, S.B.; GOSIS, I.N.; RYABTSEV, N.I.; KRUPOVICH, V.I.; PETROV, N.I.; PATARUYEV, A.D.; BEYRAKH, Z. Ya., doktor tekhn. nauk

Twenty-first anniversary of the publication "Promyshlennaia energetika". Prom. energ. 21 no. 1:5-7 Ja '66 (MIRA 19:1)

1. Nachal'nik Gosudarstvennoy inspektsii po energeticheskomu nadzoru Ministerstva energetiki i elektrifikatsii SSSR (for Veselov). 2. Moskovskoye pravleniye nauchno-tekhnicheskogo obshchestva energeticheskoy promyshlennosti (for Gushchina). 3. Predsedatel' Sverdlovskogo pravleniya Nauchno-tekhnicheskogo obshchestva energeticheskoy promyshlennosti (for Makushkin). 4. Glavnyy energetik Pervogo gosudarstvennogo podshipnikovogo zavoda (for Chichilo). 5. Glavnyy energetik Moskovskogo metallurgicheskogo zavoda "Serp i molot" (for Shabunin). 6. Rektor Moskovskogo energeticheskogo instituta (for Chilikin). 7. Glavnyy inzhener instituta Tyazhpromelektroproyekt (for Krupovich). 8. Glavnyy konstruktor Moskovskogo zavoda teplovoy avtomatiki (for Beyrakh).

ACCESSION NR: AP4043636 S/0056/64/047/002/0598/0600

AUTHORS: Baty*yev, E. G.; Patashinskiy, A. Z.; Pokrovskiy, V. L.

TITLE: Behavior of thermodynamic quantities near the Lambda point

SOURCE: Zh. eksper. i teor. fiz., v. 47, no. 2, 1964, 598-600

TOPIC TAGS: helium, specific heat, chemical potential, lambda transition

ABSTRACT: In view of the lack of agreement between the results of earlier investigations, the authors construct a semi-phenomenological theory of the λ transition in helium, which agrees with the experimental data. This theory is based on two facts: 1) The specific heat has a logarithmic behavior near the λ curve. 2) The dimensionless quantity $(\delta\mu/\delta T)_\lambda$ (where μ -- chemical potential) has a large value. This is equivalent to assuming that the λ curve has a large slope in the (μ, T) plane and that C_p has a logarithmic singularity

Card 1/2

on the entire λ curve. The assumption that $(\delta\mu/\delta T)_\lambda$ is large signifies that perturbation theory becomes inapplicable at rather small values of the coupling constant. It is shown that the theory can be verified quantitatively at the λ point. Orig. art. has: 11 formulas.

ASSOCIATION: Institut radiofiziki i elektroniki Siberskogo otdeneniya Akademii nauk SSSR (Institute of Radiophysics and Electronics, Siberian Department, Academy of Sciences SSSR)

SUBMITTED: 19Feb64 ENCL: 00

SUB CODE: TD, GP NR REF SOV: 000 OTHER: 005

ACCESSION NR: AP4042573 S/0056/64/046/006/2093/2101

AUTHORS: Baty*yev, E. G.; Patashinskiy, A. Z.; Pokrovskiy, V. L.

TITLE: Phase transition in a superconductor

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 6, 1964, 2093-2101

TOPIC TAGS: superconductivity, pair theory, boson, Fermi liquid, phase transition

ABSTRACT: It is pointed out that the model of a Hamiltonian in which only the interaction of particles having opposite momenta is taken into account is inadequate for the development of the theory of the phase transition in a superconductor, since it includes the interaction of large-dimension fluctuations. In order to provide a more realistic model, the authors consider a Fermi liquid, the transition temperature T_0 of which is small compared with the degeneracy tem-

Card 1/3

perature μ (or with the Debye temperature in the case of a metal). It is shown that the phase transition picture is the same as for a Bose liquid, in which Cooper pairs play the role of Bose particles. Only temperatures $T \geq T_0$ are considered. It is shown that the region of logarithmic phase transition in a superconductor is very small, $(T - T_0)/T_0 \sim (T_0/\mu)^4$, owing to the weakness of the pair interaction resulting from the small density and small effective mass. Such a narrow temperature interval is too small for experimental purposes. It follows from the results that the thermodynamics of the superconductors as given the Bardeen, Cooper, and Schrieffer model is valid down to the interval of the logarithmic phase transition. Orig. art. has: 48 formulas.

ASSOCIATION: Institut radiofiziki i elektroniki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Radiophysics and Electronics, Siberian Department, Academy of Sciences SSSR)

ACCESSION NR: AP4042573

SUBMITTED: 11Dec63 DATE ACQ: ENCL: 00

SUB CODE: GP, NP NR REF SOV: 006 OTHER: 002

Card 3/3

PATASHINSKIY, A.Z.; POKROVSKIY, V.L.; KHALATNIKOV, I.M.

Regge poles in problems involving a quasi-classical potential well. Zhur. eksp. i teor. fiz. 44 no.6:2062-2078 Je '63.
(MIRA 16:6)

1. Institut fizicheskikh problem AN SSSR i Institut teplofiziki Sibirskogo otdeleniya AN SSSR.
(Potential, Theory of)

PATASHINSKIY, A.Z.; POKROVSKIY, V.L.; KHALATNIKOV, I.M.

Regier poles in nonrelativistic quantum mechanics. Zhur. eksp. i teor. fiz. 43 no.3:1117-1119 '62. (MIRA 15:10)

1. Institut fizicheskikh problem AN SSSR, Institut radiofiziki i elektroniki Sibirskogo otdeleniya AN SSSR i Institut teplofiziki Sibirskogo otdeleniya AN SSSR.
(Matrices) (Quantum theory)

PATASHINSKIY, A. Z.

A. Z. Patashinskiy and V. L. Pokrovskiy, "Phase Transitions of the Second Kind in Bose-Liquids."

report submitted for the Conference on Solid State Theory, held in Moscow, December 2-12, 1963, sponsored by the Soviet Academy of Sciences.

PATASHINSKIY, A.Z.; POKROVSKIY, V.L.; KHALATNIKOV, I.M.

Studying of an S-matrix in a complex space of angular momenta in the quasi-classical case. Zhur. eksp. i teor. fiz. 45 no.3:760-771 S '63. (MIRA 16:10)

1. Institut teplofiziki Sibirskogo otdeleniya AN SSSR, Institut radiofiziki i elektroniki Sibirskogo otdeleniya AN SSSR i Institut fizicheskikh problem AN SSSR.
(Matrices) (Quantum theory)

L 13565-63 EWT(1)/FCC(w)/BDS AFFTC/ASD/ESD-3 IJP(C)

ACCESSION NR: AP3003139 S/0056/63/044/006/2062/2078

AUTHOR: Patashinskiy, A. Z.; Pokrovskiy, V. L.; Khalatnikov, I. M.

TITLE: Regge poles in problems concerning a quasi-classical potential well

SOURCE: Zhurnal eksper. i teor. fiziki, v. 44, no. 6, 1963, 2062-2078

TOPIC TAGS: Regge poles, rectangular spherical potential well, physical and unphysical poles, levels and resonances

ABSTRACT: A method recently proposed by the authors for finding the poles of the scattering phase shift (Regge poles) for the quasi-classical potentials (ZhETF v. 43, 1117, 1962) is used to analyze the simplest problem of Regge poles for the case of rectangular spherically-symetric potential well. In this case the scattering phase-shift can be explicitly expressed in terms of Bessel functions. In looking for the Regge poles, the previously developed method is used to follow the properties of the phase shift along level lines. Two series of poles are found, "physical" and "unphysical." The character of the motion of the poles with variation of the energy is then clarified and finally some general relations are established between the number of levels and

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L 13565-63
ACCESSION NR: AP3003139

the number of resonances. Although the simplest potential well was chosen in order not to complicate the calculations, the results remain valid essentially for potentials that have singularities outside the point r = 0. Original article has 5 figures and 97 formulas.

ASSOCIATION: Institut fizicheskikh problem Akademii nauk SSSR; Institut teplofiziki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Physics problems, Acad. Sci. SSSR; Institute of Thermophysics, Siberian Department, Acad. Sci. SSSR)

SUBMITTED: 17Jan63 DATE ACQ: 23Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 005 OTHER: 005

2/2

BATYYEV, E.G.; PATASHINSKIY, A.Z.; POKROVSKIY, V.L.

Behavior of thermodynamic quantities near the η-curve. Zhur. eksp. i teor. fiz. 47 no.2:798-800 Ag '64. (MIRA 17:10)

1. Institut radiofiziki i elektroniki Sibirskogo otdeleniya AN SSSR.

L 24392-66 EWT(1)/EPF(n)-2/ETC(m)-6 WW/GS

ACC NR: AP6010436 SOURCE CODE: UR/0386/66/003/005/0208/0212

AUTHOR: Patashinskiy, A. Z.

