STASHKO, S.P.; SAMOYLOVA, V.Ye.; IPATOVA, G.F.

Methods for determining the germinative capacity of brewing barley. Trudy TSentr. nauch.-issl. inst. piv., bezalk. i vin. prom. no.10:31-37 '63. (MIRA 17:8)

KOLONINA, N.P.; KUBAREVA, N.I.; IPATOVA, G.N.

Ion exchange method of removing copper from nickel and cobalt chloride electrolytes. TSvet. met. 38 no.9:43-44 S '65. (MIRA 18:12)

IPATOVA, I. P.

IPATOVA, I. P. -- "On the Power Spectrum of 'Exiton' in an Ionic Crystal." Leningrad Order of Lenin State U imeni A. A. Zhdanov. Leningrad, 1955. (Dissertation for the Degree of Candidate in Physicomathematical Sciences)

SO: Knizhnaya Letopis', No 1, 1956, pp 102-122, 124

I PATOVA, I.P.

PA - 1836

CARD 1 / 2

SUBJECT USSR / PHYSICS
AUTHOR IPATOVA,I.P.
TITLE On the Theory of Exitons in Ion Crystals.
PERIODICAL Žurn.techn.fis, 26, fasc.12, 2786-2788 (1956)
Issued: 1 / 1957

In this work the method of interconnection developed by LEE, LOW and PINES was employed for the purpose of determining the exiton spectrum. The method takes account of the oscillations of the ions, but it is useless in the case of higher values of the connection constant. The HAMILTONIAN of the system is written down. As the full momentum of the system is obtained, it is better to work on the assumption of a diagonal momentum. Transition takes place with the help of canonical transformation, whereby the coordinate R of the center of mass is removed from the HAMILTONIAN. Computations are carried out for Cu_2O and results for the various m_1 and m_2 values are shown in a table. (m_1 and m_2 are the effective masses of the electron and the hole respectively). Computations carried out by the authoress disclosed the existence of the ever-polarizing exiton (at $m_1 \neq m_2$). The energy of the exiton-levels depends, according to the authoress, not only on the ratio of the effective masses, but also on the individual values of m_1 and m_2. Computations allow some conclusions to be drawn as to the exiton spectrum as a whole. At $m_1 \neq m_2$ the exiton spectrum will differ in two respects from the

INSTI ...stitute.

I PATOVA, I. P.

PA - 2349

AUTHOR: IPATOVA,I.P.
TITLE: On the Energy Spectrum of an Exiton in an Ion Crystal. (Ob energeticheskom spektre eksitona v ionnom kristalle, Russian).
PERIODICAL: Izvestiia Akad.Nauk SSSR, Ser. Fiz., 1957, Vol 21, Nr 1, pp 78-86 (U.S.S.R.).
Received: 4 / 1957 Reviewed: 5 / 1957

ABSTRACT: It was interesting to compare the already available results with those obtained by computing the energy spectrum of an exiton in consideration of the oscillations of the ions with respect to the shifted positions of the equilibrium. On this occasion it is possible to employ TOMONAGA's direct variation method which is known by the name of "method of average coupling". This method can, however, not be used for high values of the coupling constant.

The present mathematical paper is arranged as follows:
1) The Hamiltonian of the system 2) Selection of the approximating function 3) Computation of the 2p state of the exiton without taking cor-relation into account.

Some Conclusions: In the case of $m_1 \neq m_2$ (m_1 - mass of the electron, m_2 - mass of the hole) energy has a single medium which corresponds to the existence of a polarizing exiton in the Cu_2O crystal. ...exitons exist only in the case $m_1 = m_2$. In accordance ...variation methods physical importance

26419
S/056/61/041/001/014/021
B102/B214

24,7700

AUTHORS: Ipatova, I. P., Kazarinov, R. F.

