PAVLEVSKIY, V.I., inzh.

Earthmoving machinery in the building of large irrigation systems.
Mekh. stroi. 21 no.1:9-10 Ja '64. (MIRA 17:4)

PAVIK, R.

Development of the designs of woodworking machines. p. 30

CZECHOSLOVAK HEAVY INDUSTRY. (Ceskoslovenska obchodni komora) Prague, Czechoslovakia. No. 3, 1959

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 7, July 1959
Uncl.

PAVILK, M. MACH, M.

The use of ion exchange in water analysis. p. 105.

(Voda. Vol. 36, no. 4, Apr. 1957. Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 10, October 1957. Unc..

PAVILAYNEN, V.Ya.

Using the zero-torque theory in designing spheriodal roofs. (MIRA 15:2)
Issl.po uprug.i plast. no.1:82-94 '61.
(Roofs, Shell)

PAVILAYNEN, V.Ya.

Zero-torque stressed state of a toroidal roof. Issl.po uprug. i plast. no.1:52-81 '61. (MIRA 15:2)
(Roofs, Shell)

PAVILAYNEN, V.Ya. (Leningrad)

Designing an elliptical dome for wind load according to the momentless theory. Stroi.mekh. i rasch. soor. 3 no.3:38-42 '61. (MIRA 14:6)

(Wind pressure) (Roofs, Shell)

PAVLAYNEN, V. YA.

BRIL', M.G., inzh.; PAVILAINEN, V.Ya., inzh.; SHUL'KIN, Yu.B., inzh.; IMMERMAN, A.G., kand.tekhn.nauk

Three-dimensional structures with large spans made of light metals. Rasch.prostr.konstr. no.6:5-38 '61. (MIRA 15:3)
(Roofs, Shell) (Aluminum, Structural)

S/124/63/000/002/027/052
D234/D308

AUTHOR: Pavilaynen, V.Ya.

TITLE: Momentless stressed state of non-shallow translational shells

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 2, 1963, 11, abstract 2V67 (Tr. Konferentsii po teorii plastin i obolochek, 1960, Kazan', 1961, 254-264)

TEXT: The author considers a shell with rectangular horizontal section, whose middle surface is a transfer surface formed by the motion of a circular arc of radius r_1 along another circular arc of radius r_2. A solution is carried out for a square horizontal section. Uniform external normal stress, proper weight, a load distribution uniformly on the horizontal projection of the shell are considered. A particular solution of the equations of equilibrium is found by expanding their right-hand sides into series. The homogeneous system is reduced to a single homogeneous equation of the second order by eliminating the unknown force S; the equation is

Card 1/2

Momentless stressed state ...

solved by separating the variables and by the subsequent use of an asymptotic method.
[Abstracter's note: Complete translation_7

Card 2/2

Pacilayaen, L. Ya

BOROVSKIY, P. V. PHASE I BOOK EXPLOITATION SOV/6206 75

Konferentsiya po teorii plastin i obolochek. Kazan', 1960.

Trudy Konferentsii po teorii plastin i obolochek, 24-29 oktyabrya 1960. (Transactions of the Conference on the Theory of Plates and Shells Held in Kazan', 24 to 29 October 1960). Kazan', [Izd-vo Kazanskogo gosudarstvennogo universiteta] 1961. 426 p. 1000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Kazanskiy filial. Kazanskiy gosudarstvennyy universitet im. V. I. Ul'yanova-Lenina.

Editorial Board: Kh. M. Mushtari, Editor; F. S. Isanbayeva, Secretary; N. A. Alumyae, V. V. Bolotin, A. S. Vol'mir, N. S. Ganiyev, A. L. Gol'denveyzer, N. A. Kil'chevskiy, M. S. Kornishin, A. I. Lur'ye, G. N. Savin, A. V. Sachenkov, I. V. Svirskiy, R. G. Surkin, and A. P. Filippov. Ed.: V. I. Aleksagin; Tech. Ed.: Yu. P. Semenov.

PURPOSE: The collection of articles is intended for scientists and engineers who are interested in the analysis of strength and stability of shells.

Card 1/14

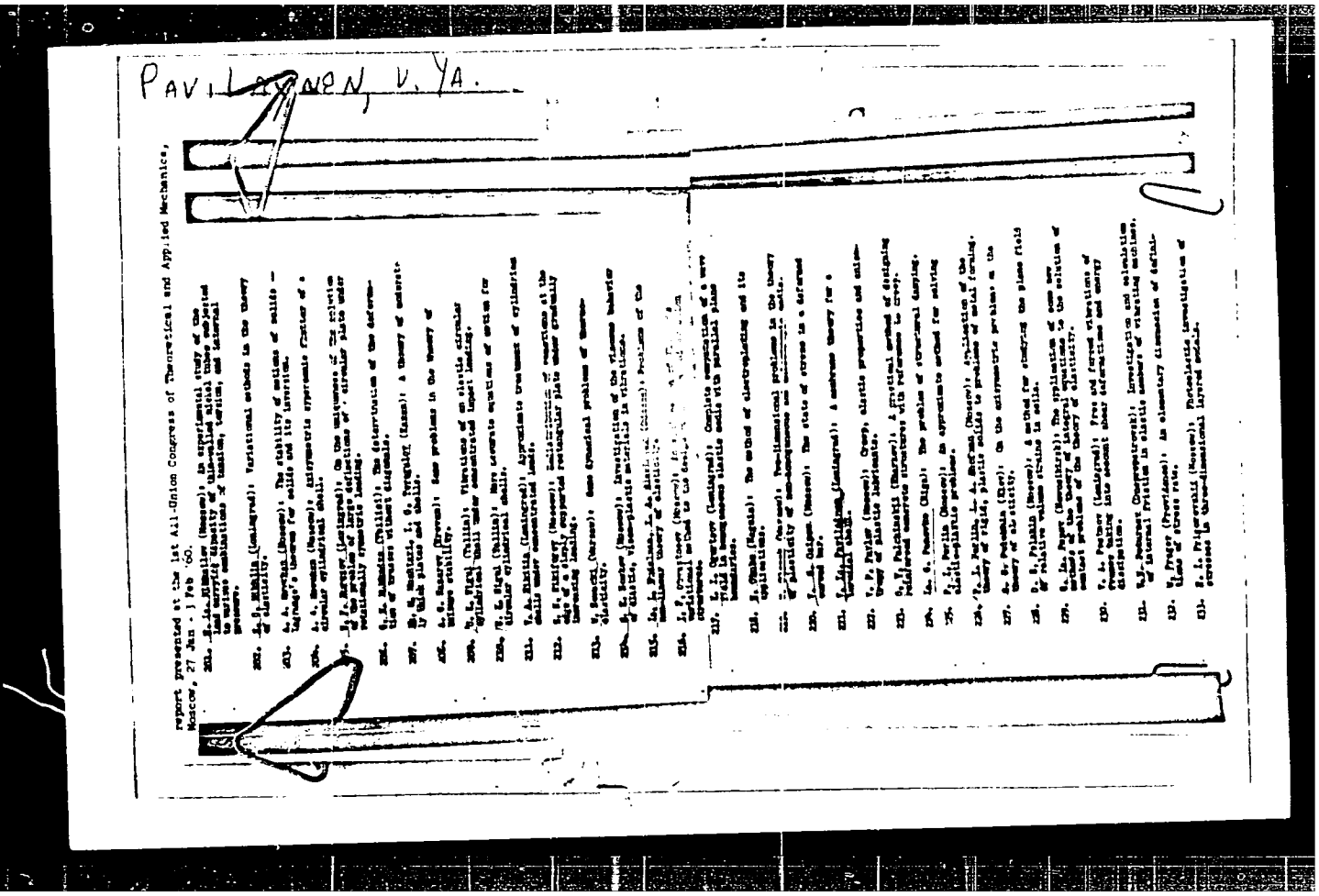
Transactions of the Conference (Cont.) SOV/6206

COVERAGE: The book is a collection of articles delivered at the Conference on Plates and Shells held in Kazan' from 24 to 29 October 1960. The articles deal with the mathematical theory of plates and shells and its application to the solution, in both linear and nonlinear formulations, of problems of bending, static and dynamic stability, and vibration of regular and sandwich plates and shells of various shapes under various loadings in the elastic and plastic regions. Analysis is made of the behavior of plates and shells in fluids, and the effect of creep of the material is considered. A number of papers discuss problems associated with the development of effective mathematical methods for solving problems in the theory of shells. Some of the reports propose algorithms for the solution of problems with the aid of electronic computers. A total of one hundred reports and notes were presented and discussed during the conference. The reports are arranged alphabetically (Russian) by the author's name.

Card 2/14

PAVILAYNEN, V.Ya., inzh.; SHAPIRO, A.V., inzh.

Shallow precast reinforced concrete shells of positive curvature. Bet. i zhel.-bet. 9 no.11:509-512 N '63. (MIRA 17:1)



PAVLENKO, V. YA.

Report presented at the 1st All-Union Congress of Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb '60.

L 2492-66 EWT(1)/ETC/EPF(n)-2/EPA(w)-2/EWG(m) LJP(c) AT

ACCESSION NR: AP 5020724 UR/0057/65/035/008/1394/1400

89
71
B

AUTHOR: Pavlichenko, O. S.; Dushin, L. A.; Kuznetsov, Yu. K.; Adamov, I. Yu.