ORG: VNIIFTRI of the Siberian Department of the Academy of Sciences, SSSR (VNIIFTRI Sibirskogo otdeleniya Akademii nauk SSSR)

TITLE: Density correlation near the critical point

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 3, no. 5, 1966, 208-212

TOPIC TAGS: critical point, correlation function, fluid density, phase transition, thermodynamic characteristic, potential energy

ABSTRACT: The purpose of the article is to determine, within the framework of the phenomenological theory, the dependence of the correlation function of the density on the distance near the critical point of a liquid-vapor system, using data from thermodynamic experiments. The assumptions under which the calculations are made are similar to those made by the author earlier (with V. L. Pokrovskiy, ZhETF v. 50, 439, 1966). The increment in the number of particles in a given region due to a change in the thermodynamic potential is calculated, and a final expression is given for the density as a function of the relative changes of the critical potential and of the temperature difference. The correlation function is then shown to be proportional to the distance raised to the -3/2 power. The thermodynamic potential used to obtain this deduction leads to thermodynamic consequences which agree qualitative-

Card 1/2

L 24392-66

ACC NR: AP6010436

ly with theoretical results obtained by M. Ya. Azbel' et al. (ZhETF v. 46, 673, 1964), but it is stated in the conclusion that a more direct check, for example by scattering experiments, would be very useful. The author is grateful to V. L. Pokrovskiy for discussions. Orig. art. has: 20 formulas.

SUB CODE: 20/ SUBM DATE: 15Jan66/ ORIG REF: 004/ OTH REF: 002

Card 2/2 ULR

PATASHINSKIY, A.Z.

Position of singularities in Feynman diagrams. Zhur.eksp.i teor.fiz. 42 no.3:812-819 Mr '62. (MIRA 15:4)

1. Institut teplofiziki Sibirskogo otdeleniya AN SSSR.
(Quantum field theory)

41132
S/056/62/043/004/034/061
B106/B102

AUTHOR: Patashinskiy, A. Z.

TITLE: Integral representations in perturbation theory

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 4(10), 1962, 1371-1377

TEXT: Integral representations of Feynman graphs drawn with the aid of perturbation theory are considered. The boundary of a region in which the spectral function vanishes when the masses are equal is considered. To find the intersection of such analytical regions of all graphs of a given process the authors used the technique of constructing major Feynman graphs (N. Nakanishi. Suppl. Progr. Theor. Phys., 18, 1, 1961). Thereby a problem with arbitrary interaction can be reduced to a problem in which three lines join at each vertex. There are 3 figures.

ASSOCIATION: Institut teplofiziki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Heat Physics of the Siberian Department of the Academy of Sciences USSR)

SUBMITTED: April 12, 1962

Card 1/1

PATASHINSKIY, A.Z.; RUDIK, A.P.; SUDAKOV, V.V.

Characteristics of the scattering amplitude in pertrubation theory. Zhur. eksp. i teor. fiz. 40 no.1:298-311 Ja '61. (MIRA 14:6)

(Field theory)

PATASHINSKIY, A.Z.

Symmetry of solutions obtained in the determination of characteristic of Feynman diagrams by Landau's method. Zhur. eksp. i teor. fiz. 39 no. 6:1744-1746 D '60. (MIRA 14:1)

1. Sibirskoye otdeleniye Akademii nauk SSSR.
(Field theory)

88453

S/056/60/039/006/045/063
B006/B063

24.4500

AUTHOR: Patashinskiy, A. Z.

TITLE: Symmetry of Solutions Obtained by Landau's Method for Determining the Position of Singularities of Feynman Graphs

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 6(12), pp. 1744-1746

TEXT: The author has demonstrated that for some graphs, the solutions obtained by Landau's method for determining the position of singularities are symmetric. The singularities were determined by L. D. Landau's method for symmetric graphs, i.e., they had to be symmetric with respect to transformations, in which the invariants characterizing the position of singularities do not vary. In the quadratic graphs concerned, these symmetry-conserving transformations consist in reflections and rotations through the angle π. If symmetric solutions are assumed to exist for the angles and the parameters α, the calculations for the determination of singularities in symmetric graphs may be simplified considerably. The assumption of symmetry is related to the problem of the uniqueness of the solution with

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Symmetry of Solutions Obtained by Landau's Method for Determining the Position of Singularities of Feynman Graphs

S/056/60/039/006/045/063
B006/B063

respect to α for given external invariants of Landau's set of equations: $\sum \alpha_i q_i = 0$, $\alpha_i > 0$, $q_i^2 - m_i^2 = 0$. This equation, together with the theorems of conservation, defines the inner vectors q as linear combinations of the outer vectors p with the coefficients depending on α. The set of equations $P_i \left[\alpha_k, (p_s p_m)\right] = 0$, where i,k, = 1 ... l; s, m = 1, 2, 3, is studied next. l is the number of inner lines of the graph; P_i is a polynomial homogeneous with respect to α. For symmetry-conserving transformations of a symmetric graph, this set goes over into itself. A unique solution to this set obtained with given values of the outer parameters is symmetric. The symmetries of α and the angles are clearly interrelated. The asymmetric solutions available for symmetric graphs do not satisfy the condition of positive α_i. A general proof for the assumption of symmetric solutions cannot be given. For the quadratic graphs under consideration it has been shown that the symmetry of the solution follows from the condition $\alpha_i > 0$.

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Symmetry of Solutions Obtained by Landau's Method for Determining the Position of Singularities of Feynman Graphs

S/056/60/039/006/045/063
B006/B063

V. V. Sudakov is thanked for interest and advice. There are 2 figures and 2 Soviet references.

ASSOCIATION: Sibirskoye otdeleniye Akademii nauk SSSR (Siberian Branch of the Academy of Sciences USSR)

SUBMITTED: July 9, 1960

Card 3/3

ACCESSION NR: AP4025932 S/0056/64/046/003/0994/1016

AUTHORS: Patashinskiy, A. Z.; Pokrovskiy, V. L.

TITLE: Second order phase transition in a Bose liquid

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 46, no. 3, 1964, 994-1016

TOPIC TAGS: liquid helium, Bose liquid, second order phase transition, two particle interaction, many particle interaction, transition temperature, Green's function technique, diagram technique, quasiparticle spectrum, fluctuation spectrum, specific heat

ABSTRACT: A theory is proposed for second-order phase transitions in liquid helium. It is shown that not only two-particle but many-particle interactions become important, so that the only smallness parameter introduced in the theory is the relative absolute deviation from the transition temperature $|T - T_0|/T_0$. The calculations

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ACCESSION NR: AP4025932

employ Green's-function and diagram techniques. The chief quantities studied are the Green's function, which determines the fluctuation spectrum, and the total vertex part of the diagram, which describes the two-particle scattering. The liquid helium near the phase transition curve is assumed to be an ideal gas of quasiparticle with a spectrum $\varepsilon = Ap^{3/2}$, and physical arguments are advanced in favor of this assumption. The theory shows that the width of the phase transition region depends on the interaction potential between the particles, but the fluctuation spectrum and the particle scattering amplitude are the same for any positive potential, and are independent of the details of the interaction at small distances. At small momenta the effective interaction is determined by a dimensionless charge, which is defined uniquely by the consistency conditions for the theory, but which cannot be determined accurately because the equations are too complicated. Some arguments are advanced to prove that the mathematical scheme proposed is the only possible one. The main theoretical conclusions of the theory are:

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ACCESSION NR: AP4025932

(1) the specific heat has a logarithmic behavior on both sides of the equilibrium curve; (2) the coefficients preceding the term $\ln(|T - T_0|/T_0)$ are the same on both sides of the λ curve; (3) the specific heat experiences a finite jump which is superimposed on the logarithmic curve. All the results have been confirmed experimentally. The problem of second-order phase transitions and its present status are discussed. "We thank A. A. Vedenov for numerous discussions contributing to the clarification of the physical aspects of the problem, A. I. Larkin, V. V. Sudakov, D. V. Shirkov, G. M. Eliashberg, and other participants of the second Odessa Symposium on Theoretical Physics for fruitful discussion, and E. G. Baty*yev, S. K. Savviny*kh, and G. I. Surdutovich for useful remarks which helped eliminate some errors. The authors point to the role played by Yu. B. Rumer whose undiminishing enthusiasm has supported research in this field for many years." Orig. art. has: 1 figure and 108 formulas.

ACCESSION NR: AP4025932

ASSOCIATION: Institut teplofiziki Sibirskogo otdeleniya AN SSSR (Institute of Heat Physics, Siberian Department, Academy of Sciences USSR); Institut radiofiziki i elektronikia Sibirskogo otdeleniya AN SSSR (Institute of Radiophysics and Electronics, Siberian Department AN SSSR)

SUBMITTED: 14Aug63 DATE ACQ: 16Apr64 ENCL: 00

SUB CODE: PH NR REF SOV: 006 OTHER: 004

Card 4/4

PATASHINSKIY, A.Z.