TITLE: Faraday effect on excitons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 1(7), 1961, 209-210

TEXT: This paper gives a theoretical investigation of the rotation of the plane of polarization in the neighborhood of exciton absorption lines; the angle of this rotation depends on the effective mass and the radius of the exciton. In the neighborhood of the exciton absorption lines (corresponding to the transition into the p state) the rotation of the plane of polarization (Faraday effect) may be expected to be large. In cubic crystals the angle of rotation φ is expressed by the component of the boundary vector $\vec{G}$ lying in the H direction ($\vec{H} \parallel z$): $\varphi = (\pi d/\lambda) G_z/\varepsilon$, where d is the thickness of the sample, ε the dielectric constant without magnetic field, and λ the wavelength of light. $\vec{G}$ is determined by the asymmetric part of the dielectric constant: $G_\gamma = \delta_{\gamma\mu\nu}\varepsilon_{\mu\nu}$. Therefore,

Card 1/4

Faraday effect on excitons

S/056/61/041/001/014/021
B102/B214.

the problem consists in the calculation of $\varepsilon_{\mu\nu}(\vec{H})$. For Mott's excitons only transitions to the s-state are permitted, those to the p-state are forbidden. Since, however, the s-state transitions show no Faraday effect, the less intensive forbidden transitions are considered. For the exciton conductivity one has:

$$\sigma_{\mu\nu} = \sum_{n;m=0,\pm1} T_{\mu\nu}^{nm}/[\gamma - i(\omega - \omega_n - \Omega m)], \quad (3),$$

where ω is the frequency of light, $\Omega = eH/2Mc$, M the reduced mass of the exciton, ω_n the hydrogen-like energy level, γ the width of the exciton line, m the magnetic quantum number, $T_{\nu\mu}^{nm}$ a tensor whose real part is related with the oscillator force of the transition and the imaginary part with the rotation of the plane of polarization:

$$T_{\mu\nu}^{nm} = \frac{1}{E_0}\sum_i \left(\frac{\partial J_\nu^{nc}}{\partial k_\alpha}\right)_{K_i}\left(\frac{\partial J_\mu^{cv}}{\partial k_\beta}\right)_{K_i}\left(\frac{\partial \Psi_{n1m}}{\partial x_\beta}\right)_{x=0}\left(\frac{\partial \Psi_{n1m}^*}{\partial x_\alpha}\right)_{x=0}. \quad (4)$$

E_0 is the minimum frequency of the transition to the ground state, K_i is the point in the momentum space corresponding to this transition, Ψ_{n1m}

Card 2/4

Faraday effect on excitons

the hydrogen-like wave function of the p-state of the exciton, and

$$J_\nu^{cc'}(k) = J_\nu^{vc'}(k) = e\int d^3r\, u^*_{ck}(r)\hat{v}_\nu u_{vk}(r),$$

the matrix element of the band-to-band current calculated from Bloch's wave function. With $T^{nm}_{\mu\nu} = T^{n-m}_{\nu\mu}$; $T^{nm}_{\mu\nu} = (T^{nm}_{\nu\mu})^*$ and the assumption that $|\omega_n-\omega| \gtrsim \nu > \Omega$, one obtains

$$-i\varepsilon^{\text{анти}}_{\mu\nu} = \frac{2\pi}{\omega}(\sigma_{\mu\nu}-\sigma_{\nu\mu}) = -i\frac{4\pi}{\omega}\sum_n \operatorname{Im}(T^{n1}_{\mu\nu})\frac{\Omega}{\gamma^2+(\omega-\omega_n)^2}. \quad (6)$$

The angle of rotation near the line with n = 2 is given by:

$$\varphi = \frac{\pi}{2}\frac{1}{\varepsilon}\left(\frac{d}{\lambda}\right)\left(\frac{a}{2r_0}\right)^3\frac{\Omega\omega}{\gamma^2+(\omega-\omega_n)^2}\beta_{xy}, \quad (7),$$

where $\beta_{xy} \sim 1$. A rough numerical estimate of φ for the yellow exciton series in Cu_2O crystal (ε=10) gives: $\varphi \gtrsim 0.5^\circ$ for H = 10^3 gauss, $|\omega-\omega_n| \sim \gamma \sim 10\Omega$, $r_0 \leq 30a$, and d = 500μ. From the angle of rotation

Card 3/4

Faraday effect on excitons

which is always measurable, one can obtain the radius of the exciton if its reduced mass is known. The authors thank L. E. Gurevich, O. V. Konstantinov, and G. M. Eliashberg for discussions. There are 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR (Leningrad Institute of Physics and Technology of the Academy of Sciences, USSR)

SUBMITTED: January 31, 1961

Card 4/4

39967
S/161/62/004/008/010/041
B125/B102

24,7000

AUTHORS: Gurevich, L. E., and Ipatova, I. P.