TITLE: Instability of a plasma discharge with oscillating electrons. 1. Microwave radiation

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 8, 1965, 1394-1400

TOPIC TAGS: plasma instability, plasma oscillation, hydrogen, helium, electric discharge, electron oscillation, electron reflection, electron temperature, larmor frequency, nonlinear effect, plasma magnetic field

ABSTRACT: The authors have investigated the microwave radiation from a high voltage PIG reflex discharge plasma in order to obtain more information concerning the oscillations discovered by G.Landauer (J. Nucl. Energy, Pt. C, 4, 395, 1962) at harmonics of the Larmor frequency. The discharge took place in hydrogen or helium in the presence of a uniform longitudinal magnetic field up to 2500 Oe between two 3.5 cm diameter cold aluminum cathodes 80 cm apart and the copper wall of the 10 cm diameter, 100 cm long discharge chamber. The cathodes were located within short porcelain tubes, and a potential difference up to 2 kV was maintained between them and the chamber wall. Microwaves of 3.4 cm wavelength were

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received from the interior with a horn antenna and were recorded with a superheterodyne radiometer having a 4 Mc/sec passband. The plasma density was measured with an 0.8 cm wavelength interferometer, the electron temperature was determined from the triplet to singlet intensity ratio in the helium spectrum, and the ion temperature was determined from the Doppler broadening of spectrum lines. In the experiments the plasma densities ranged from 10^{12} to 3×10^{12} cm^{-1}, the electron temperatures from 20 to 50 eV, and the ion temperatures from 0.1 to 0.3 eV. The magnetic field dependence of the noise temperature at 3.4 cm was different in different regions of magnetic field strength. At low field strengths (region I) there was a single maximum at which the noise temperature reached hundreds of electron volts. At magnetic field strengths between about 200 and 1500 Oe (region II) there were many maxima whose heights did not exceed 50 eV. The heights of the region II maxima varied with the pressure and discharge current, but their positions did not; the maxima occurred at those field strengths for which an integral or half odd integral multiple of the Larmor frequency was equal to the radiometer frequency. At a magnetic field strength of perhaps 1500 Oe (depending on pressure and discharge current) there occurred a sudden decrease of the plasma density and a simultaneous increase of the noise temperature (transition to region III). In region III the noise temperature increased smoothly with increasing magnetic field, and reached

L 2492-66 18
ACCESSION NR: AP5020724

values as high as 1 keV. These phenomena and their variation with pressure and discharge current are discussed at some length and are compared with relevant observations of many other investigators. It is suggested that nonlinear effects are involved, as well as an anomalous diffusion that the authors discuss in the following paper (ZhTF, 35, 1401, 1965; see abstract AP5020725). "In conclusion, the authors express their gratitude to V.N.Orayevskiy, K.N.Stepanov, and I.F. Kharchenko for discussing the results, and to V.I.Kononenko and M.Ye.Mazhichenko for assisting with the work." Orig. art. has: 7 formulas and 7 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN Ukr SSR, Khar'kov (Physico-technical Institute, AN Ukr SSR)

SUBMITTED: 16Nov64 ENCL: 00 SUB CODE: ME

NR REF SOV: 005 OTHER: 009

Card 3/3

Pavilonis S.V.

GUDELIS,V.K.; PAVILONIS,S.V.

Paleoanthropological finds in Lithuania. Biul.Kom.chetv.per. no.20: 39-44 '55. (MLRA 8:11)

(Lithuania--Man, Prehistoric)

L 25776-65

ACCESSION NR: AR5000955 S/0299/64/000/020/G003/G004

SOURCE: Ref. zh. Biologiya, Sv. t., Abs. 20G19

AUTHOR: Pavil'onov, A. A.

TITLE: Effect of potassium on the light compensation point position of plants

CITED SOURCE: Byul. Gl. botan. sada. AN SSSR, vyp. 53, 1964, 66-71

TOPIC TAGS: plant, potassium, light brightness, light compensation point, pH, gas exchange

TRANSLATION: The light compensation point of plants from greenhouses and from open ground was determined by measuring the pH change of a carbonate solution in the presence of an indicator (cresol red) during gas exchange of leaves. The light compensation point of plants from greenhouses and also of shaded leaves in lower tiers corresponded to considerably lower illumination than for plants from open ground and leaves in upper tiers. A light compensation point change in the direction of lower illumination was observed with the introduction of

Card 1/2

L 25776-65

ACCESSION NR: AR5000955

potassium chloride (leaves were saturated in a potassium chloride solution for 1-4 days). Spathiphillum blandum, Eugenia apiculata and and Sophora tetraptera are most sensitive to potassium, Theobroma cacao and Coffea arabica are sensitive, and palms characterized by poor gas exchange are not sensitive. B. Rebentish

SUB CODE: LS ENCL: 00

Card 2/2

PAVIL'ONOV, A.A.

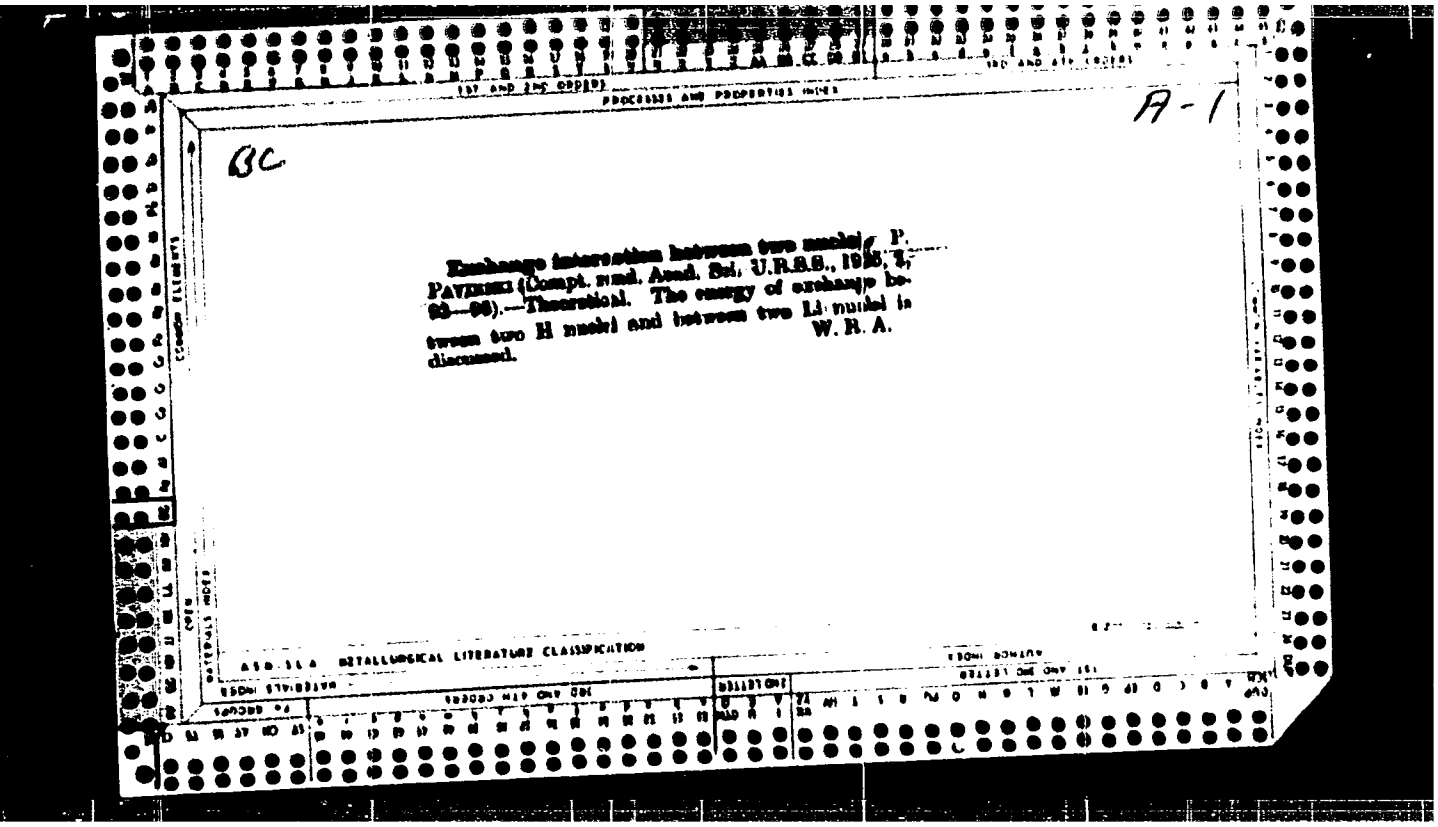
Effect of potassium on the position of the light compensation point in plants. Biul. Glav. bot. sada no.53:66-71 '64.
(MIRA 17:6)

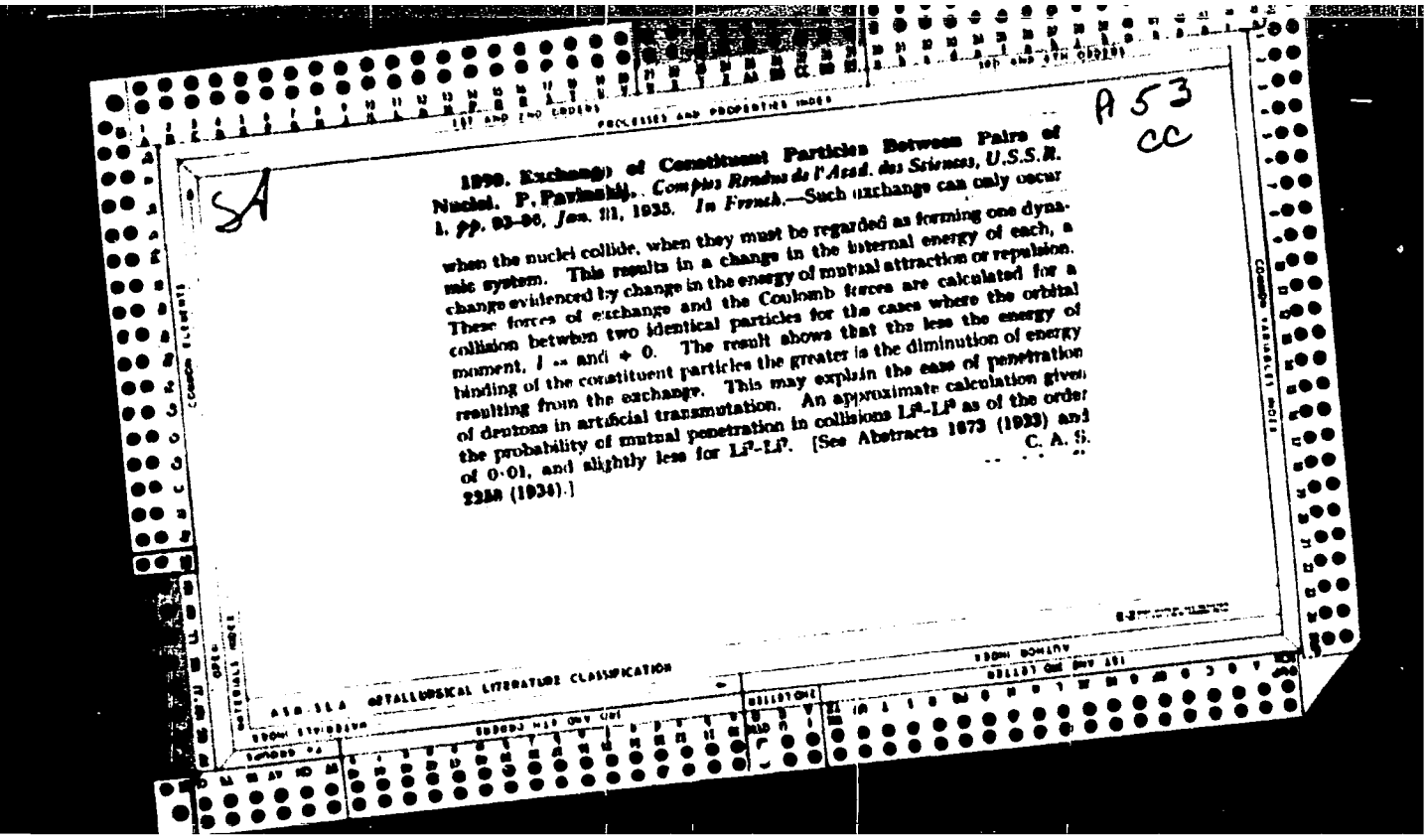
1. Glavnyy botanicheskiy sad Akademii nauk SSSR.