Integral representations in perturbation theory. Zhur. eksp. i teor. fiz. 43 no.4:1371-1377 O '62. (MIRA 15:11)

1. Institut teplofiziki Sibirskogo otdeleniya AN SSSR.
(Perturbation)
(Calculus, Integral)

PATASHINSKIY, A. Z.; POKROVSKIY, V. L.

Second-order phase transition in a Bose fluid. Zhur.eksp. i teor. fiz. 46 no. 3:994-1016 Mr '64. (MIRA 17:5)

S/056/61/040/001/028/037
B102/B212

24.4500

AUTHORS: Patashinskiy, A. Z., Rudik, A. P., Sudakov, V. V.

TITLE: Singularities of scattering amplitudes in the perturbation theory

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40, no. 1, 1961, 298-311

TEXT: A study has been made of the position of singularities of the scattering amplitude and its asymptotic behavior in the perturbation theory. Due to conservation of the four-momentum of scattered particles, the four-momenta of the scattering and virtual particles are located in a three-dimensional space for any perturbation-theoretical graph. The three linearly independent four-vectors are chosen for basis vectors: $W = p_1+p_2$, $Q = p_1+p_3$, $P = p_1+p_4$. For $p_i^2 = M_i^2$ $(i=1,..4)$

$$2QW = M_1^2 - M_2^2 - M_3^2 + M_4^2, \quad 2WP = M_1^2 - M_2^2 + M_3^2 - M_4^2,$$
$$2QP = M_1^2 + M_2^2 - M_3^2 - M_4^2, \quad Q^2 + W^2 + P^2 = M_1^2 + M_2^2 + M_3^2 + M_4^2. \quad (1.2)$$

holds.

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S/056/61/040/001/028/037
B102/B212

Singularities of scattering...

The scattering amplitude is characterized by six parameters; for convenience they are chosen to be: M_i^2 and the invariants W^2 and Q^2. Only the singularities with real invariants are considered. There is a certain relation between W^2, Q^2 and the masses of the virtual particles at the singularity; this relation is characterized for graphs of the type shown in Fig.1 by the ratios between M_i^2 and the squares of masses of virtual particles. Fig.2 shows some singular curves of this graph. The authors then wanted to find out under what conditions anomalous singularities do occur for more complicated (than Fig.1) graphs of perturbation theory. An analysis is made for an asymptotic case, where one invariant approaches infinity. The condition that $|W^2(Q^2)| < |W^2(\infty)|$ holds as a criterion for the anomalous type of singular curves. First of all the singularities of the "open envelope" type graph (Fig.3) are studied and the asymptotic behavior of the position of its singularities is studied for one of the invariants approaching infinity. It can be shown

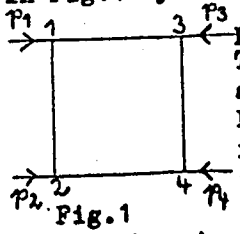

Fig.1

Singularities of scattering...

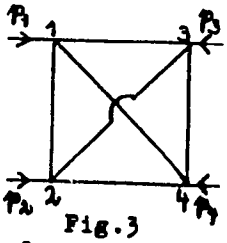

Fig.3

that the singular curve of the "open envelope" has several branches, two in the general case. The two possibilities $\varkappa < 1$ ($\varepsilon \neq 0$, $\varepsilon = 0$) and $\varkappa = 1$ are studied separately. In the following a method is developed to reduce the problem of determining the singularities of any perturbation-theoretical graph with four external lines to the problem of "open envelope" graphs with certain masses of virtual particles. Theorem 1 is formulated as: The singular curves of any p.-t. graph for the scattering amplitude coincide with the "open-envelope" graph for virtual-particle masses which are functions of invariants. In the following the two effective-mass minorants are determined. The normalized effective masses are used to determine the type of the singular curves. Here, theorem 2 is formulated: Any scattering diagram asymptotically has no anomalous singularities if the part which complicates it rests on the outer vertex of a simpler diagram (of the type shown in Fig.1, or 4, or 3), and if the asymptotically simpler diagram has no anomalous singularities either. The results are used to examine

Card 3/5

89222
S/056/61/040/001/028/037
B102/B212

Singularities of scattering...

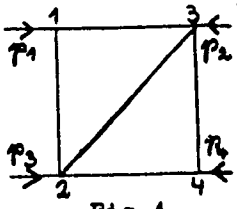

Fig.4

$\pi\pi$, KK, and NN scattering. Here, theorem 3 is formulated: In the scattering of homogeneous very light elementary particles with a given quantum characteristics (ability for a strong interaction, strangeness, baryonic charge, etc.) no anomalous singularities will occur in any approximation of perturbation theory, if the transferred momentum approaches infinity. Finally the authors thank V. N. Gribov, B. L. Ioffe, L. D. Landau, L. B. Okun', and I. Ya. Pomeranchuk for discussions. V. A. Kolkunov and V. S. Vladimirov are mentioned. There are 5 figures and 9 references: 5 Soviet-bloc and 3 non-Soviet-bloc.

SUBMITTED: July 29, 1960

Card 4/5

Singularities of scattering...

S/056/61/040/001/028/037
B102/B212

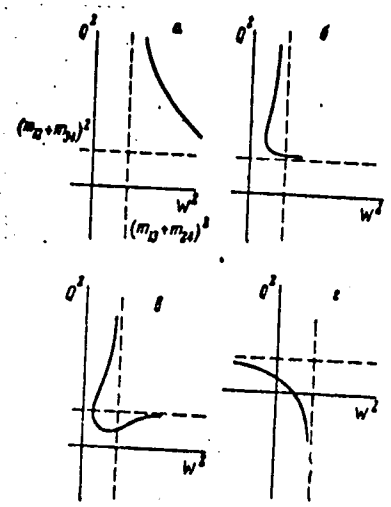

Fig. 2 Рис. 2

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S/056/62/042/003/027/049
B102/B138

AUTHOR: Matashinskiy, A. Z.

TITLE: The position of the singularities of Feynman graphs

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 3, 1962, 812-819

TEXT: It is shown that the denominator of the integrand of the parametric representation of Feynman integrals, $f = \sum_{ik} \alpha_{ik}(q_{ik}^2 - m_{ik}^2)$ can be written as $f = k_{ik,lm} q'_{ik} q'_{lm} + \varphi(\alpha,p,m)$ if that part of the quadratic form which depends on the external momenta is eliminated. After integrating over the internal momenta, a function of α,m and the external vectors p_i, $\varphi(\alpha,m,p)$ remains, whose properties are studied. The results are used to determine the position of the singular curves. i, k,.. characterize the vertices of the graph, p_i is the outer four-momentum to the vertex i, $q_{ik}=-q_{ki}$ is the momentum of the virtual particle, $\alpha_{ik}=\alpha_{ki}$ is the Feynman parameter

Card 1/3

The position of the singularities ...

and $m_{ik} = m_{ki}$ the mass, all refered to the line ik; q'_{ik} is obtained from q_{ik} by translation. With $q_{ik}=\beta_{ik}(a_i-a_k)$ the conservation law $\sum_k \beta_{ik}(a_i-a_k) = p_i$ is obtained; $= p_i a_i - \sum_{ik} m_{ik}^2/\beta_{ik}$. If one passes over from a graph with n to one with n-1 vertices, β'_{ik} being substituted for β_{ik}: $\sum_{k\neq 0} \beta_{ik}(a_i-a_k) = p_i$. The graph singularities are, according to L. D. Landau (ZhETF, 37, 7, 1959), determined from / $\alpha_{ik}=q_{ik}^2-m_{ik}^2 = 0$, α_{ik} 0; $\beta_{ik}^2(a_i-a_k)^2 = m_{ik}^2$; $\tilde{m}_{ik}^2 = -\beta_{ik}^2$ / $\tilde{\beta}_{ik}^2 = \beta_{ik}^2(a_i-a_k)^2$ is introduced. Since / $\alpha_{ik} = 0$ holds for the singular curve,

$(m_{lm}^{(n)})^2 \alpha_{lm}^{(n)} / \alpha_{is}^{(k)} = (\tilde{m}_{is}^{(k)})^2$, m>k, or $\sum_{lm} \tilde{\alpha}_{lm}^{(n)} (\tilde{m}_{lm}^{(n)})^2 = \sum_{is} \tilde{\alpha}_{is}^{(k)} (m_{is}^{(k)})^2$.