TITLE: Absorption of electromagnetic waves by homeopolar crystals

PERIODICAL: Fizika tverdogo tela, v. 4, no. 8, 1962, 2065-2074

TEXT: When temperatures are much lower than those of the forbidden band width $\hbar\Omega_0$, the photons absorbed by non-degenerate semiconductors or dielectrics are assumed to excite an electron from the filled band into the conduction band. When this electron is deexcited, it emits one or several phonons. The temperature T must be high enough to ensure that there is no appreciable absorption by free carriers. The emission of a single optical resonance phonon by an electron causes a resonance absorption at one of the optical threshold frequencies. As the electromagnetic waves are transverse, this absorption occurs only in non-cubic crystals and only in directions other than the main tensor axes of polarizability. In two-phonon absorption two phonons are formed, having the momenta $\vec{q}$ and $\vec{k}-\vec{q} \simeq -\vec{q}$ of the two vibration branches t and t' with the frequencies $\omega_{t\vec{q}}$ and $\omega_{t'\vec{k}-\vec{q}} \approx \omega_{t'\vec{q}}$. From the transition probability

Card 1/3

S/181/62/004/008/010/041
B125/B102

Absorption of electromagnetic ...

$$W = (2\pi/\hbar^2) \sum_{tt'} \int d^3q \left|V_{tt'}(\vec{q})\right|^2 \delta(\omega - \omega_{t\vec{q}} - \omega_{t'\vec{q}}) \text{ with } V_{tt'}(\vec{q}) = -M_{\mu}^{tt'}(\vec{q}) E_{\mu}$$

for the real part:

$$\mathrm{Re}\,\sigma_{\mu\nu} = \frac{\pi\omega}{\hbar} \sum_{tt'} \int d^3q \left[M_{\mu}^{tt'}(\mathbf{q}) M_{\nu}^{tt'}(\mathbf{q}) + M_{\mu}^{tt'}(\mathbf{q}) M_{\nu}^{tt'}(\mathbf{q})\right] \times \quad (2.7)$$

$$\times \delta(\omega - \omega_{tq} - \omega_{t'q}).$$

With $t = t'$ only phonons from different branches can take part in the absorption. The finite width of the absorption line in non-cubic crystals is due to the anharmonic phonon interaction. With $T \ll \hbar\Omega_0$ (where Ω_0 is the frequency in the atomic mass system) the band can be divided into a virtually empty and a filled band. The peak of resonance absorption is much more intense than the background of continuous absorption. Non-resonance absorption is due to many-phonon interactions with the lattice vibrations, but mainly to two-phonon interactions. For crystals with inversion center in the unit cell the selection rules of the qualitative theory apply and the following expressions govern the order of magnitude of the absorption coefficients:

Card 2/3

Absorption of electromagnetic ...

$$\gamma' \simeq \frac{\mathrm{Re}\,\sigma'}{\omega} \simeq \left(\frac{e^2}{a}\frac{1}{\hbar\omega_0}\right)\left(\frac{E_2}{\hbar\Omega_0}\right)^2 \Lambda_{21}^4 \qquad (6.7) \text{ and}$$

$$\gamma'' \simeq \frac{\mathrm{Re}\,\sigma''}{\omega} \simeq \left(\frac{e^2}{a}\frac{1}{\hbar\omega_0}\right)\left(\frac{E_1}{\hbar\Omega_0}\right)^4 \Lambda_2^4. \qquad (6.8),$$

where E_1 and E_2 denote the real components of the electromagnetic field. For germanium $M = 1.6 \cdot 10^{-22}$ g, $\omega_0 \sim (1.3\text{-}1.7) \cdot 10^{13}$ sec^{-1} and $a \sim 3 \cdot 10^{8}$ cm. Hence Λ_2 is $\sim (1\text{-}2) \cdot 10^{-2}$. There are 5 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute imeni A. F. Ioffe AS USSR, Leningrad)

SUBMITTED: March 8, 1962

Card 3/3

43372
S/056/62/043/005/033/058
B102/B104

AUTHORS: Ipatova, I. P., Eliashberg, G. M.