PAVILONSKIY, V.M.; NEDRIGA, V.P., kand.tekhn.nauk,red.

[Experimental investigations of the pore pressure in clayey soils] Eksperimental'nye issledovaniia porovogo davleniia v glinistykh gruntakh. Moskva, 1959. 70 p. (Moscow. Vsesoiuznyi nauchno-issledovatel'skii institut vodosnabzheniia, kanalizatsii, gidrotekhnicheskikh sooruzhenii i inzhenernoi gidrogeologii. Laboratoriia gidrotekhnicheskikh sooruzhenii. Informatsionnye materialy, no.4) (MIRA 14:3)

(Soil mechanics)
(Clay)





1990. Exchange of Constituent Particles Between Pairs of Nuclei. P. Pavinskij. *Comptes Rendus de l'Acad. des Sciences, U.S.S.R.* 1, pp. 93–96, *Jan.* 11, 1935. *In French.*—Such exchange can only occur when the nuclei collide, when they must be regarded as forming one dynamic system. This results in a change in the internal energy of each, a change evidenced by change in the energy of mutual attraction or repulsion. These forces of exchange and the Coulomb forces are calculated for a collision between two identical particles for the cases where the orbital moment, l = ∞ and ≠ 0. The result shows that the less the energy of binding of the constituent particles the greater is the diminution of energy resulting from the exchange. This may explain the ease of penetration of deutons in artificial transmutation. An approximate calculation gives the probability of mutual penetration in collisions Li^6-Li^6 as of the order of 0·01, and slightly less for Li^7-Li^7. [See Abstracts 1073 (1933) and 2258 (1934).] C. A. S.

A53 CC

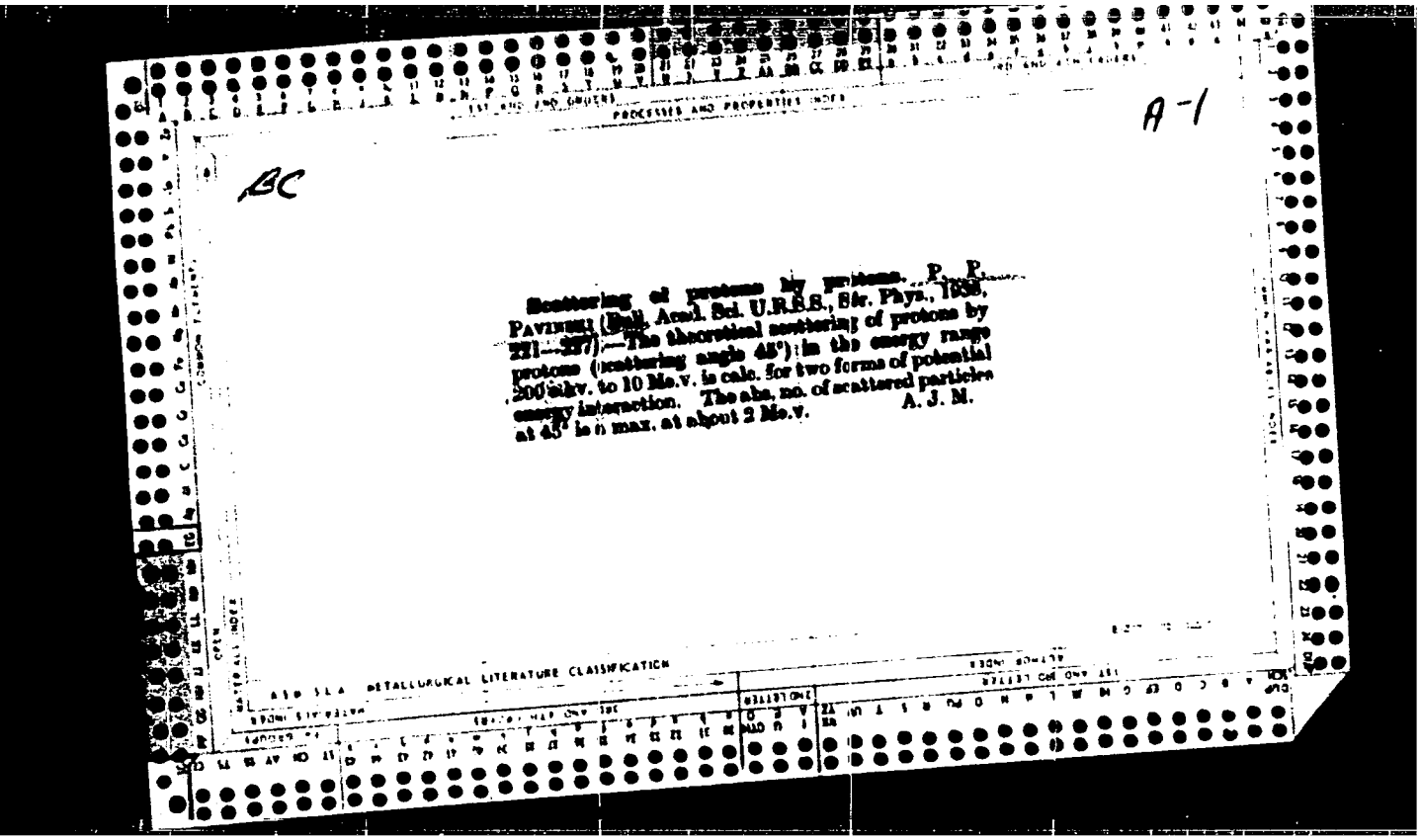
SA

3

CA

Heisenberg's oscillator model and nuclear moments. P. Pavinskii. *Compt. rend. Acad. Sci. U. R. S. S.* 1. 169-71(1939)(in English). By using the Landé scheme (*Z. Physik* A. 28, 1293) in connection with Heisenberg's model, mech. and magnetic moments in good agreement with exptl. data are calcd. for nuclei with an odd no. of protons.
E. O. Wig