Using these relations, voluminous formulas are derived for the singular

Card 2/3

curves. The asymptote equations of the singular curves are derived for four-tails in zeroth approximation. It is shown that the second asymptote is not contained in all the graphs, and that it is located at larger values of the finite invariant than the usual asymptote of the singular curve for internal-mass variation. L. D. Landau, B. L. Ioffe, A. P. Rudnik, K. A. Ter-Martirosyan and V. V. Sudakov are thanked for discussions. There are 4 figures and 7 references: 4 Soviet and 3 non-Soviet. The three references to English-language publications read as follows: S. Mandelstam. Phys. Rev., 112, 1344, 1958. S. Mandelstam. Phys. Rev., 115, 1741, 1959. S. Mandelstam. Phys. Rev., 115, 1752, 1959.

ASSOCIATION: Institut teplofiziki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Heat Physics of the Siberian Branch of the Academy of Sciences, USSR)

SUBMITTED: August 26, 1961

S/056/62/043/003/059/065
B104/B102

AUTHORS: Patashinskiy, A. Z., Pokrovskiy, V. L., Khalatnikov, I. M.

TITLE: Regge poles in nonrelativistic quantum mechanics

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 3(9), 1962, 1117-1119

TEXT: A method of examining the position of the poles in the complex momentum plane for a large class of potentials was worked out. This method is closely related to that previously established by V. L. Pokrovskiy and I. M. Khalatnikov (ZhETF, 40, 1713, 1961). The nonanalytical potential $U = U_0 < 0$ for $r < a$ and $U = 0$ for $r > a$ is studied on the basis of a semi-classical approximation to Schrödinger's radial equation. From the equations

$$x_1 J'_\nu(x_1)/J_\nu(x_1) = xH^{(1)'}_\nu(x)/H^{(1)}_\nu(x), \quad x^2/a^2 = 2mE,$$
$$x_1^2/a^2 = 2m(E - U_0). \qquad (3)$$

Card 1/3

S,0[illegible] B104/B102

Regge poles in nonrelativistic...

It is concluded that there [illegible] The first [illegible] the left of $\nu = x_1$ (Fig. [illegible]), the second in the upper semiplane above the point x asymptotically approaching the [illegible] $\mathrm{Im}\,\nu = -i$ at $V_0 > 0$. The third series is missing when $V_0 \geq 0$, but approximately symmetric with the second series when $E > 0$. An analytical potential $U(r)$ having singularities in the complex momentum plane is examined. When $E \gg V_0$ the poles are near to those values of ν at which the [illegible] of inversion, $r_1 \approx \nu/k$ and r_2 (Fig. 2). There are two series of poles in the upper semiplane. The first series extends to the right and [illegible] the point $\nu = kr_0$, $k^2 = 2mE$, approaching the real axis asymptotically. The second series is situated right and left of the point $\nu = kr_0$ where the asymptotes $\mathrm{Im}(\nu - kr_0) \sim n/\ln(n)$, $\mathrm{Re}(\nu - kr_0) \sim \mathrm{Im}(\nu - kr_0)/\ln(n)$. The position of the poles in the case of $\min U(r) < E < 0$ is the same as in the case of a potential well with negative energies. There are 2 figures.

Card 2/3

Regge poles in nonrelativistic...

S/056/62/043/001/059/062
B104/B102

ASSOCIATION: Institut fizicheskikh problem Akademii nauk SSSR (Institute of Physical Problems of the Academy of Sciences USSR), Institut radiofiziki i elektroniki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Radiophysics and Electronics of the Siberian Department of the Academy of Sciences USSR), Institut teplofiziki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Heat Physics of the Siberian Department of the Academy of Sciences USSR)

SUBMITTED: July 4, 1962

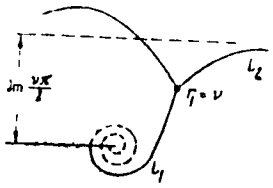


Fig. 1

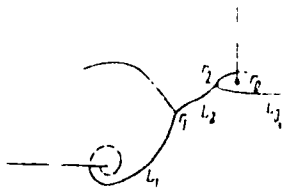
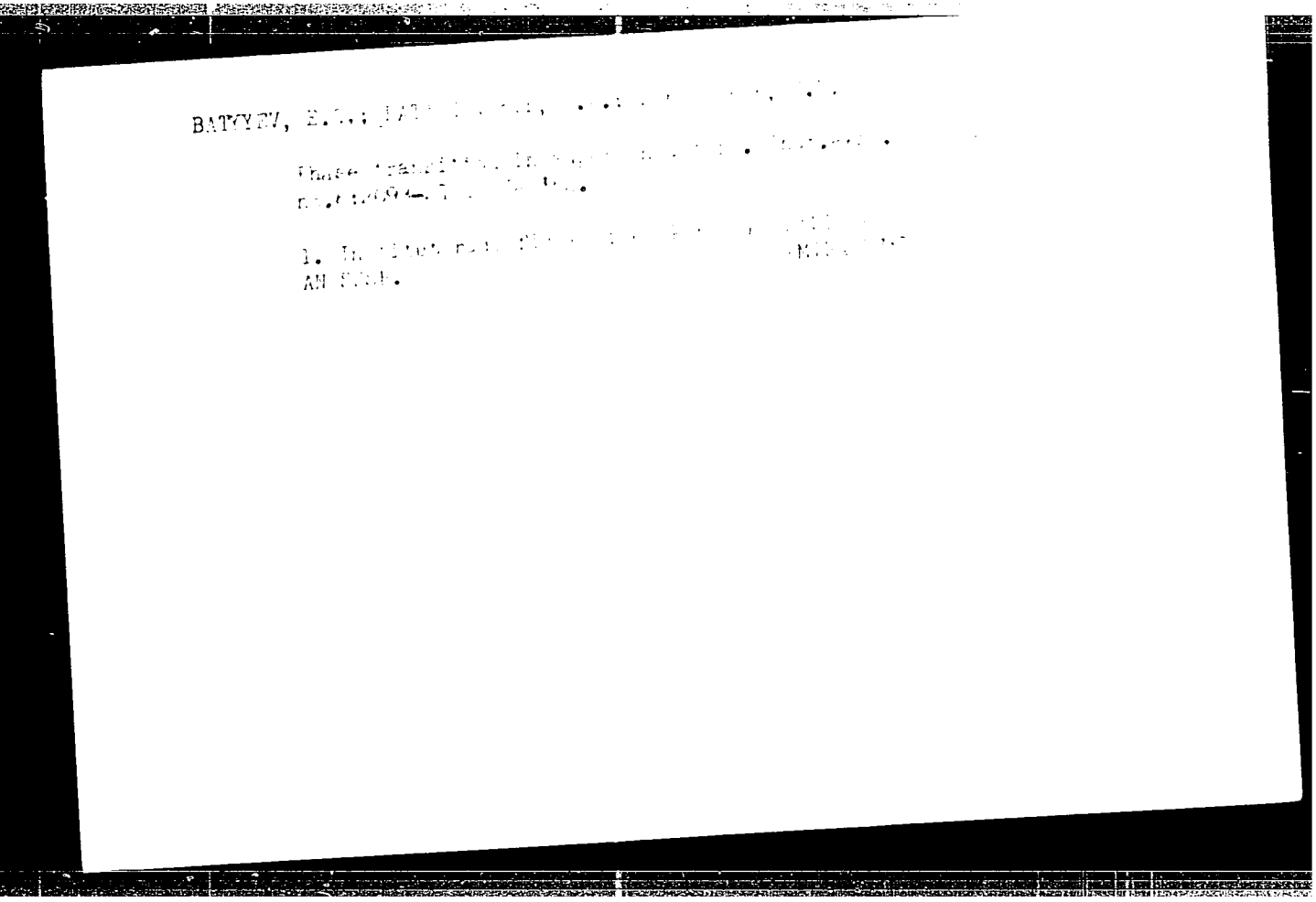