TITLE: Spin waves and paramagnetic relaxation in a Fermi fluid

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 5(11), 1962, 1795 - 1803

TEXT: The temperature dependence of the paramagnetic relaxation time of liquid He^3 is investigated only at $T > 1^\circ K$ (Phys. Rev. 115, 1478, 1959) where the effects of degeneracy are still so small that the classical theory can be applied. At $T < 0.1^\circ K$ liquid He^3 can be considered already as a Fermi fluid. For this case paramagnetic relaxation is investigated on the basis of the microscopic theory of a Fermi fluid. The system considered is assumed to be in a constant magnetic field H_z and in a weak alternating field $H_+ = H_x + iH_y$. The transverse and longitudinal susceptibilities as well as the corresponding relaxation times

$$\chi_t(\omega) = \chi \frac{\omega_0}{\omega_0 - \omega - i/T_2}, \qquad \chi_l(\omega) = \chi \frac{1}{T_1} \frac{1}{\omega + i/T_1}. \qquad T_2 = \alpha\mu T^{-2}\,[1 + (\omega_0/2\pi T)^2]^{-1},$$
$$T_1 = \alpha\mu/T^2$$

Card 1/3

are calculated in second-quantization representation and the excitation of spin waves is studied by means of the graph technique. χ is the statistical susceptibility, μ the chemical potential, T the temperature, $\omega_o = \beta H_z$, β - gyromagnetic ratio, $\alpha \sim (\mu a^3/\beta^2)^2 \sim 10^{14}$, a - interatomic distance, $\hbar = 1$. Since the relaxation times are very large (at $T \sim 0.01^oK$, $T_1 \sim 10^6 - 10^7$ sec) the lifetimes of excited waves are very short with respect to the relaxation times, and the absorption band is strongly smeared out near the frequency γH, where $\gamma = \beta(1+Z/4)^{-1}$, Z is the zeroth spherical harmonic of the exchange part of the dimensionless correlation function. It is demonstrated that the application of a magnetic field to a Fermi fluid leads to resonances in the frequency dependence of χ_t i.e. to spin waves with a dispersion law $\omega = \omega_o + bk^2$, where $b \sim v^2/\omega_o$, which are extinguished with $k \to 0$ if magnetic interactions are neglected. This type of damping is associated with interactions that lead to nonconservation of spin. It is shown that the equations given for $\chi_t(\omega)$ and $\chi_1(\omega)$ are obtained from the microscopic theory with $\omega \to \omega_o$ and $\omega \to 0$, respectively. T_1

Spin waves and paramagnetic...

tends to infinity with $\omega \to 0$. There are 5 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR (Physicotechnical Institute imeni A. F. Ioffe of the Academy of Sciences USSR)

SUBMITTED: May 24, 1962

Card 3/3

GUREVICH, L.E.; IPATOVA, I.P.

Temperature dependence of the line width of resonance absorption by the lattice in ionic crystals. Zhur. eksp. i teor. fiz. 45 no.2:231-236 Ag '63. (MIRA 16:9)

1. Fiziko-tekhnicheskiy institut imeni A.F.Ioffe AN SSSR.
(Ionic crystals—Spectra) (Quantum theory)

GUREVICH, L. E.; IPATOVA, I. P.; KLOCHIKHIN, A. A.

"Raman scattering and impurity absorption by the lattice of homopolar crystals."

report submitted for Intl Conf on Physics of Semiconductors, Paris, 19-24 Jul 64.

L 12647-65 EWT(1)/EEC(b)-2/T IJP(c)
ACCESSION NR: AP4044937 S/0181/64/006/009/2667/2672

AUTHORS: Ipatova, I. P.; Klochikhin, A. A.

TITLE: Single-phonon impurity absorption by the lattice of a homopolar crystal with diamond structure

SOURCE: Fizika tverdogo tela, v. 6, no. 9, 1964, 2667-2672

TOPIC TAGS: phonon, impurity absorption, crystal lattice structure, homopolar crystal, diamond, electron phonon interaction, light absorption, Green function, optical dispersion

ABSTRACT: Inasmuch as the radius of shallow impurities in diamond IIb is of the order of the lattice constant, so that the adiabatic parameter is not small enough, the authors investigated single-phonon absorption associated with shallow impurities in a non-adiabatic approximation, regarding the electron-phonon interaction as the small perturbation. A theory is constructed for the impurity single-phonon