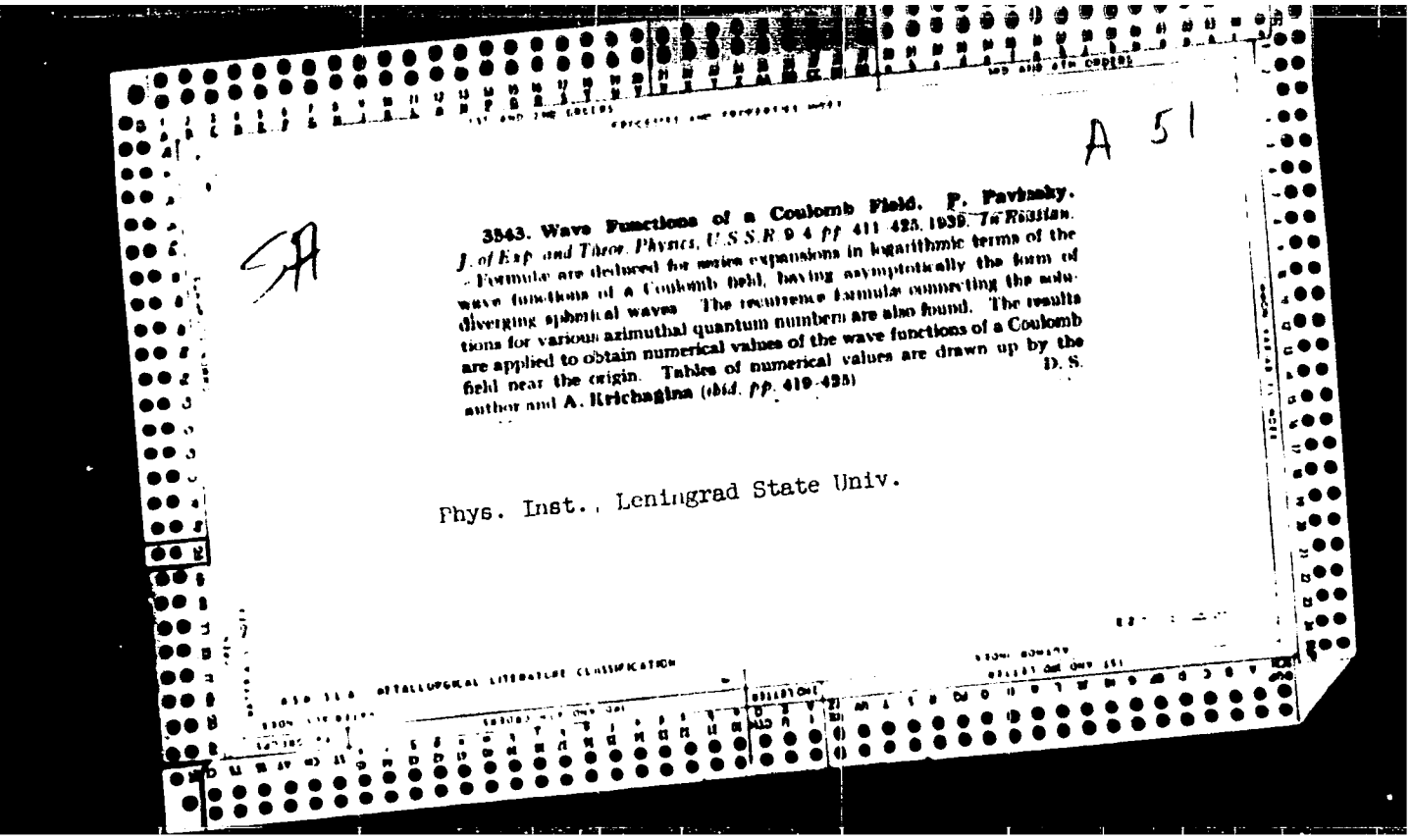
METALLURGICAL LITERATURE CLASSIFICATION



A-1

BC

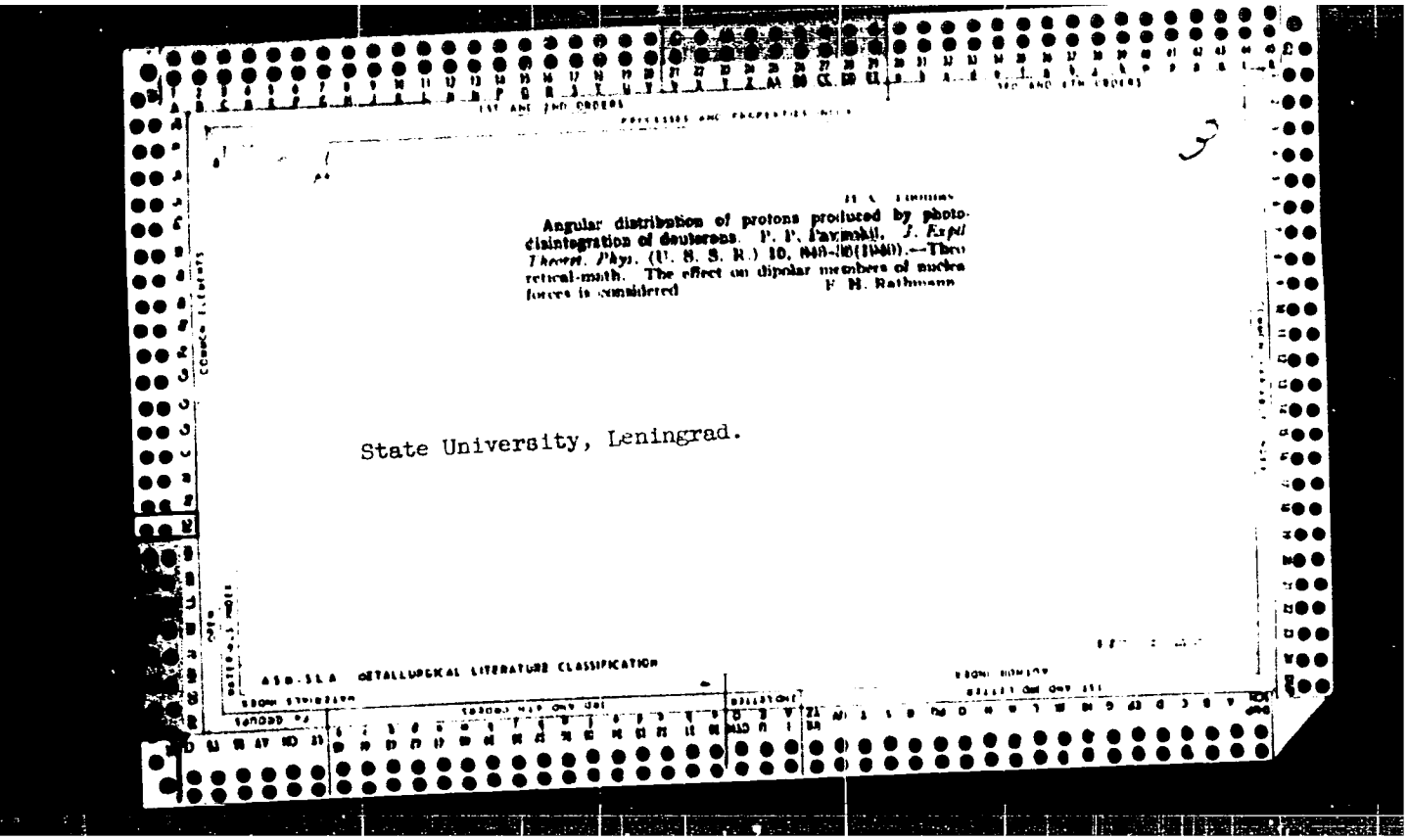
Scattering of protons by protons. P. P. Pavinski (Bull. Acad. Sci. U.R.S.S., Sér. Phys., 1938, 221—227).—The theoretical scattering of protons by protons (scattering angle 45°) in the energy range 200 kv. to 10 Mv. is calc. for two forms of potential energy interaction. The abs. no. of scattered particles at 45° is a max. at about 2 Mv. A. J. M.



A 51

3843. Wave Functions of a Coulomb Field. P. Pavinsky. *J. of Exp. and Theor. Physics, U.S.S.R.* 9 4 *pp* 411-425. 1939. *In Russian.*
Formulæ are deduced for series expansions in logarithmic terms of the wave functions of a Coulomb field, having asymptotically the form of diverging spherical waves. The recurrence formulæ connecting the solutions for various azimuthal quantum numbers are also found. The results are applied to obtain numerical values of the wave functions of a Coulomb field near the origin. Tables of numerical values are drawn up by the author and A. Krichagina (*ibid. pp.* 419-425). D. S.

Phys. Inst., Leningrad State Univ.



Angular distribution of protons produced by photodisintegration of deuterons. P. P. Zavyalkil. *J. Exptl Theoret. Phys.* (U. S. S. R.) 10, 849–[illegible](1940).—Theoretical-math. The effect on dipolar members of nuclear forces is considered F. H. Rathmann

State University, Leningrad.

ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION

SOV/137-59-5-11421

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 5, p 277 (USSR)

AUTHOR: Pavel'yeva, T.S.

TITLE: The Effect of High-Temperature Carburization on Mechanical Properties and Structure of Steel

PERIODICAL: V sb.: Za novuyu tekhn. i progressivn. tekhnol. Minsk, Gos. izd-vo BSSR, 1958, pp 267 - 275

ABSTRACT: The author investigated the effect of the carburization temperature on the mechanical properties of 18KhGT, 12KhN3A and 20Kh steel grades. After carburization the specimens were air cooled. The microstructure of the specimens was investigated immediately after carburization and quench hardening. The holding time was calculated in order to obtain 1.3 - 1.6 mm deep carburized layers at carburizing temperatures of 920°,

Card 1/2

Pavel'yev, T.S.

PHASE I BOOK EXPLOITATION SOV/4018

Akademiya nauk Belorusskoy SSR. Fiziko-tekhnicheskiy institut

Sbornik nauchnykh trudov, vyp. 5 (Collected Scientific Papers of the Institute of Engineering Physics, Academy of Sciences Belorusskaya SSR, No. 5) Minsk, Izd-vo AN BSSR, 1959. 235 p. Errata slip inserted. 1,100 copies printed.

Ed. of Publishing House: L. Kariks; Tech. Ed.: I. Volokhanovich; Editorial Board: V.P. Severdenko, Academician, Academy of Sciences BSSR (Chief Ed.), K.V. Gorev, Academician, Academy of Sciences BSSR, M.N. Bodyako, Candidate of Technical Sciences, and P.A. Parkhutik, Candidate of Technical Sciences.

PURPOSE: This book is intended for technical personnel and scientific workers.

COVERAGE: This collection of 23 articles covers the following subjects: small draft rolling analysis of wire-drawing, design of drop-forging dies, impact upsetting, examination of the effect of temperature on plastic deformation, sulphidation and carburizing processes, the phenomena of pulse-discharge, etc.

PAVILAYNEN, M. M. Cand Tech Sci -- "Study of the statistical and dynamic characteristics of technological equipment of the line of primary treatment of milk with development of a practical system and elements of automatic control." Mos, 1960 (Joint Council of All-Union Sci Res Inst of Mechanization of Agr "VIM" and All-Union Sci Res Inst of Electrification of Ag "VIESKh"). (KL, 4-61, 199)

PAVILAYNEN, V. Ya. (Leningrad)

Designing an elliptical dome for wind load according to the momentless theory. Stroi. mekh. i rasch. soor. 3 no.3:38-42 '61. (MIRA 14:6)

(Wind pressure) (Roofs, Shell)

PAVILAYNEN, V.Ya., inzh. (Leningrad)

Design of an open shperical dome with a reinforced edge for inversely symmetrical loading. Rasch. prostr. konstr. no.8:27-46 '62. (MIRA 16:6)

(Domes) (Roofs, Shell)

PAVILAYNEN, V.Ya.

Equations in the zero-torque theory of double-curvature shells. Uch.zap.LGU no.280:97-112 '60. (MIRA 13:7)
(Elastic plates and shells)

PAVINSKIY, P. P.

"The Angular Distribution of Protons by Photo-Disintegration of Deuterons," Journal Phys., 4, No. 3, 1941.

PAVINSKIY, P. P.

22937 Statikheskiye polya s proievol'nym tselym spinom. Ukhen. Zapiski karelo-fin. Gos. Unta, T.II, Vyp. 4, 1947,(Izd: 1949) S. 3-9. Bibliogr: 6 Nasv.

SO: LETOPIS' NO. 31, 1949

PAVINSKIY, P. P.

22938 Khastitsa so spinom 2 v elektromagnitnom pole. Ukhen. Zapiski karelo-fin. Gos. Un-ta, T.II Vyp. 4, 1947 (Ied: 1949), S. 10-16
Stralkov, S.P. Kobshkhey tecril lineynbkh usiliteley. Sm.22929

SO:LETOPIS' NO.31, 1949

PAVINSKIY, P.V., Prof.