Fig. 2

Card 2/3

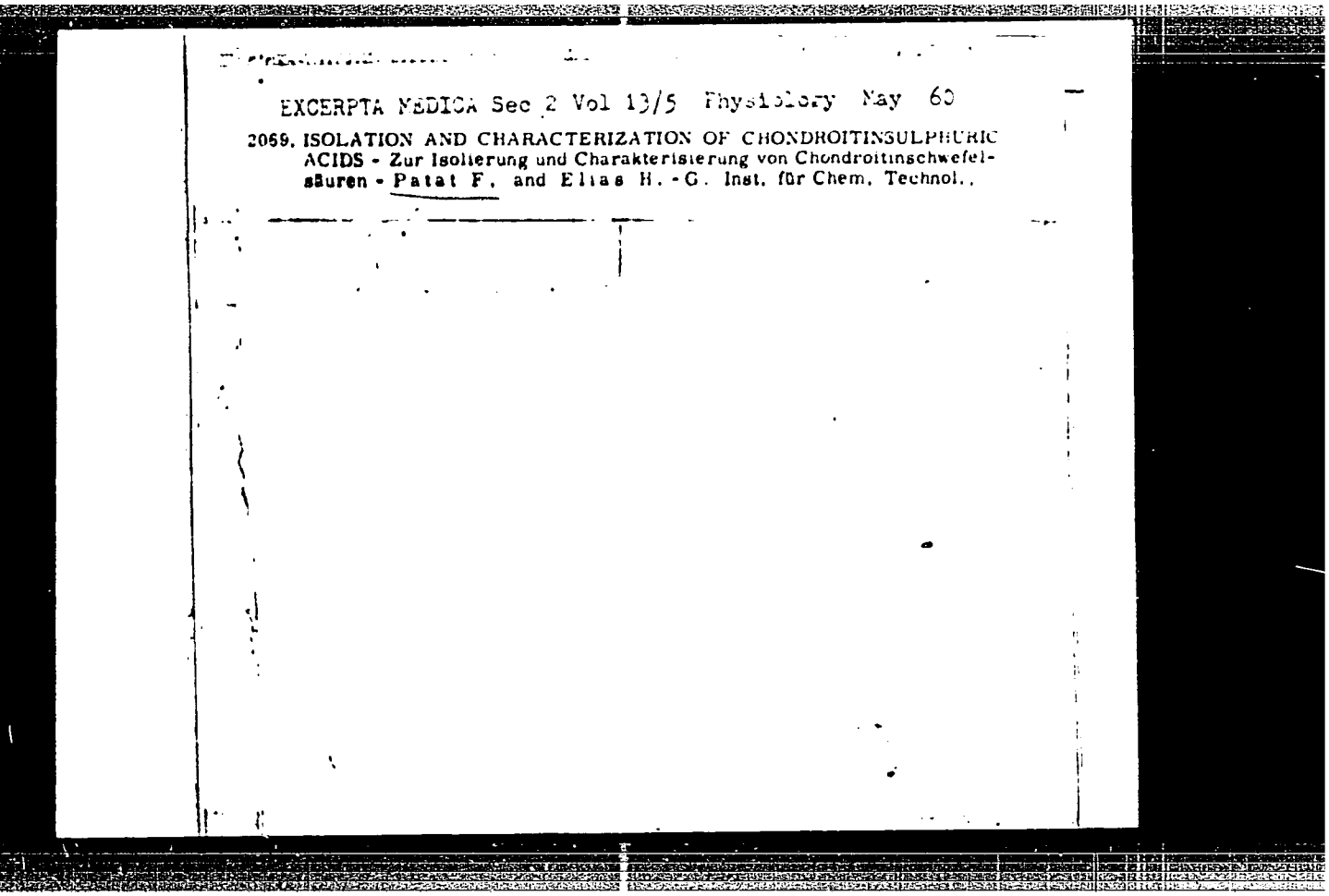


BATYEV, E.

1.

AM

PATARINSKIY, N.



EXCERPTA MEDICA Sec 2 Vol 13/5 Physiology May 60

2069. ISOLATION AND CHARACTERIZATION OF CHONDROITINSULPHURIC ACIDS - Zur Isolierung und Charakterisierung von Chondroitinschwefelsäuren - Patat F. and Elias H.-G. Inst. für Chem. Technol.,

EXCERPTA MEDICA Sec 16 Vol 7/7 Cancer July 59

2799. **Hemangiopericytoma uteri (Hungarian text)** PATAT P. Várpalotai Városi Tanács Kórháza Szülészet-Nögyógyászati, Osztályának *Mag. Onkol.* 1958, 11, 2 (93–98) Illus. 4

Case report of a 35-year-old woman, who was operated on for myoma. Microscopical examination showed haemangiopericytoma. Pericytoma of the female reproductive organs has been reported in a few cases only. The tumour is relatively benign, but local recurrences are relatively common; it may even be malignant. This patient is well one year after operation. Sümegi – Stockholm

PATAT, Pal, Dr.

Pregnancy and delivery after isolated tuberculous endometritis. Orv. hetil. 100 no.7:268-269 15 Feb 59.

1. A Zirci JT Korhaza (igazgato: Lukacz Sandor dr.) Szuleszetnogyogyaszati Osztalyanak (foorvos: Patat Pal dr.) kozlemenye.
(TUBERCULOSIS, FEMALE GENITAL, in pregn.
endometrial, with normal delivery (Hun))
(PREGNANCY, in various dis.
tuberc. of endometrium with normal delivery (Hun))

PATAT, Pal; BAGDY, Daniel

Penetration of obstructed epithelial tube; studies on the recanalization of the tube. Magy. noorv. lap. 20 no.6:347-355 Dec 57.

1. A Zirci JT Korhaza (igazgato-foorvos: Lukacz Sandor) Szuleszet-nogyogyaszati Osztalyanak (foorvos: Patat Pal) es a Gyogyszeripari Kutato Intezet Biokemiai Osztalyanak (vezeto: Molnar Istvan) kozlemenye.

(FALLOPIAN TUBES, surg.
exper., recanalization using fibrin tubes (Hun))

PATAT, Pal, dr.

Surgical results in therapy of genital tuberculosis. Magy. noorv. lap. 19 no.5:290-295 Sept 56.

1. A Dobai Tbc. Gyogyintezet (Igaz. -foorvos: Szederkenyi, Janos, dr.) es a Zirci JT Korhaza (igaz. foorvos: Lukasz, Sandor, dr.) Nobeteg Osztaly (foorvos: Patat, Pal, dr.) kozl.
(TUBERCULOSIS, FEMALE GENITAL, surg.
(Hun))

PATAT, Pal, dr.; SZOTS, Bertalan, dr.

On a new additional therapeutic method in the treatment of female genital tuberculosis. (Preliminary report). Orv. hetil. 105 no.32:1503-1504 9 Ag '64.

1. Ajkai Szulootthon (v. foorvos: Patat Pal dr.) Dobai Tbc Gyogyintezet (igazgato: Szots Bertalan dr.).

PATAT PAL

Genital tuberculosis. Tuberkulozis 10 no.5-6:131-135 May-June 57.

1. A zitci JT Korhaza (igazgato: Luksz Sandro dr.) Nobeteg Osztalya (foorvos: Patat Pal dr.) es a Dobai Tbc Intezet (igazgato: Szederkenyi Janos dr.) kozlemenye.
(TUBERCULOSIS, FEMALE GENITAL
(Hun))

PATAT, Pal, Dr.

Sterilization after delivery. Orv. hetil. 98 no.47:1303-1305 24 Nov 57.

1. A Varpalotai Varosi Tanacs Korhaza (igazgato: Patat Pal dr.)
Szuleszetnogyogyaszati Osztalyanak Kozlemenye.
(STERILIZATION, SEXUAL
female, following delivery, periumbilical incision
& tubal ligation (Hun))

PATAT, Pal, dr.

Two rare cases of endometriosis. Magy. noorv.lap.17 no.5:307-312 Sept 54.

1. A zirci JT korhaza (Igazgato: Luksz Sandor dr.) szuleszeti oszuleszeti osztalyanak kozlemenye (Foorvos: Patat Pal dr.)

(ENDOMETRIOSIS,
ovary & sigmoid, surg.(Hun)
(COLON, diseases
endometriosis of sigmoid, surg. (Hun)
(OVARIES, diseases
endometriosis, surg. (Hun)

PATATINSKIY, A.Z.; POKROVSKIY, V.L.; KHALATNIKOV, I.M.

Quasi-classical scattering in a centrally symmetric field.
Zhur. eksp. i teor. fiz. 45 no.4:989-1002 O '63. (MIRA 16:11)

1. Institut fizicheskikh problem AN SSSR.

PATAVA, M.

A center for the exchange of scientific information.

p. 219
Vol. 3, no. 4, 1956
BESEDA VENKOVSKE RODINY
Praha

SO: Monthly List of East European Accessions (EEAL), LC, Vol. 5, no. 12
December 1956

BARNA, Sandor, dr.; ANTAL, Pal, dr.; PATAY, Maria, dr.

Biological aspects of hyperthyroidism. Orv. hetil. 96 no. 20:538-542 15 May 55.

1. A Pestmegyei Korhaz (Rokus) Korbonctani Osztalyanak es a X. Keruleti Kobanyai-uti Egeszseghaznak koslemenye.
(HYPERTHYROIDISM, physiology,)

Patay, J.

HUNGARY / Farm Animals. General Problems. Q-1

Abs Jour: Ref Zhur-Biol., No 23, 1958, 105620.

Author : Patay, J.
Inst : Not given.
Title : Providing Farm Animals with Protein in Hungary.

Orig Pub: Agrartudomany, 1957, 9, No 7, 27-31.

Abstract: State of protein balance in Hungarian economy and certain ways of providing animal husbandry with protein are discussed. -- V. A. Kanzyuba

BARNA, Sandor, dr.; ANTAL, Pal, dr.; PATAY, Maria, dr.

Biological aspects of hyperthyroidism. Orv. hetil. 96 no. 20:538-542 15 May 55.