Card 1/3

absorption of light by the lattice of a homopolar crystal with diamond structure, using temperature Green's functions. The calculations are based on the method of A. A. Abrikosov, L. P. Gor'kov, and I. Ye. Dzyaloshinskiy (Methody kvantovoy teorii polya v statisticheskoy fizike [Methods of Quantum Field Theory in Statistical Physics], Fizmatgiz, 1962). It is shown that when the dispersion of the optical branches of the crystal phonon spectrum is small, the absorption is resonant and depends on the temperature at temperatures below the Debye temperature. It is shown, using a simple model of the isotropic vibrational spectrum of the lattice, that the attenuation of a "transverse" phonon can lead to a temperature dependence of the absorption below the Debye temperature, if the structure of the phonon spectrum is such that the attenuation is determined by decay into an optical phonon (of the "longitudinal" branch) and a long-wave acoustical phonon. The temperature dependence of the absorption is shown to be connected with the phonon damping due to third-order anharmonicity. The effective characteristic temperature is de-

L 12647-65

ACCESSION NR: AP4044937

3

termined by the dispersion of the optical branches. "The authors thank O. V. Konstantinov and G. M. Eliashberg for a useful discussion." Orig. art. has: 1 figure and 17 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR (Physicotechnical Institute AN SSSR)

SUBMITTED: 31Mar64 ENCL: 00

SUB CODE: SS, OP NR REF SOV: 003 OTHER: 008

Card 3/3

L 58994-65 EWT(l)/EWT(m)/T/EWP(t)/EWP(b)/EWA(h) Pz-6/Peb IJP(c) AT/JD

ACCESSION NR: AP5017309 UR/0181/65/007/007/2129/2132

45 44 B

AUTHOR: Ipatova, I. P.; Kazarinov, R. F.; Subashiyev, A. V.

TITLE: The Faraday effect with respect to "hot" electrons in germanium and silicon

21 27 27

SOURCE: Fizika tverdogo tela, v. 7, no. 7, 1965, 2129-2132

TOPIC TAGS: Faraday effect, semiconductor, germanium, silicon

ABSTRACT: The relationship between electron redistribution and the Faraday effect in the infra-red region was investigated. Low magnetic fields were considered where the concentration of electrons in the j-th ellipsoid is determined by the heating field. The study was limited to the case of rather strong electric fields $elE \gg \hbar\omega_0$ where ω_0 is the optical phonon frequency. In this case the relaxation of electron energy is caused by interaction with the optical oscillations of the lattice. An expression was derived for angular displacement of the polarization plane as a linear approximation (with respect to H). The effect was considered for n-Ge and n-Si. It was shown that the presence of a heating field in both cases leads to a measurable change in the angular displacement of the plane of polarization and to isotropy in the rotation of the polarization plane. The measurements of the angular

Card 1/2

L 58994-65

ACCESSION NR: AP5017309

displacement in weak magnetic fields and strong electric fields make it possible to determine the effective mass anisotropy of free carriers. Orig. art. has: 14 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute, AN SSSR)

SUBMITTED: 08Feb65 ENCL: 00 SUB CODE: SS, EM

NO REF SOV: 003 OTHER: 003

Card 2/2

GRODSHTEYN, A.Ye.; ZHOLOBOV, S.P.; IPATOVA, M.D.

Sorption of carbon dioxide from porous active metals by absorbents. Zhur. prikl. khim. 38 no.4:900-905 Ap '65.
(MIRA 18:6)

L 26508-66 EWT(1)/T IJP(c) GG

ACC NR: AP6012463 SOURCE CODE: UR/0181/66/008/004/1064/1078

65
B

AUTHOR: Vallis, R. F.; Ipatova, I. P.; Maradudin, A. A.

ORG: Ioffe AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR) Physicotechnical Institute im. A. F.

TITLE: Temperature dependence of the line width of the fundamental lattice absorption in ionic crystals

SOURCE: Fizika tverdogo tela, v. 8, no. 4, 1966, 1064-1078

TOPIC TAGS: ionic crystal, crystal absorption, temperature dependence, line width, dielectric constant, electric conductivity

ABSTRACT: The purpose of the investigation was to confirm the qualitative expression obtained by L. E. Gurevich and I. P. Ipatova (ZhETF v. 45, 231, 1963) for the fundamental absorption line, with account taken of the anharmonicities of third and fourth order, by numerically calculating the contributions of these anharmonicities to the line width on the basis of a realistic model of ionic crystals. As a first step in this direction, the authors calculate the frequency and temperature dependences of the line width for crystals of the NaCl type and derive an expression for the dielectric constant of this crystal in a form convenient for numerical calculations. It is shown as part of the calculations that in an ionic crystal of the NaCl type, regardless of the direction of propagation of the lattice oscillations there exist at zero