Prof. of The Univ. of Karelo - Finskaya SSR

On-study of Molecular Structure

Soviet Source: N Leninskoye Znamya - 13 May 47 - Petrozavodsk. Abstracted in USAF "Treasure Island", on file in Library of Congress, Air Information Division, Report No. TI 38518

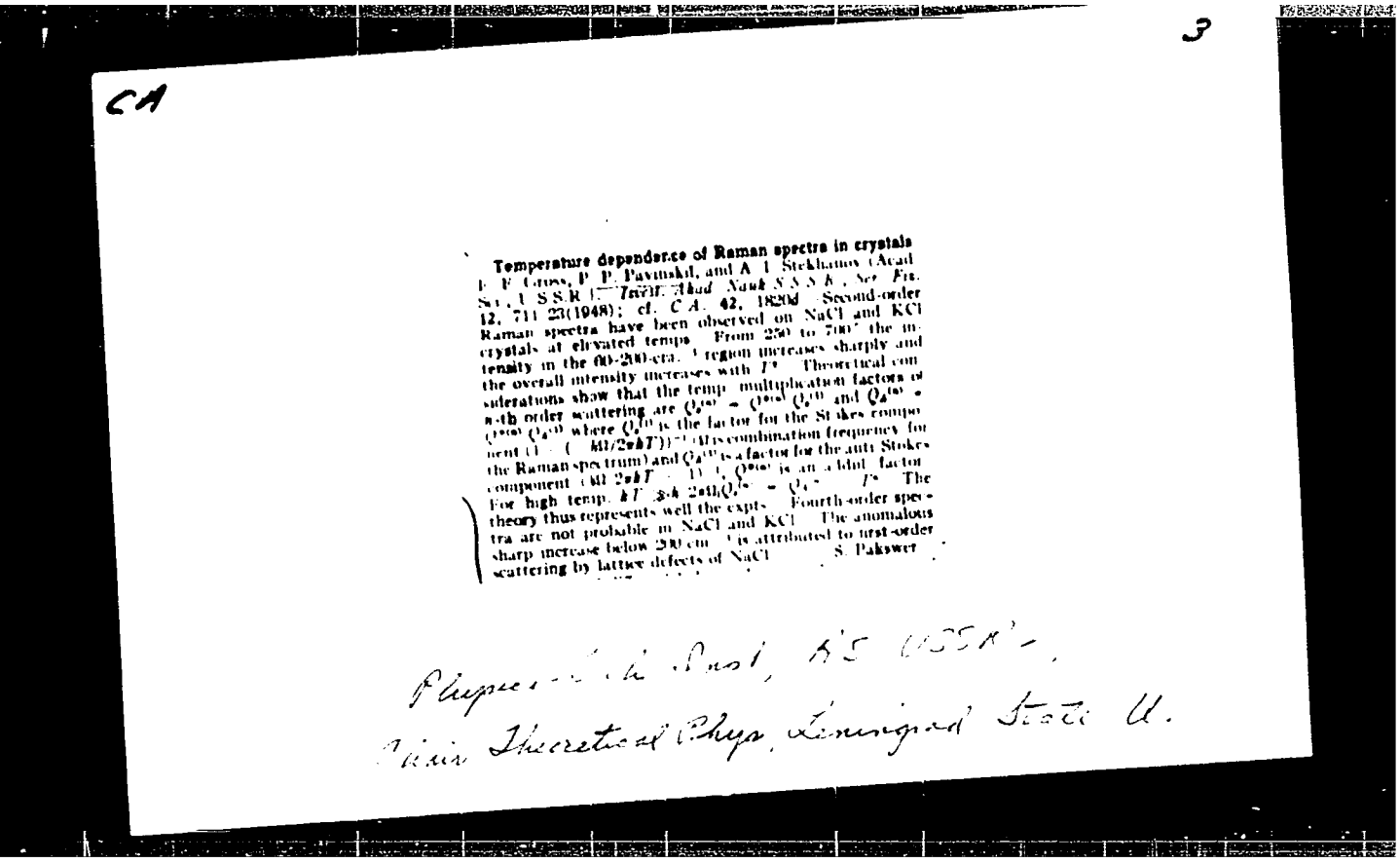
1. VESELOV, M. G.; PAVINSKIY, P. P.

2. USSR (600)

4. Physics and Mathematics.

7. Field Theory. L. Landau and Ye. Lifshits. (Second revised edition, Vol. 4, Moscow-Leningrad, State Technical Press, 1948). Reviewed by M. G. Veselov and P. P. Pavinskiy. Sov. Kniga, No. 2, 1950.

9. [redacted] Report U-3081, 16 Jan. 1953. Unclassified.



3

CA

Temperature dependence of Raman spectra in crystals

I. F. Gross, P. P. Pavinskii, and A. I. Stekhanov (Acad. Sci. U.S.S.R.). *Izvest. Akad. Nauk S.S.S.R., Ser. Fiz.* 12, 711-23(1948); cf. *C.A.* 42, 1820d. Second-order Raman spectra have been observed on NaCl and KCl crystals at elevated temps. From 250 to 700° the intensity in the 60-200-cm.$^{-1}$ region increases sharply and the overall intensity increases with $T°$. Theoretical considerations show that the temp. multiplication factors of n-th order scattering are $Q_n^{(n)} = Q^{(n)}Q_s^{(n)}$ and $Q_a^{(n)} = Q^{(n)}Q_a^{(n)}$ where $Q_s^{(n)}$ is the factor for the Stokes component ($1 - \exp(-h\Omega/2\pi kT)$)$^{-n}$ (Ω is combination frequency for the Raman spectrum) and $Q_a^{(n)}$ is a factor for the anti-Stokes component ($\exp 2\pi kT - 1$)$^{-n}$. $Q^{(n)}$ is an additional factor. For high temp. $kT \gg 2\pi h\Omega$, $Q_s^{(n)} = Q_a^{(n)} = T^n$. The theory thus represents well the expts. Fourth-order spectra are not probable in NaCl and KCl. The anomalous sharp increase below 200 cm.$^{-1}$ is attributed to first-order scattering by lattice defects of NaCl. S. Pakswer

Physics Inst., U.S.S.R.
Div. Theoretical Phys., Leningrad State U.

PAVINSKIY, P.P.

Mathematical Reviews
Vol. 14 No. 7
July - August 1953
Analysis

8-9-54 · LL

Pavinskiĭ, P. P. The electrostatic problem for the sphere. Leningrad. Gosudarstv. Univ. Učenye Zapiski 120, Ser. Fiz. Nauk 7, 134–155 (1949). (Russian)

The mathematical problem treated here is as follows. Let r, ϑ, φ be polar coordinates, $u(r, \vartheta, \varphi)$ a given function harmonic for $r<1$ and regular also for $r=1$ except for isolated points or curves. One has to find two harmonic functions $u_i(r, \vartheta, \varphi)$, $u_e(r, \vartheta, \varphi)$ defined for $r<1$, $r>1$ respectively, such that u_e vanishes at infinity of order at least $1/2$, so that the boundary conditions

$$u_i = u_e, \quad \alpha \partial U_i/\partial r + (1-\alpha)\partial U_e/\partial r = u$$

should hold on $r=1$. Here α is a fixed number, $0<\alpha<1$. In the physical problem u is given in terms of another harmonic function $\Phi(r, \vartheta, \varphi)$ by the relation $u=(1-2\alpha)r(\partial\Phi/\partial r)$. The author remarks that expansions in spherical harmonics cannot be used if u is permitted to have irregularities on $r=1$. He gives explicit integral formulas for u_i and u_e in terms of either u and Φ. These formulas are used for the detailed investigation of the case where Φ is the potential of a point course.

L. Bers (New York, N. Y.).

P. P. PAVINSKIY

USSR/Physics Crystals, Rock Salt Polarization Sep 49

"Polarization of the Spectrum of Second-Order Dispersion of a Rock Salt Crystal," Ye. F. Gross, Corr Mem, Acad Sci USSR, P. P. Pavinskiy, A. I. Stekhanov, Leningrad Physicotech Inst, Acad Sci USSR, 4 pp

"Dok Ak Nauk SSSR" Vol LXVIII, No 1, pp. 27-30

Used a quartz spectograph and a powerful water-cooled mercury-acr lamp to study subject spectrum. Mercury resonance line of 2,537 A was used for excitation. Placed rock salt crystals in special quartz containers, heated to 700° and illuminated by an unpolarized source light. Light diffused by rock salt crystal was collected by a fluorite lens and passed through an Iceland spar crystal set in front of the spectrograph slot. Results of polarization studies of reflective diffusion spectrum of rock salt at high temperatures showed that most polarized part of spectrum is that of low frequencies from 60 to 200 cm^{-1}. Submitted 4 Jul 49.

PA 2/50T102

PAVINSKIY, P.P.

Mathematical Reviews
Vol. 14 No. 7
July - August 1953
Analysis

Pavinskiĭ, P. P. The electrostatic problem for the sphere. Leningrad. Gosudarstv. Univ. Učenye Zapiski 120, Ser. Fiz. Nauk 7, 134–155 (1949). (Russian)

The mathematical problem treated here is as follows. Let r, ϑ, φ be polar coordinates, $u(r, \vartheta, \varphi)$ a given function harmonic for $r < 1$ and regular also for $r = 1$ except for isolated points or curves. One has to find two harmonic functions $u_1(r, \vartheta, \varphi)$, $u_2(r, \vartheta, \varphi)$ defined for $r < 1$, $r > 1$ respectively, such that u_2 vanishes at infinity of order at least $1/2$, so that the boundary conditions

$$u_1 = u_2, \quad \alpha \partial U_1/\partial r + (1-\alpha)\partial U_2/\partial r = u$$

should hold on $r = 1$. Here α is a fixed number, $0 < \alpha \leq 1$. In the physical problem u is given in terms of another harmonic function $\Phi(r, \vartheta, \varphi)$ by the relation $u = (1-2\alpha) r (\partial\Phi/\partial r)$. The author remarks that expansions in spherical harmonics cannot be used if u is permitted to have irregularities on $r = 1$. He gives explicit integral formulas for u_1 and u_2 in terms of either u and Φ. These formulas are used for the detailed investigation of the case where Φ is the potential of a point course.

L. Bers (New York, N. Y.)

PAVINSKIY P. P. 181T84

USSR/Physics - Spectrography Apr 51

"Combined Dispersion of Light of Second Order," E. F. Gross, P. P. Pavinskiy, A. I. Stekhanov

"Uspekhi Fiz Nauk" Vol XLIII, No 4, pp 536-586

Describes phenomena of combined dispersion of 2d order and results of theoretical and exptl res of 2d-order light dispersion by crystals.

181T84

PAVINSKIY, P.P.

Problem of describing the local in the theory of elementary particles with spins larger than unity. Uch. zap. LGU no.146:3-32 '52.
(Particles, Elementary) (Field theory) (MIRA 11:3)

USSR/ Nuclear Physics - Ketronspectrometers

Card 1/1 Pub. 43 - 2/97

Authors : Pavinskiy, P. P.

Title : About the motion of electrons in magnetic spectrometers with heterogeneous fields

Periodical : Izv. AN SSSR. Ser. fiz. 18/2, 175-191, Mar-Apr 1954

Abstract : In order to increase the resolving power and illuminating power of magnetic spectrometers, efforts are made to construct spectrometers with such heterogeneous fields which would make possible a more accurate focusing of the broad voluminous electron pencils. Various ways for accurate focusing of a plane electron pencil, by utilizing heterogeneous magnetic fields oriented perpendicular to the plane of the electron pencil, are suggested. The basic problems arising in the construction of such an accurate spectrometer are discussed. A solution is presented for one of these problems, namely, for the case of a field which depends upon one Descartes coordinate and for the general case of an axially-symmetrical field (focusing at any given angle). Various ways of solving the remaining problems are recommended. Seven references: 6 USSR and 1 French (1884-1950). Table;graphs.