1. A Pestmegyei Korhaz (Rokus) Korbonctani Osztalyanak es a X. Keruleti Kobanyai-uti Egeszseghaznak kozlemenye.
(HYPERTHYROIDISM, physiology,)

BARNA, Sandor, dr.; ANTAL, Pal, dr.; PATAY, Maria, dr.

Biological aspects of hyperthyroidism. Orv. hetil. 96 no. 20:538-542 15 May 55.

1. A Pestmegyei Korhaz (Rokus) Korbonctani Osztalyanak es a X. Keruleti Kobanyai-uti Egeszseghaznak kozlemenye.
(HYPERTHYROIDISM, physiology,)

ZIMMER, Karoly; SZABO, Zoltan Laszlo; PATAY, Pal

Spectrographic analysis of archaeological finds from the Copper and Bronze ages. Musz elet 18 no.5:15 28 F '63.

ZIMMER, Karoly; SZABO, Zoltan Laszlo; PATAY, Pal

Spectrographic investigation of archaeological finds of the Copper and Bronze ages. Magy kem folyoir 68 no.12:515-519 D '62.

1. Eotvos Lorand Tudomanyegyetem Szervetlen es Analitikai Kemiai Tanszeke, Budapest.

PATAY, P.

Studies on the Copper Age of the environment of Debrecen. p. 15.

EVKONYVE. Deri Museum. Debrecen, Hungary. 1957 (published 1958).

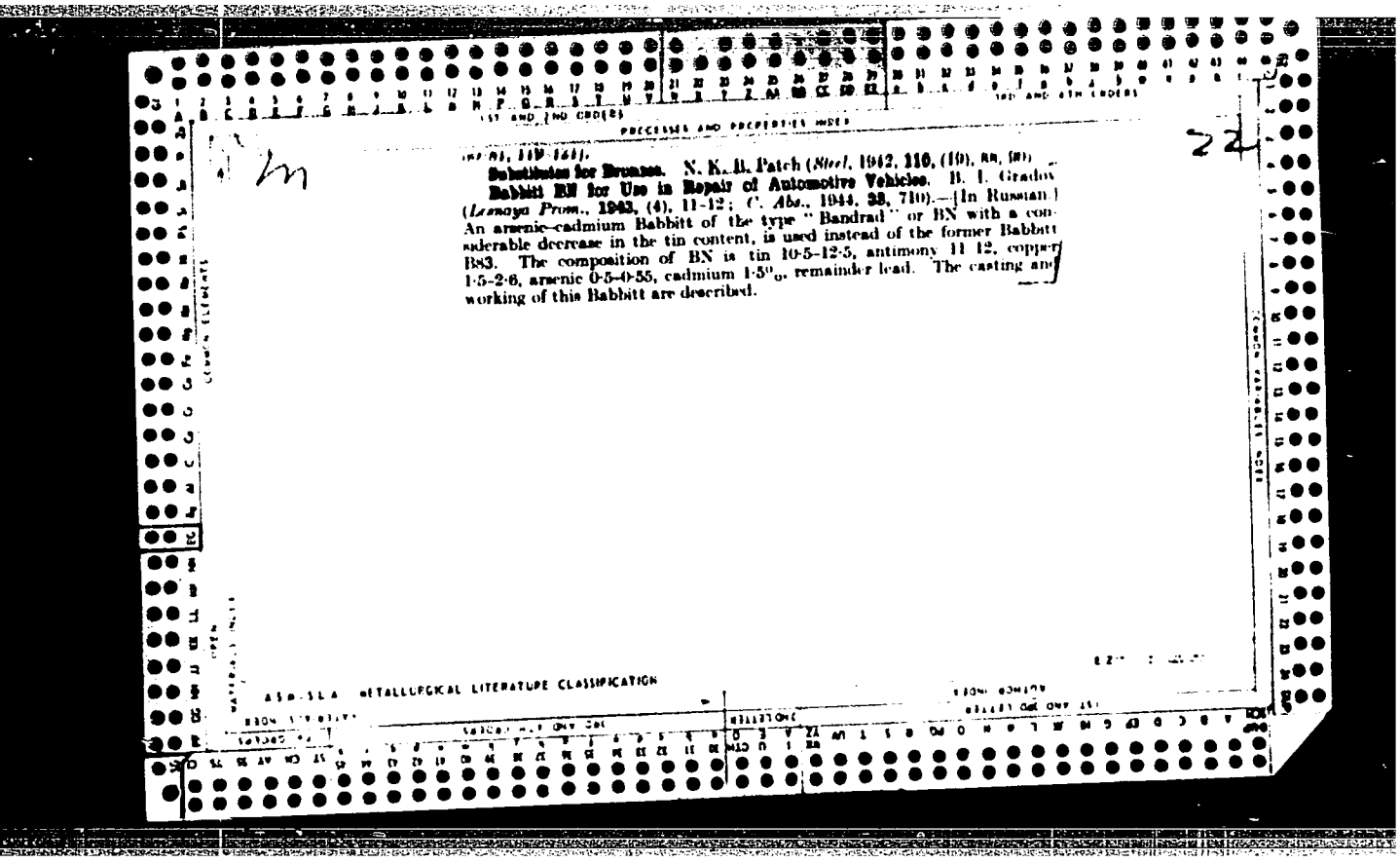
Monthly List of East European Accessions (EEAI) LC, Vol. 8, no. 11, November 1959.

Uncl.

PATCH, I.

PATCH, I. [illegible]

SOURCE: [illegible]



PROCESSES AND PROPERTIES INDEX

24

Substitutes for Bronzes. N. K. H. Patch (*Steel*, 1942, **110**, (19), 88, (8)).

Babbitt BN for Use in Repair of Automotive Vehicles. B. I. Gradov (*Izvestya Prom.*, 1943, (4), 11-12; *C. Abs.*, 1944, **38**, 710).—[In Russian.] An arsenic–cadmium Babbitt of the type "Bandrad" or BN with a considerable decrease in the tin content, is used instead of the former Babbitt B83. The composition of BN is tin 10-5-12-5, antimony 11-12, copper 1-5-2-6, arsenic 0-5-0-55, cadmium 1-5%, remainder lead. The casting and working of this Babbitt are described.

A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION

PATCHANKOWA, E.

"Condensation catalytique de l'acetylene avec les amines aromatiques. Communication VII". Koslow, N. et Patchankowa, E. (p. 1352)

SO: Journal of General Chemistry. (Zhurnal Obshchei Khimii) 1936, Vol. 6, No. 8

PATCHAYEVA, M.

Structure of the kinetic potentials of equations of a rank larger than zero and the admissibility of a system of primitive groups in four-dimensional space. Sbor. nauch.-issl. rab. TTI no.15:31-44 '62. (MIRA 16:9)

PATCHAYEVA, M.

Structure of the kinetic potentials of equations of a rank above zero admitting a given group. Nauch. trudy TashGU no.208. Mat. nauki. no.23:122-127 '62. (MIRA 16:8)

(Differential equations) (Groups, Theory of)

S/137/62/000/001/025/237
A060/A101

AUTHOR: Patching, S. U.

TITLE: Physical and chemical methods for enriching uranium ores

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 11, abstract 1G85 ("Izvlecheniye i ochistka redk. metallov". Moscow, Atomizdat, 1960, 128-145)

TEXT: This is a survey of the technology of U-ore processing. The main types of rocks which include U-containing minerals, and also the form of the U-ore deposits are considered. The characteristics of the most important U-bearing minerals are cited. The physical methods of enriching U-ores are considered: sorting out by means of electronic apparatus, separation in a heavy medium, gravitational methods, flotation, and also the chemical methods. The relation between the physical and the chemical methods of concentrating is clarified. The following possible methods are described, by means of which the processing by physical methods improves the processes of chemical treatment: preliminary concentration for the purpose of reducing the volume of materials supplied for the chemical treatment; elimination from the ore of components

Card 1/2

Physical and chemical methods ...

which lower the economy and efficiency of the chemical treatment; extraction of other valuable components from the ore. It is noted that as the physical methods are being improved, it should become possible to treat the leaner ores and the cost of chemical treatment should be reduced in a number of existing processes. There are 22 references.

K. Avdeyev

[Abstracter's note: Complete translation]

Card 2/2

WOLMAN, Y.; GALLOP, P.M.; PATCHORNIK, A.

Peptide synthesis by oxidation of acid hydrazides. Coll Cz Chem 27 no.9:2259-2261 S '62.

1. Albert Einstein College of Medicien, New York (for Gallop).
2. Weizmann Institute, Rehovoth, Israel (for Patchornik).

PATCZEWSKI, W.