Card 1/2

L 26508-66
ACC NR: AP6012463

wave vector one purely longitudinal optical branch and two degenerate purely transverse branches. This makes it possible to separate in the real part of the conductivity tensor the contribution describing the reaction of the crystal to a longitudinal external field from the contribution describing the reaction to a transverse external field, and the latter makes it possible to calculate the light absorption in the crystal. Orig. art. has: 1 figure and 75 formulas.

SUB CODE: 20/ SUBM DATE: 15Aug65/ ORIG REF: 003/ OTH REF: 018

Card 2/2 CC

L 41741-66 EWT (1)/T IJP(c)
ACC NR: AP6020216 SOURCE CODE: UR/0056/66/050/006/1603/1610

AUTHOR: Ipatova, I. P.; Klochikhin, A. A. 71 B

ORG: Physicotechnical Institute im. A. F. Ioffe, Academy of Sciences SSSR (Fiziko-tekhnicheskiy institut Akademii nauk SSSR)

TITLE: Temperature dependence of the line width for absorption by local oscillations of H^- and D^- ion in alkali halide crystals

SOURCE: Zh eksper i teor fiz, v. 50, no. 6, 1966, 1603-1610

TOPIC TAGS: ir absorption, line width, alkali halide, hydrogen ion, deuterium, negative ion, impurity scattering, temperature dependence

ABSTRACT: The authors analyze infrared absorption by local oscillations of the H^- and D^- ions in alkali-halide crystals and show that the scattering of the vibrations of the host lattice by the impurity atom makes the decisive contribution to the width of the local levels of H^- and D^- ions in the alkali-halide crystals. Coordinate representation is used to derive expressions for the absorption coefficients in the anharmonic approximation, the polarization operator connected with the presence of anharmonic terms, and the temperature dependence of the line widths of the ions. The theory developed confirms quantitatively the experimentally observed facts that at high temperature the ratio of the relative line widths of hydrogen and deuterium exceeds unity for the isotopic defect considered in the nearest-neighbor approximation. At low temperatures the scattering of the host lattice vibrations by the im-

Card 1/2

L 41741-66

ACC NR: AP6020216

purity atom is negligible, and then the ratio of the widths is reversed. The dependence of the line width on the temperature at temperatures below the Debye temperature can likewise be attributed to the scattering by the impurity atom. Orig. art. has: 23 formulas.

SUB CODE: 20/ SUBM DATE: 06Jan65/ ORIG REF: 011/ OTH REF: 012

Card 2/2

ACC NR: AP6036968 (A, N) SOURCE CODE: UR/0181/66/008/011/3260/3268

AUTHOR: Gurevich, L. E.; Ipatova, I. P.; Klochikhin, A. A.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Raman scattering of light in cubic ionic crystals with impurities

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3260-3268

TOPIC TAGS: Raman scattering, ionic crystal

ABSTRACT: The article analyzes Raman scattering of light with the emission or absorption of one phonon in NaCl-type crystals in the presence of defects giving rise to a Coulomb potential. The scattering cross section is determined by the electron polarizability, different from zero within the radius of action of the Coulomb potential, and by the spectral density of lattice vibrations. Since the radius of action of the impurity is small, the vibrations of the great majority of atoms located at distances smaller than or comparable to this radius are not appreciably altered by the impurity, and the spectral density can be considered unperturbed. It is shown that in the spectrum of Raman scattering one should expect the appearance of two peaks located in the vicinity of the cutoff frequencies of optical phonons. The intensity and width of these peaks depend on the concentrations of the impurities. Orig. art. has: 38 formulas.

SUB CODE: 20/ SUBM DATE: 18Apr66/ ORIG REF: 007/ OTH REF: 006

Card 1/1

ARTYUKHOVA, N.N.; BREMER, L.F.; GRIGORENKO, A.S.; IPATOVA, M.S.; KARBYSHEVA, T.D.; KOZLOV, V.M · KOLYSHEVA, L.I.; KUCHUMOVA, N.A.; MAKAROVA, M Ye.; PUCHKOVA, N.A.; SEKIRINA, Ye.T.; SOKOLOVA, T.S.; STATIYEVA, V.F.; TYUNYAYEVA, V.V.; KHRAMTSOVA, A.A.; CHURAYEVA, V.V.; FOKIN, D.F., red.