Institution : The A. A. Zhdanov State University, Leningrad

Submitted : March 11, 1954

PAVINSKIY, P. P. and KOZULIN, YU. N.

"The Field of a Vertical Nagnetic Dipole Above a Two-Strata Medium," An article in Scientific Notes of the Leningrad Order of Lenin State University imeni A. A. Zhdanov, No. 210, Physics Institute, Physical Science Series, No 9, Geophysics, 1956, 190 pp.

SUM: 1360

15-57-4-5298

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 4, p 173 (USSR)

AUTHORS: Pavinskiy, P. P., Kozulin, Yu. N.

TITLE: The Field of a Vertical Magnetic Dipole Over a Two-Layer Medium (Pole vertikal'nogo magnitnogo dipolya nad dvukhsloynoy sredoy)

PERIODICAL: Uch. zap. LGU, 1956, Nr 210, pp 134-151.

ABSTRACT: The authors examine the case of an infinitely large and if a zero conductivity in the lower layer. They show methods of calculating the integrals by means of which one may express the field for an arbitrary ratio of conductivity between the layers. Recurrent and asymptotic equations are introduced and the possible metnods of tabulating the basic functions that characterize the field are considered. A. L.

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PAVINSKIY, P. P.

Two series of exciton absorption of light in cuprous oxide. P. P. Pavinskii and A. L. Zhilich. *Vestnik Leningrad. Univ.* 12, No. 4, *Ser. Fiz. i Khim.* No. 1, 50-2(1957).—The occurrence of two series in the exciton absorption of light in Cu_2O, found experimentally by Gross, Karryev, and Zakharchenya, is interpreted theoretically by considering the symmetry of an elementary cell of the lattice (the center of inversion on Cu^+ ion). As pointed out by Zhilich (cf. preceding abstr.) the radius of the ground state of the exciton is about 2 A., which is smaller than the elementary unit cell of the crystal; therefore, a hole remains localized near one ion of O.

Chem 484

PAVINSKIY, P. P.

SOV-7/2

AUTHOR: Pavinskiy, P. P.

TITLE: On Polarization of Anomalous First Order Raman Spectra in the Cri-stals of Alkali Halides (O polyarizatsii anomal'nogo kombinatsionnogo rasseyaniya sveta pervogo poryadka v kristallakh shchelochno - galoidnykh soyedineniy).

PERIODICAL: Vestnik Leningradskogo Universiteta Seriya Fiziki i Khimii, 1957, Vol. 22, Nr 4, pp. 51-61 (USSR).

ABSTRACT: The theoretical study of the polarization of the Raman spectra on local irregularities of the cristal lattice is the basis for the present work. In a preceding study the phenomenon of the anomalous radiations has been explained as radiations of the Raman spectrum of first order by the fact, that they are effected by the presence of slightly bound electrons in the cristal lattice, Pointed out is the role of the cubic symetry of the cristal lattice at the determination of the composition of the Raman spectrum. The present study examines the above mentioned observations made by Ye. F. Gross and A. I. Stekhanov and veryfies them.
There are 9 references, 7 of which are Slavic.

Card 1/2

On Polarization of Anomalous First Order Raman Spectra in the Cristals Sh-----?/--
of Alkali Halides.

SUBMITTED: July 12, 1957.

AVAILABLE: Library of Congress.

Card 2/2

57-9-36/40

AUTHOR: Gross, Ye.F., Zakharchenya, B.P., Pavinskiy, P.P.

TITLE: Diamagnetic Exiton Levels and Cyclotron Resonance (Diamagnitnyye urovni ekaitona i tsiklotronnyy rezonans)

PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol. 27, Nr 9, pp. 2177 - 2180 (USSR)

ABSTRACT: New phenomena are described. Nearer towards the series border, where diamagnetic displacement in the case of a lacking magnetic field attains the amount of the distance between the neighboring terms of the series, a spectrum, consisting of nearly equidistant lines, was observed at a distance between the lines of H = 29 oooOersted of the order of 2 cm^{-1}. This striped spectrum is continued also beyond the series boundary, where, with a lacking magnetic field, (H=0) the through-going spectrum which corresponds to exiton dissociation is located. The farther one penetrates into the shortwave range, the less distinct does the structure of the spectrum become, and the spectral lines approach more closely to one another over a distance of 1,6 cm^{-1}. Hereafter their distribution becomes irregular. These lines are observed on the base of the through-going spectrum, where its intensity does not take a monotonous course but shows absorption maxima. The distance between the maxima is reduced as the shortwave part of the spectrum is approached. Thus, the spectrum

Card 1/2

57-9-36/40

Diamagnetic Exiton Levels and Cyclotron Resonance

here consists of absorption maxima upon which the aforementioned striped spectrum is impressed in form of a thin structure. The intensity of the absorption maxima becomes weaker to the extent as they shift towards the violet part of the spectrum, and coalesce with the limit of the continuous absorption. Investigations showed that the through-going exiton spectrum is a superposition of the absorption spectra corresponding to the exiton states at various μ-values. μ - is the magnetic quantum number of the exiton. There is 1 figure and 2 Slavic references.

ASSOCIATION: Physical-Technical Institute AN USSR, Leningrad
(Fiziko-tekhnicheskiy institut AN SSSR, Leningrad)

SUBMITTED: July 8, 1957

AVAILABE: Library of Congress

Card 2/2

L 42295-66 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) AT/JD

ACC NR: AP6022498 SOURCE CODE: UR/0054/66/000/001/0028/0033

AUTHOR: Lebedev, I. V.; Pavinskiy, P. P.

ORG: none

TITLE: Kinetics of exitons and holes in a crystal of cuprous oxide

SOURCE: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no. 1, 1966, 28-33

TOPIC TAGS: kinetics, exiton, cuprous oxide, crystal

ABSTRACT: The article reports an investigation of the kinetics of exitons and holes in a cuprous oxide crystal, when the exiton mechanism of light absorption is considerable. Expressions are derived for the photoconductivity and the photoelectromotive force brought about by the presence of defects. The flow of exitons in Cu_2O may be considered as purely diffusional, since as a result of inverse symmetry, the true dipolar moment of the exitons is absent. The article distinguishes between exitons with a small radius, to which, in the hydrogen model, corresponds a main quantum number n = 1, and exitons with a large radius and n = 2, 3, etc. The article is mainly taken up with a mathematical development of the subject, ending with derivations of the above

UDC: 537.312.5

Card 1/2

L 12295-66

ACC NR: AP6022498

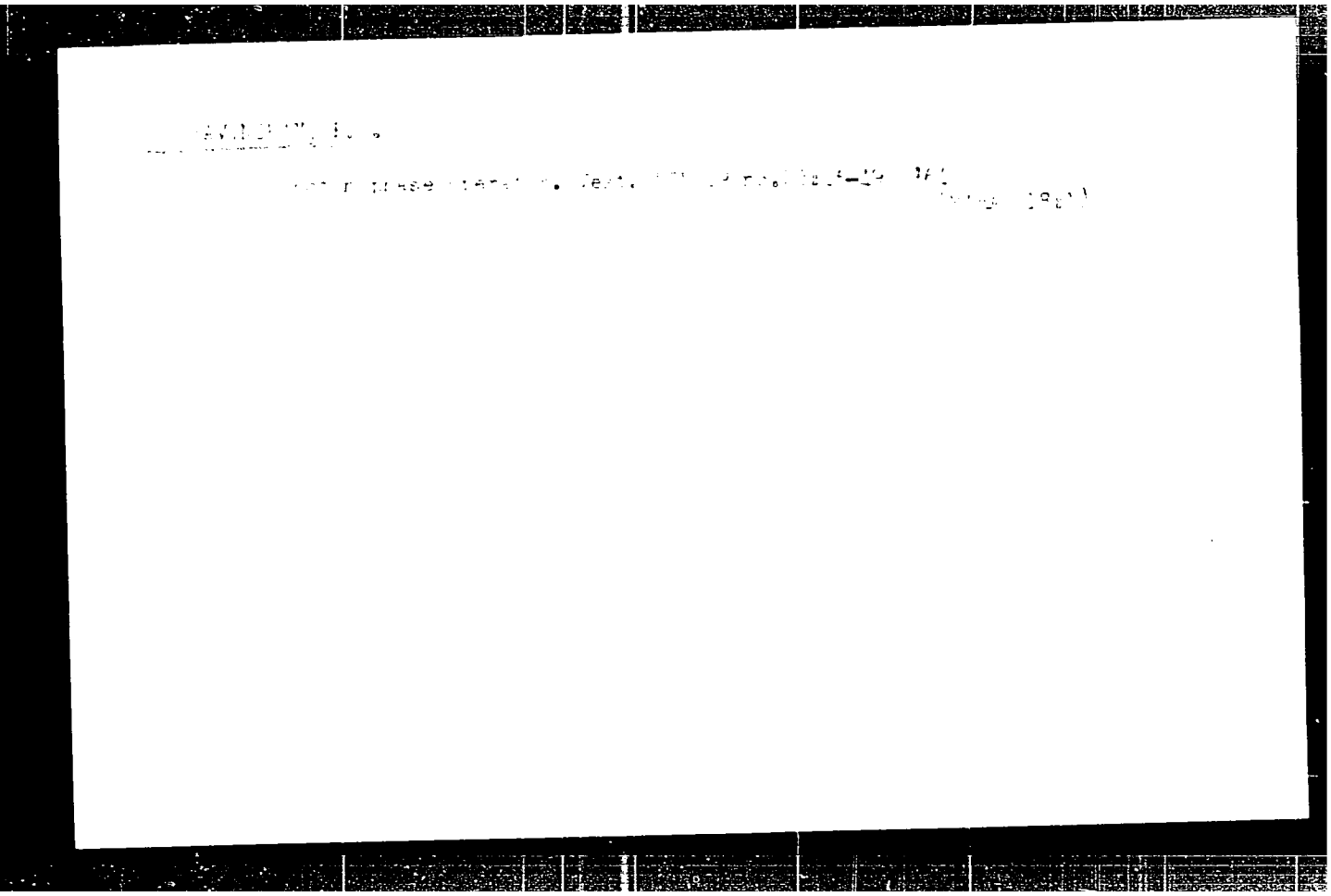
mentioned expressions for the photoconductivity and photoelectromotive force. Orig. art. has: 35 formulas.