85-58-2-25/36

AUTHOR: Patczewski, W., Docent, Warsaw

TITLE: Vertical Currents Aid Gliding (Vertikal'nyye potoki na sluzhbe planerizmu); I. Classification of Vertical Currents (1. Klassifikatsiya vertikal'nykh potokov)

PERIODICAL: Kryl'ya rodiny, 1958, Nr 2, pp 24-25 (USSR)

ABSTRACT: This is the first of a series of articles by a well-known Polish meteorologist, glider pilot, and member of the staff of the State Hydrometeorological Institute in Warsaw. The author asserts that three basic types of ascending currents are now distinguished in gliding: filament, thermal, and wave currents. Ascending thermal currents are of two types: ascending currents caused by solar radiation, and advective currents produced by the movement of cold masses of air. Thermal radiation currents result from the irregular heating of the earth's surface and the lower air layers. The intensity, frequency and vertical distribution of thermal currents depend primarily upon the amount of solar energy that reaches the earth's surface. This energy, therefore, is called radiation thermal energy (termiki radiatsii). The warmest time of the year produces conditions favoring the development of ascending thermal currents

Card 1/3

Vertical Currents Aid Gliding

that occur in slightly higher and slightly lower pressure areas, distinguished by light winds. Cumulus, cumulo-nimbus and cumulo-nimbus torrential cloudiness may develop in these areas. Thermal advection currents occur because of the shift of cold masses of air over a warmer surface on days when contrasts in temperature develop. When solar heat increases the amount of energy, the ascending thermal advection currents are more intense. The energy which is developed in the lower layers of the atmosphere and which produces the ascending currents, is called advection thermal energy (termiki advektsii). Streams of vertical thermal advection currents show greater turbulence than those of ascending thermal radiation currents. Thermal advection radiation currents also occur. A new type of vertical thermal current with intermediary features is observed in some cases and is distinguished by the formation of individual flows of ascending currents under each cumulus cloud. These may equally develop under high clouds, a situation typical of vertical advection thermal currents. This is the type of vertical current recommended for glider flying along a triangular route or for flights to a designated point with return to the starting point. On June 20, 1953, 27 glider pilots, including 4 women, led by Wanda Szemplinska established world records using such vertical currents, flying a triangular route 300 km long. Wave movements develop in the atmosphere as a result of the presence of thermal retentive layers. There are 2 basic types of wave movements: gravitational (free)

waves and stationary (forced) waves. Retentive thermal layers are distorted by wind and produce wave movements. Since this type of atmospheric wave movement develops independently of the local topography and of frontal surfaces (gaseous obstacles), we call it gravitational wave vibration (free). Ascending currents accompany free waves and are usually so weak (0.5 m/sec average) that they cannot be used for glider flying. Stationary (forced) waves occur when air flows with sufficient speed over a mountain ridge or a rapidly moving cold front. The amplitude of stationary waves is great. A precise classification of ascending currents is of great practical value for forecasting their speed and characteristics. Such theoretical preliminaries are necessary before proceeding to an analysis of some types of ascending currents. The next article will deal with thermal radiating current and the techniques of flying under these conditions. There is one photograph and one diagram.

ASSOCIATION: State Hydrometeorological Institute, Warsaw

AVAILABLE: Library of Congress

MARIANASHVILI, G.M.; KAVILADZE, M. Sh.; ABASHIDZE, I.V.; MACHARASHVILI, G.R.; PATEISHVILI, M.A.

Variation in the potassium isotope composition in plants. Soob. AN Gruz. SSR 34 no.3:565-568 Je '64 (MIRA 18:1)

1. Tbilisskiy gosudarstvennyy universitet. Submitted February 10, 1964.

PATEJDL, Zdenek

New antimycotics. Cesk. derm. 36 no.1:28-32 F '62.

1. Dermatovenerologicka klinika v Plzni, prednosta prof. MUDr. Vlastimil Resl.

(FUNGICIDES)

PATEK, Erzsebet

On the Hungarian Archaeological Topography in the making. Magy tud 69 no.6/7:432-433 Je-Jl '62.

1. Magyar Tudomanyos Akademia Regeszeti Kutato Csoportja tudomanyos munkatarsa.

L 31204-66 EWT(m)/EWP(f)/T-2
ACC NR: AP6022604 SOURCE CODE: CZ/0032/65/015/012/0950/0955

AUTHOR: Patek, F. (Engineer)

ORG: Power Development Project, Prague (Energoprojekt)

TITLE: Aircraft turboengines for peak power stations

SOURCE: Strojirenstvi, v. 15, no. 12, 1965, 950-955

TOPIC TAGS: turbine engine, aircraft engine, power generating station, electric power plant

ABSTRACT: The article shows ways in which aircraft turboengines removed from planes can be used efficiently and economically to drive alternators at peak power stations. Details are given of a pilot station designed in Czechoslovakia and soon to be built. This paper was presented by Doctor, Engineer J. Jerie. Orig. art. has: 8 figures and 1 table. [Based on author's Eng. abst.] [JPRS]

SUB CODE: 21, 10 / SUBM DATE: none

Card 1/1 BLG UDC: 621.454: 621.313.322-81

PATEK, Karel, CSc.

Seminar on quantum generators of light. Cs cas fyz 14 no. 4: 394-396 '64.

PATEK, K.

TECHNOLOGY

Periodical [illegible] MYSL. Vol. 8, no. 2, Feb. 1958

KUCERA, E.; PATEK, K. The chemical industry ten years after the Victorious February. p. 57

Monthly List of East European Accessions (EEAI LC, Vol. 8, no. , March, 1959, Uncl.

CZECHOSLOVAKIA/Optics - K-

Abs Jour : Ref Zhur Fizika, No 3, 1960, 7182

Author : Patek Karel

Inst : Physics Institute, Czechoslovak Academy of Sciences, Prague, Czechoslovakia

Title : On the Photoelectroluminescence of ZnS-Cu

Orig Pub : Ceskosl. casop. fys., 1958, 8, No 5, 628

Abstract : The author has investigated the difference of ultraviolet on the brightness wave of electroluminescence of ZnS-Cu; an increase in brightness of the principla maximum is observed and a reduction in the amplitude of the secondary maxima, along with a certain change in the phase shift. It is proposed that under the influence of the ultraviolet radiation the number of conductivity electrons increases and these reduce the effect of polarization in the small

Card 1/2

CZECHOSLOVAKIA/Optics

Abs Jour : Ref Zhur Fizika, No 3, 1960, 7182

ZnS crystals and increase the number of electrons accelerated by the electric field. -- V. Kopetskiy

Card 2/2

67001

CZECH/37-59-1-7/26

Photo-Electroluminescence in ZnS-Cu

ASSOCIATION: Fysikální ústav ČSAV, Praha
(Department of Physics, Czech Academy of Sciences, Prague)

SUBMITTED: July 7, 1958

Card 4/4

Photo-Electroluminescence in ZnS-Cu CZECH/37-59-1-7/26

the secondary maximum of the preceding cycle (Fig 9). This is obtained even by very low intensity U.V. irradiation. While at room temperature the described changes occur instantaneously with switching on of the U.V., several minutes are needed to attain equilibrium at -150 °C. The U.V. irradiation apparently influences the excitation rather than the emission. The increased number of electrons in the conduction band due to U.V. irradiation, necessarily leads to an increased probability of excitation of an activator by accelerated electrons. A decrease of the maximum at higher levels of irradiation may be explained by one of several mechanisms, such as radiationless recombination on surfaces, decreased effective field due to increased conductivity, etc. The disappearance of the secondary maximum can be explained by the fact that the polarisation is restricted by photo-conductivity due to U.V. irradiation.

Card 3/4

There are 9 figures and 8 references, of which 1 is French, 1 German, 1 Czech, 1 Soviet and 4 are English.

Photo-Electroluminescence in ZnS-Cu

with illumination B. Neglecting the photoluminescence L_o, we find that the primary maximum of electro-luminescence (ΔB_1) is increased, while the secondary maximum (ΔB_2) is decreased. The increase of ΔB_1 is most marked in samples with green emission, i.e. without oxygen and with chlorine. The increase is relatively larger for small intensities of electroluminescence. Samples with blue emission show only very slight increases in ΔB_1, but instead show considerable phase changes. At large intensities of irradiation, ΔB_1 goes through a maximum and reaches negative values (Fig 4). The dependence of ΔB_1 on the square root of the intensity I for a green-emitting sample, is shown in Fig 6 for three different frequencies of the electric field. The secondary peak of electro-luminescence disappears at a certain intensity of U.V. irradiation. Fig 7 shows the decrease of ΔB_2 with I. The experiments have shown that the relative increase in brightness of the primary maximum is equal in both emission bands (Fig 8). Some samples (blue emitters) showed a phase shift of the primary maximum, such that it sometimes coincided with

Card 2/4

K-

CZECHOSLOVAKIA/Optics -

Abs Jour : Ref Zhur Fizika, No 3, 1960, 7184

Author : Patek, K.