[Foreign trade of the U.S.S.R. for 1959-1963; a statistical abstract] Vneshniaia torgovlia Soiuza SSR za 1959-1963 gody; statisticheskiy sbornik. Moskva, Vneshtorgizdat, 1965. 483 p. (MIRA 18:7)

1. Russia (1923- U.S.S.R.) Ministerstvo vneshney torgovli. Planovo-ekonomicheskoye upravleniye. 2. Nachal'nik Planovo-ekonomicheskogo upravleniya Ministerstva vneshney torgovli SSSR (for Fokin).

FA 51T53

USSR/Medicine - Typhus
Medicine - Diagnosis

Mar 1948

"Clinical Characteristics of Typhus in World War II," N. N. Ipatova, Infectious Clinic, Tbilisi Med Inst, 3 pp

"Sovets Medits" No 3

Characteristics in the course of typhus during the last war: a) indications of recurrent pyretic variations, amphibolic decrease and prolonged pyretic course; b) early indication of pathologic changes in the respiratory organs; c) early indication of dullness in the heart sounds smoothing out the pause in the cardiogram between the diastolic and systolic

51T53

USSR/Medicine - Typhus (Contd)

Mar 1948

sounds, frequent pain in the region of the heart, etc. Early clinical diagnosis of typhus is possible without great difficulty by complete study of the patient, taking full account of all peculiarities in recent years, and on the basis of epidemiologic data.

51T53

IPATOVA, N. N.

IPATOVA, N.N., dots. (Ryazan')

Diagnosis and treatment of brucellosis. Fel'd. i akush. 22 no.9: 37-42 S'57 (MIRA 11:10)
(BRUCELLOSIS)

IPATOVA, N.N. (Ryazan'); BYKOVA, V.A. (Ryazan')

Comparative clinical characteristics of complicated influenza in recent years. Fel'd. i akush. 25 no.11:14-17 N '60. (MIRA 13:11)
(INFLUENZA)

IPATOVA, N.N. (Ryazan')

Clinical aspects of dysentery today. Fel'd. i akush. 26 no.8:7-11 Ag '61. (MIRA 14:10)

(DYSENTERY)

IPATOVA, N.N.; ROGATOVSKIKH, G.M.

Comparative clinical morphological data on acute and chronic dysenter. Sov.med. 26 no.10:61-67 O '62. (MIRA 15:12)

1. Iz kafedry infektsionnykh bolezney (zav. - dotsent N.N. Ipatova) Ryazanskogo meditsinskogo instituta imeni I.P.Pavlova.
(DYSENTERY)

DANISHEVSKIY, S.K.; IPATOVA, S.I.; PAVLOVA, Ye.I.; SMIRNOVA, N.I.

Thermocouples from alloys of tungsten with rhenium for measuring temperatures up to 2500°C. Zav. lab. 29 no.9: 1139-1141 '63. (MIRA 17:1)

1. TSentral'naya laboratoriya avtomatiki i Moskovskiy elektrolampovyy zavod.

SAVITSKIY, Ye.M.; TYLKINA, M.A.; IPATOVA, S.I.; PAVLOVA, Ye.I.

Physicomechanical properties of tungsten-rhenium alloys. Trudy Inst. met. no.4:214-229 !60. (MIRA 14:5)
(Tungsten-rhenium alloys--Testing)

83240

S/129/60/000/009/005/009
E193/E483

9.4174
9.4180 9.2140

AUTHORS: Savitskiy, Ye.M., Doctor of Technical Sciences, Professor, Tylkina, M.A., Candidate of Technical Sciences, Ipatova, S.I. and Pavlova, Ye.I., Engineers