SUB CODE: 20/ SUBM DATE: 080ct65/ ORIG REF: 003/ OTH REF: 001

Card 2/2 fdh

PAVINSKIY, P.P.

Optical-accoustic effect and its influence on auditory analyzer. (MIRA 18:6)
Vest. LGU 20 no.9:95-105 '65.



ACCESSION NR: AP3002890 S/0054/63/000/002/0027/0036

AUTHORS: Kondrat'yev, A. S.; Pavinskiy, P. P.

TITLE: Step structure in absorption spectra of excitons in copper oxide

SOURCE: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no. 2, 1963, 27-36

TOPIC TAGS: ion, crystal lattice, absorption band, dipole, quadrupole, phonon, exciton

ABSTRACT: The general motion of ions in a crystal lattice has been studied with constant a and N spinless nuclei. The wave and energy equations for the fundamental state of the crystal have been derived. Specifically, the step structure of Cu_2O has been investigated in the absorption band formation, including the effects of both dipole and quadrupole transitions. The resulting mathematical expressions indicate that quadrupole transitions with production and destruction of phonons cannot be neglected when compared to dipole transitions. The main features of the part of absorption band contiguous to the exciton line n = 1 in Cu_2O may be interpreted theoretically as being due to the additional phonon excitation in the lattice. Orig. art. has: 45 equations.

Card 1/2

ACCESSION NR: AP3002890

ASSOCIATION: none

SUBMITTED: 01Dec62 DATE ACQ: 24Jul63 ENCL: 00

SUB CODE: PH NO REF SOV: 007 OTHER: 001

Card 2/2

L'VOV, O.I.; PAVINSKIY, P.P.

Kinetic equation for excitons in Cu_2O crystals. Vest.LGU 17 no.22:23-28 '62. (MIRA 15:12)
(Copper oxide crystals) (Excitons)

S/054/62/000/004/001/017
B101/B186

AUTHORS: L'vov, O. I., Pavinskiy, L. P.

TITLE: Kinetic equation for excitons in the Cu_2O crystal

PERIODICAL: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no. 4, 1962, 23-28

TEXT: Equations are set up for the dependence of the photocurrent in Cu_2O on the light intensity in the region of exciton absorption under the following conditions: (1) If the light frequency is smaller than the edges frequency of self-absorption of the crystal, current carriers are formed from the excitons. The absorption of excitons is assumed to be a direct form of light absorption by Cu_2O. (2) As Cu_2O possesses p-type conductivity, the electrons formed by dissociation of the exciton must be trapped quickly. (3) The dark generation of holes must be considered in the corresponding temperature range. Taking account of all possible processes with band electrons (concentration n_-), holes (n_+), trapped electrons (m), acceptor centers (M), and excitons (N) participating, the following set of

Kinetic equation for excitons...

equations is found for their concentrations: $dn_-/dt = \delta_1 n_- N + \delta_2 n_+ N + \Re mN - \sigma n_-(M - m) - \gamma_1 n_- n_+ + \beta N^2$; $dn_+/dt = \delta_2 n_+ N + \delta_1 n_- N + \eta(M - m)N - \gamma_1 n_- n_+ - \gamma_2 mn_+ + \beta N^2 + a(T)$; $dm/dt = \sigma n_-(M - m)N + \eta(M - m)N - \Re mN - \gamma_2 mn_+ + a(T)$; $dN/dt = a - \delta_1' n_- N - \delta_2' n_+ N - \eta(M - m)N - \beta_1 N - \gamma N^2 - \Re mN + \sigma n_- n_+$. This covers the following processes: (a) generation of excitons by light of intensity I (coefficient a); (b) dissociation of the exciton in the acceptor center and possible trapping of electrons on the acceptor level (coefficient η); (c) radiationless or spontaneous optical recombination of the exciton (β_1); (d) collision of two excitons and dissociation of one of them with formation of two current carriers e_- and e_+ (β), or recombination of one exciton (radiationless or optical); the total process is described by coefficient γ; (e) recombination of the exciton with energy transfer to an electron trapped by the acceptor ($\Re$); (f) collision of the exciton with a free carrier e_- or e_+ and formation of a new pair of carriers (coefficients δ_1 and δ_2) due to dissociation of the exciton; the coefficients δ_1' and δ_2' also involve the recombination of the exciton in a collision with

Kinetic equation for excitons...

e_- or e_+; (g) recombination of the carriers e_- and e_+ (γ_1) with possible formation of a "secondary" exciton (σ); (h) recombination of a hole with a trapped electron (γ_2); (i) trapping of an electron on acceptor levels (ε); (k) thermal generation of dark holes described by the function a(T). Discussion of the set of equations with respect to the three cases: (1) photocarriers contribute very little to a steady density of the dark carriers; (2) density of photocarriers and of dark carriers is of the same order; (3) absence of dark conductivity at low temperatures has the consequence that the photocurrent may be proportional to $\sqrt{I}$ at low temperatures and small light intensities, also that the dependence of the photocurrent on the light intensity approaches linearity when the temperature rises. The interaction of excitons is the principal cause of divergence from linearity. The English-language reference is: R. Elliott, Phys. Rev., 108, 1384 (1957).

SUBMITTED: July 3, 1962

Card 3/3

PAVINSKIY, P.P.

Analytical expression for the effective mass of a particle moving in a one-dimensional periodic field. Vest.LGU 16 no.10:8-12 '61. (MIRA 14:5)

(Functional, Periodic) (Field theory)

PAVINSKIY, P.P.; STAROSTIN, N.V.

Quadrupole absorption of light in a cuprous oxide crystal.
Vest. LGU 16 no.4:141-142 '61. (MIRA 14:3)
(Copper oxide crystals)

PAVINSKIY, P.P.; ZAKHAROV, V.K.

Zeeman effect in the quadrupole exciton line of a cuprous oxide crystal. Vest.LGU 16 no.4:143-144 '61. (MIRA 14:3)
(Copper oxide crystals)

24063
S/054/61/000/002/001/005
B101/B217

24.4400

AUTHOR: Pavinskiy, P. P.

TITLE: An analytical expression for the effective mass of a particle moving in a one-dimensional periodic field

PERIODICAL: Leningradskiy Universitet. Vestnik. Seriya fiziki i khimii, no. 2, 1961, 8-12

TEXT: The Schrödinger equation for a particle moving in a periodic potential field: $U(x) = U(x+a)$ serves as a basis for determining an expression for the effective mass of a particle moving in a periodic field. For the eigenfunctions of $E(-k) = E(k)$, the Bloch functions are written down: $\psi_k(x) = \exp(ikx)u_k(x)$; $\psi_{-k}(x) = \overline{\psi_k(x)}$ (1). The wave number k varies between $-\pi/a$ and $+\pi/a$, and the real values of k are between 0 and π/a. Then, two solutions of Eq (1) correspond to the limits of this interval: 1) for $k = 0$ one has $\psi_0(x) = u_0(x)$ with the period a of the potential; 2) for $k = k_0 = \pi/a$ one obtains functions with the period 2a, which, furthermore, correspond to the equation $\psi_{k_0}(x+a) = -\psi_{k_0}(x)$ (2). These solutions are

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An analytical expression ...

called "semi-periodic." If $k \rightarrow 0$, the Bloch amplitude is given by $u_x(x) = \exp(ik_o x)u_k(x)$; for $k \rightarrow \pi/a$ one finds $u_{-x}(x) = \exp(-ik_o x)u_{-k}(x)$. Herefrom, it follows that $\psi_k(x) = \exp[i(k-k_o)x]\exp(ik_o x)u_k(x) = \exp(ikx)u_k(x$ (3). If $k \rightarrow k_o$ also $\kappa = k-k_o$ tends toward zero. For the effective mass m^*, the following relation is written down: $E(k) = E(k_\sigma) + h^2(k-k_\sigma)^2/2m^* + O(k-k_\sigma)^4$ (4), where k_σ is either equal to zero or $k_\sigma = k_o = \pi/a$. From the Schrödinger equation $(h^2/2m)(d^2\psi/dx^2)+[E-U(x)]\psi = 0$ (5), the differential equation for the Bloch amplitude is derived: $(h^2/2m)(d^2u_k/dx^2+2ikdu_k/dx-k^2u_k)+[E(k)-U(x)]u_k = 0$ (6), and the following expression is obtained:

$$(h^2ik/m)\int_{x_o}^{x_o+a} u_o(du_k/dx)dx = [E(0)+h^2k^2/2m-E(k)]\int_{x_o}^{x_o+a} u_k u_o dx \quad (7).$$ The

Card 2/5

An analytical expression ...

function $iv_0(x) = \lim_{k \to 0} (du_k/dk)$ (8) is now introduced. Up to terms of the order of k^2, the following approximations hold: $u_k = u_0 + ikv_0$; $u_{-k} = u_0 - ikv_0$ (9). For m* it follows that $1/m^* = (1/m)(1+2I/N)$ (10), where $I = \int_{x_0}^{x_0+a} u_0(dv_0/dx)dx$ (11); $N = \int_{x_0}^{x_0+a} u_0^2 dx$ (12). For a better applicability of Eq. (10), the other linear solution of Eq. (5), corresponding to the eigenvalue $E(k_0)$, is introduced instead of $v_0(x)$. $v_0(x)$ corresponds to the inhomogeneous equation $(h^2/2m)(d^2v_0/dx^2)+[E(k_0)-U(x)]v_0 = -(h^2/m)du_0/dx$ (13), with the following solution: $v_0(x) = -xu_0(x)+Cu_0(x)+Au^*(x)$ (14). Here, C is an arbitrary constant. Constant A is determined by the periodicity or semi-periodicity, respectively $u^*(x)$ in Eq. (14) corresponds to $E(k_0)$, which, in the range $x = -\infty$, $x = +\infty$, is unlimited. For A one obtains $A = au_0(x)/[u^*(x+a)-u^*(x)]$, when $u_0(x+a) = u_0(x)$ (15); and $A = -au_0(x)/$

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An analytical expression ...

$[u^*(x+a)+u^*(x)]$ when $u_o(x+a) = -u_o(x)$ (16). The expression: $m^*/m = N/AaW = ND/a^2W$; $D = a/A$ (17) is obtained by substituting Eq. (14) in Eq. (15) and by partial integration. W is the Wronski determinant for linearly independent solutions of $u_o(x)$ and $u^*(x)$: $W = u_o(du^*/dx)-u^*(du_o/dx)$ (18).