Inst : Institute of Physics, Czechoslovak Academy of Sciences, Prague, Czechoslovakia

Title : On the Photoelectroluminescence of ZnS-Cu

Orig Pub : Chekhosl. fyz. zh., 1959, 9, No 2, 161-167

Abstract : The effect of weak ultraviolet on electroluminescence of ZnS-Cu has been investigated. A more detailed description of the experiments, the results of which were reported earlier (abstract 7182), is given, A qualitative explanation of the phenomena is given on the basis of the assumption that the ultraviolet causes an increase in the number of electrons in the conduction band and this increases the probability of excitation of the activators by the

Card 1/2

PATEK, K.; DALASKA, S.

Decay of ZnS-Cu electroluminescence. [illegible]

[illegible] (Ceskoslovenska akademie ved. Ustav Technicke fysiky) Praha, Czechoslovakia, Vol. [illegible], no. [illegible], 1959.

Monthly List of East European Accessions (EEAI) LC. Vol. 9, no. 2, Feb. 1960
Uncl.

PATEK, K.

Distr: 4E2c(m)

The electroluminescence of ZnS:Cu single crystals excited with pulses of alternating polarity. K. Pátek (Czech. Acad. Sci., Prague). *Czechoslov. J. Phys.* 10, 452–67 (1960)(in English).—Measurements were made of the brightness waves of the electroluminescence of ZnS:Cu for rectangular pulse excitation as a function of pulse amplitude and temp. A concrete model is proposed for electronic processes in barriers in ZnS crystals, the consequences of which for the decay of electroluminescence are in agreement with measurements. The interpretation of the results obtained is based on the model of 2 Mott-Schottky-type barriers expanding and contracting with the elec. field and its polarity and obviously correctly represents the processes of motion of charges in a crystal and their recombination; in particular, it permits calcn. of the decay curve of both peaks. The assumption of barriers of the Mott-Schottky type having a thickness around 10^{-4} cm., with a concn. of the activators around 10^{18} cm.$^{-3}$, agrees best with the observed effects; a similar result is, however, obtained by assuming depletion-type barriers with which the Schottky-type barrier is connected. Quant. agreement with the measured time consts. of decay requires a concn. of the electrons around 10^{18} cm.$^{-3}$, an elec. field in the barrier around 10^{5} v./cm., electron mobility of 2×10^{2} cm.^{2}/v. sec., and an effective cross section of trapping of the electron on an ionized activator of about 10^{-13} cm.^{2}

A. Kremheller

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S/081/62/000/010/006/065
B158/B144

AUTHOR: Pátek, K.

TITLE: A new procedure for growing ZnS single crystals by sublimation

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 10, 1962, 34, abstract 10B196 (Chekhosl. fiz. zh., v. B11, no. 9, 1961, 686-688)

TEXT: Defects in the method of growing ZnS or CdS single crystals under constant temperature growth conditions are shown, and a new method is suggested which uses a gradual variation in temperature conditions as the growth of the sample proceeds. The ZnS crystals are grown in a sealed ampoule, filled with H_2S at a pressure of 760 mm Hg, and placed in a special heater with a heterogeneous temperature field. Vapors of the original substance in the ampoule are precipitated as crystalline particles in the colder part of the tube. This method differs from the usual procedure in that as crystal growth proceeds, the tube is slowly extracted from the heater; this improves the conditions for the formation of single crystals. The number of nuclei formed decreases. Conditions for sublimation of the initial

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A new rocedure for growing... S/081/62/000/010/006/085
B158/B144

material, which is continuously entering the sublimation zone, are improved, thus resulting in an intensification of the process. The zone of crystal growth extends; thus the crystal particles formed undergo less interaction with one another and are more homogeneous. The overall yield in crystals from one and the same quantity of initial substance rose by several times. The experimental data are: temperature in the sublimation zone: 1200°C; temperature in the growth zone: 1060°C; temperature gradient in the growth zone: 30°C/cm; rate of displacement of the ampoule: 1.25-3.25 mm/hour; quantity of original amorphous ZnS: 15 g; extent of growth zone: 70-100 mm; test period: 24-26 hours. The procedure described is primarily applicable for growing single crystals by sublimation. [Abstracter's note: Complete translation.]

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DAMASKOVA, S.; PATEK, K.

Displacement of the absorption border of ZnS-monocrystals in electric field. Acta phys Hung 14 no.2 3:127-130 '62.

1. Physikalisches Institut der Tschechoslowakischen Akademie der Wissenschaften, Prag, CSSR. Vorgelegt von G. Szigeti [Gyorgy Szigeti]

G/030/63/003/003/002/007
B185/B102

AUTHORS: Hauptmanová, K., and Pátek, K.

TITLE: Measurements of the growth rates of ZnS single crystals grown from the vapor phase

PERIODICAL: Physica status solidi, v. 3, no. 3, 1963, 383 - 391

TEXT: The crystals were grown in an apparatus described earlier (Czech. J. Phys. B 12 (1962) 313) for which supplementary data are given here. At 1200°C and 760 mm Hg hydrogen sulfide pressure and a temperature gradient of 30 deg cm^{-1} the growth is characterized by simple whiskers which gradually widen to prismatic needles. At a temperature gradient of 45 deg·cm^{-1} the rates of growth are 3 - 10 times higher in all directions and the forms of growth are complicated: growing of plates on whiskers or needles and parasitic forms of crystallizations on whiskers. Sufficiently thin crystals show birefringence and appear completely homogeneous, probably because they are purely hexagonal, but the typical striated structure occurs when the temperature is lowered to 700°C. The heating of crystals by the resulting heat of crystallization and its effect on the rate of

Measurements of the growth rates...

growth are discussed. The measured rates of growth of from 10^{-6} cm·sec^{-1} perpendicular to the c-axis to 10^{-4} cm·sec^{-1} in the direction of the c-axis are interpreted by the mechanism of two-dimensional nucleation or by that of dislocation. There are 4 figures and 2 tables.

ASSOCIATION: Physikalisches Institut der Tschechoslowakischen Akademie der Wissenschaften, Prag (Physics Institute of the Czechoslovakian Academy of Sciences, Prague)

SUBMITTED: December 11, 1962

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KUBATOVA, J.; PATEK, K.

Microscopic examination of the electroluminescence of ZnS-Cu single crystals. Chekhosl fiz zhurnal 13 no.2:157-160 '63.

1. Fysikalni ustav, Ceskoslovenska akademie ved, Praha.

PATEK, Karel

Report on the session of the Scientific Committee of Physics in the second quarter of 1963. Cs cas fys 14 no. 1:73-74 '64.

1. Tajemnik vedeckeho kolegia fysiky Ceskoslovenske akademie ved.

PATEK, Karel

Summer school on lasers and coherent light in Varenna. Cs
cas fys 14 no. 1:76-79 '64.

1. Fysikalni ustav Ceskoslovenske akademie ved, Praha.

PATEK, Karel

Meeting of the Scientific College for Physics of the Cechoslovak Academy of Sciences. Cs cas fys 13 no.3:260-261 '63.

PATEK, K., Dr.

Problems of fast application of scientific and research results in production. Tech praca 16 no.2:86-87 F '64.

1. Fyzikalni ustav, Ceskoslovenska akademie ved, Praha.

PATEK, Karel, SPISEK, Milan

The Explorer 22 satellite. Cs cas fys 15 no.2:182-185 '65.

1. Institute of Physics of the Czechoslovak Academy of Sciences, Prague (for Patek). 2. Faculty of Mechanical Engineering of the Czech Higher School of Technology, Prague. Submitted November 30, 1964.

L 49203-65 EWP(e)/EWP(i)/EWP(t)/EWP(b) Pg-4 IJP(c) JD/JGA/WH

ACCESSION NR: AP5012371 CE/0030/65/009/002/0525/0537

AUTHOR: Hauptmanova, K.; Pantoflicek, J.; Patek, K.

TITLE: Absorption and fluorescence of the Nd^{3+} ion in silicate glass

SOURCE: Physica status solidi, v. 9, no. 2, 1965, 525-537

TOPIC TAGS: rare earth optical property, Nd fluorescence, glass absorption spectra, glass emission spectra, glass quantum yield, glass laser

ABSTRACT: A study is made of the absorption and emission spectra, quantum yield, and fluorescence decay in three series of glasses: 1) basic glasses, generally with constant Nd_2O_3 concentration; 2) the same basic glass (barium crown glass) but with varying Nd_2O_3 concentration; and 3) glass with varying mono- and divalent metal ions and constant Nd_2O_3 concentration. A systematic decrease of the splitting of the ground level $^4I_{9/2}$ with the Nd concentration was evident. This dependence was not observed for other lines, and no reasonable explanation could be found for this discrepancy. Ba^{++} was found to be the optimal divalent ion for use as the following element in the series $Ca^{++} \rightarrow Sr^{++} \rightarrow Ba^{++}$. The Nd^{3+}—Nd^{3+} interaction, which leads to the change of transition probabilities q(r), is interesting from the standpoint of the distances at which the interaction begins to work. At a Nd^{3+}—Nd^{3+}

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