Relations holding for the Mathieu equation are studied as an example: $d^2\psi/dx^2+(a-2q\cos 2x)\psi = 0$ (19). $a = 2ml^2E/h^2$; $U(x) = (h^2q/ml^2)\cos 2x$, where l is a constant of the dimension of one length. For a certain value of the parameter q, the series of eigenfunctions $ce_o(x,q)$; $se_1(x,q)$; $ce_1(x,q)$; $se_2(x,q)$; $ce_2(x,q)$ (20) results. The solutions for ce_{2n} and se_{2n} are periodic, whilst the solutions for ce_{2n+1} and se_{2n+1} are semi-periodic. If a_n is substituted for the eigenvalue of the function $ce_n(x,q)$, and b_n for that of $se_n(x,q)$, the forbidden band with number n lies between the limits b_n and a_n. The forbidden band width is determined by the difference: $\Delta E_n = a_n-b_n (n = 1, 2, 3,...)$ (21). Using equations for the expansion of

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24063
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B101/B217

An analytical expression ...

the eigenvalues and eigenfunctions in a power series of q, the lower and the upper limit of the allowed band for the effective masses are derived, and the following series is obtained for m^*/m: $1+q^2/2$; $-(q/2)(1+q/2)$; $(q/2)(1-q/2)$; $-(q^2/32)(1+7q^2/288)$; $(q^2/32)(1+25q^2/288)$ .... (22). If $q \to 0$, all effective masses, with the exception of the first, approach zero. For $n = 1, 2, 3$, one finds $\lim_{q \to 0} (m^*/m\Delta E)_n = 1/(2n)^2$ (23). For the lower limit of the lowest allowed zone $m^* > m$. This result is proved to be generally valid, except for $u_0(x) = \text{const}$, which corresponds to free particle.

There are 2 references: 1 Soviet-bloc and 1 non-Soviet-bloc.

Card 5/5

PAVINSKIY, P.P.

24(4) PHASE I BOOK EXPLOITATION SOV/3140

Akademiya nauk Ukrainskoy SSR. Institut fiziki

Fotoelektricheskiye i opticheskiye yavleniya v poluprovodnikakh; trudy pervogo Vsesoyuznogo soveshchaniya po fotoelektricheskim i opticheskim yavleniyam v poluprovodnikakh, g. Kiyev, 20-26 noyabrya 1957 g. (Photoelectric and Optical Phenomena in Semiconductors; Transactions of the First Conference on Photoelectric and Optical Phenomena in Semiconductors...) Kiyev, 1959. 403 p. 4,000 copies printed.

Additional Sponsoring Agency: Akademiya nauk SSSR. Prezidium.

Komissiya po poluprovodnikam.

Ed. of Publishing House: I. V. Klaina; Tech. Ed.: A. A. Matveychuk; Resp. Ed.: V. Ye. Lashkarev, Academician, Ukrainian SSR, Academy of Sciences.

PURPOSE: This book is intended for scientists in the field of semiconductor physics, solid state spectroscopy, and semiconductor devices. The collection will be useful to advanced students in universities and institutes of higher technical training specializing in the physics and technical application of semiconductors.

COVERAGE: The collection contains reports and information bulletins (the latter are indicated by asterisks) read at the First All-Union Conference on Optical and Photoelectric Phenomena in Semiconductors. A wide scope of problems in semiconductor physics and technology are considered: photoconductivity, photoelectromotive forces, optical properties, photoelectric cells and photoresistors, the actions of hard and corpuscular radiations, the properties of thin films and complex semiconductor systems, etc. The materials were prepared for publication by Z. I. Shevchenko, O. V. Snitko, K. A. Valyayev, A. P. Lukhanin, and M. E. Sheynkman. References and discussion follow each article.

BULYANITSA, D.S.; PAVINSKIY, P.P.

Continuous light absorption spectrum of crystal in a magnetic field [with summary in English]. Vest. LGU 13 no.22:75-79 '58.
(MIRA 12:4)
(Crystals--Spectra)

SOV/54-58-4-8/18

24(5)

AUTHORS: Bulyanitsa, D. S., Pavinskiy, P. P.

TITLE: On the Continuous Absorption Spectrum of Light in the Crystal in the Magnetic Field (O sploshnom spektre pogloshcheniya sveta v kristalle v magnitnom pole)

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii, 1958, Nr 4, pp 75-79 (USSR)

ABSTRACT: In a previous paper (Ref 1) the authors have shown that the continuous absorption spectrum of light in a cuprous crystal in the presence of a magnetic field differs considerably from that in the absence of a magnetic field. Further, it resulted from the computation of the strength that the latter is influenced in various ways by taking into account the Coulomb field, the finite lifetime of the exciton and the interaction of the exciton with the lattice phonons. In this paper the computation was made only taking into account the magnetic field, but it is done in a way that only additional mathematical computations are necessary for taking into account the Coulomb field without changing the scheme. The authors established the wave function of the final state ψ_f, in which the relative motion $\Phi(r)$ of the exciton sat-

Card 1/2

On the Continuous Absorption Spectrum of Light in the Crystal in the Magnetic Field

isfies a Schrödinger equation, according to which the strength may be computed theoretically, taking into account the Coulomb field and the motion of the center of gravity of the exciton. The further computation, however, is made without taking into account these data. The range between the maxima of the absorption intensity was determined to be $\frac{eH}{m^*c}$ (m^* is the reduced mass of the exciton). This periodicity is determined by a selection rule which holds in the absence of a Coulomb field. The absorption coefficient obtained at a very small magnetic field is in agreement with that given in reference 9. There are 9 references, 5 of which are Soviet.

L 20677-65 EWT(1) IJP(c)/AFWL/ASD(a)-5/SSD/AFETR
ACCESSION NR: AP5001581 S/0054/64/000/004/0045/0049

AUTHOR: Pavinskiy, P. P. B

TITLE: On the photon phase operator

SOURCE: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no. 4, 1964, 45-49

TOPIC TAGS: quantum mechanics, phase operator, quantum number operator, commutation relation, uncertainty principle

ABSTRACT: The phase operator and the quantum-number operator N are defined by the formulas

$$a=e^{-i\theta}N^{1/2};\ a^{+}=N^{1/2}e^{i\theta}; \quad (3)$$

$$a^{+}a=N. \quad (4)$$

where a and a^{+} are the oscillation amplitudes of the harmonic oscillator, satisfying the commutation relations

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$$aa^+ - a^+a = 1, \quad (2)$$

The fundamental relations between the operators θ and N consists in satisfying the commutation relation

$$e^{-iN} f(N) = f(N+1) e^{-iN}, \quad (5)$$

where f(N) is an arbitrary function. It has been customary, however, (see W. Heitler, The Quantum Theory of Radiation, Oxford, 1954, p. 65) to use the simpler commutation relation

$$\theta N - N\theta = i \quad (6)$$

which can be used to derive the Heiserberg uncertainty relations for the physical quantities represented by the operators θ and N. It is pointed out that formula (6) is equivalent to introducing a new hypothesis, which may contradict the definitions (3), (4), and (5). The author therefore derives an uncertainty relation for the quantities θ and N, based on formulas (3), (4), and (5), with-

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ACCESSION NR: AP5001581

out the use of (6). Orig. art. has: 3 formulas.

ASSOCIATION: None

SUBMITTED: 22Jan64 ENCL: 00

SUB CODE: GP NR REF SOV: 002 OTHER: 001

Card 3/3

PAVISIC, Zvonimir; FERIC-SEIWERTH, Feodora

Results of the treatment of ocular syphilis in our experience. Rad. med. fak. Zagreb. 10 no.2:81-94 '62.

YUGOSLAVIA

PAVIŠIC, Zvonimir; and LEDIC, Ivo, Clinic for Diseases of the Eye of the Medical Faculty (Klinika za ocne bolesti Medicinskog fakulteta) Zagreb

"Appearance, Frequency and Therapy of Tuberculosis of the Eye in Our Clinical Experience"

Radovi Medicinskog Fakulteta u Zagrebu, Vol 14, No. 1, 1966; pp 1-10

Abstract [German summary modified]: Review of data on 1061 cases of tuberculosis of various parts of the eye seen in patients at the authors' clinic 1923 to 1940; 655 cases seen in 1946 to 1961; 187 seen in 1956 to 1964; data by 9 diagnostic classifications. Usual treatment is now isoniazid, paraminosalicylic acid and streptomycin. Of the 187 patients treated in Sljeme Hospital for tuberculosis 1963 to 1964, 94 were improved, 86 unchanged, and 9 worse. 4 tables, 6 Western, 2 Yugoslav references. Manuscript received 15 December 1965.

1/1

PAVKIN, N.

Combined fishing, p. 287
(GLASNIK, Vol. 8, No. 9, Sept. 1956 (Published 1957)

SO: Monthly List of East European Accessions (EEAL) LC Vol. 7, No. 12, Dec. 1957
Uncl.

DANIAKHIY, M.A., prof.; PAVKINA, A.G.; SUMOVSKAYA, A.Ye.; MOLOTKOVA, V.V.; ILOVAYSKAYA, K.S.

Cytological picture of vaginal secretion in normal and pathological pregnancy. Akush. i gin. 34 no.6:23-26 N-D '58. (MIRA 12:1)

1. Iz akushersko-ginekologicheskoy kliniki Saratovskogo meditsinskogo instituta.

(PREGNANCY, physiol.
vaginal secretion, cytol. (Rus))
(VAGINA, physiol.
secretion in pregn., cytol. (Rus))

PAVKO, D.

"Gasification and oxidation of combustibles" by Jacques Meunier. Reviewed by D. Pavko. Rud met zbor no.1:47-48 '62.

PAVKO, D.

"Hydrogen and nitrogen in steel" by A.N.Morozov. Reviewed by D. Pavko. Rud met zbor no.1:73 '62.

PAVKO, D.

"Testing the increased temperature in the melting zone of the cupola furnace, and realization of an optimal thermal efficiency rate by using the high-carbon coke in pieces of various size" by Wilhelm Patterson and Wilhelm Wenkamp. Reviewed by D. Pavko. Rud met zbor no.1:87 '62.

PAVKO, D.

"Inert atmospheres in the chemical, metallurgical and atomic energy industries" by P.A.F. White and S.E.Smith. Reviewed by D. Pavko. Rud met zbor no.1:46 '62.

PAVKO, D.

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