TITLE: The Properties of Tungsten-Rhenium Alloys

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1960, No.9, pp.20-25

TEXT: Following their earlier study of the constitution diagram of the tungsten-rhenium system (Ref.7), the present authors conducted a series of experiments to study the effect of rhenium additions (up to 20%) on various properties of tungsten. All tests were conducted on wire specimens, prepared by powder metallurgy technique. The following conclusions were reached: 1) The temperature of the beginning of recrystallization of tungsten was raised by 200 to 400°C by addition of rhenium, depending on the precise quantity added; 2) Strength and plasticity of tungsten, in the 20 - 3000°C temperature range, are increased by rhenium additions; 3) A wire, made of tungsten-rhenium alloy, is characterized by high strength and plasticity after annealing at 1400 to 1950°C. An alloy, containing 20% rhenium

Card 1/2

83240
S/129/60/000/009/005/009
E193/E483

The Properties of Tungsten-Rhenium Alloys

and annealed at 1400 to 1500°C has U.T.S. equal 180 to 190 kg/mm^2 and elongation of 18 to 20%; 4) Hardness of tungsten-rhenium alloys at 20 - 1000°C is also higher than that of pure tungsten, the hardness of the alloys with more than 10% rhenium at 800°C is 200 kg/mm^2 against 110 kg/mm^2 for alloys containing less than 10% rhenium; 5) The electrical resistivity of tungsten at various temperatures is increased several times by addition of rhenium; 6) The results of the present investigation indicate that the tungsten-rhenium alloys can be used in the manufacture of various parts of vacuum tubes, thermocouples and electrical contacts. There are 5 figures and 10 references: 6 Soviet, 2 English and 2 German.

ASSOCIATION: Institut metallurgii AN SSSR, Moskovskiy elektrolampoviy zavod (Institute of Metallurgy AS USSR, Moscow Electric Lamp Plant)

Card 2/2

89639

S/509/60/000/004/019/024
E021/E106

18.1150

AUTHORS: Savitskiy, Ye.M., Tylkina, M.A., Ipatova, S.I., and Pavlova, Ye.I.

TITLE: Physico-Mechanical Properties of Tungsten and Rhenium

PERIODICAL: Akademiya nauk SSSR. Institut metallurgii. Trudy, No.4, 1960. Metallurgiya, metallovedeniye, fiziko-khimicheskiye metody issledovaniya, pp.214-229

TEXT: Rhenium has been suggested as a possible alternative for tungsten for use in the electro-vacuum industry, but it is very expensive. Therefore an investigation of tungsten-rhenium alloys was carried out. Alloys were prepared in an arc furnace and by powder metallurgical methods. The complete range of alloys was studied by metallographic and X-ray analysis, by micro-hardness measurements and by measuring melting points. The formation of the compound W_2Re_3 (σ phase) in the region 48-65 wt.% rhenium and the formation of a eutectic between the σ phase and the rhenium solid solution at 75 wt.% rhenium and 2815 °C were confirmed. No eutectic between W_2Re_3 and tungsten was found.

Card 1/4

89639

S/509/60/000/004/019/024
E021/E106

Physico-Mechanical Properties of Tungsten and Rhenium

There was a wide range of solid solutions of rhenium in tungsten (up to 30%) at high temperatures, with decreasing solubility as the temperature was decreased. The compound W_2Re_3 formed by a peritectic reaction possessed a high hardness (about 2000 kg/mm^2) and was brittle. A method was developed for preparing wire of diameter 12 microns from alloys with a maximum rhenium content of 20 wt.%. The wire was prepared by hot-working samples prepared by powder metallurgical methods. The introduction of rhenium into tungsten raised the temperature of the beginning of recrystallization by 200-400 °C depending on the rhenium content. Grain growth of tungsten-rhenium alloys was less intensive than that of tungsten. The tungsten-rhenium alloys retained a high strength and possessed considerable ductility after annealing at 1400-1950 °C. The initial strength of 100 micron tungsten wire was 320 kg/mm^2 with an elongation of 1-5%. After heating at 1950 °C the strength decreased to 80 kg/mm^2, and elongation was 0. The alloy containing 21% rhenium in these conditions decreased in strength from 370 to 150 kg/mm^2 and the elongation increased from

[illegible] micron
[illegible] At any given
[illegible] higher rhenium contents.

Card 2/4

89539

S/509/60/000/004/019/024
E021/E106

Physico-Mechanical Properties of Tungsten and Rhenium

At 20 °C the resistance of tungsten was 0.056 ohm.mm^2/m, and that of the alloy containing 21% rhenium was 0.242 ohm.mm^2/m. At 1600 °C the resistances were 0.44 and 0.644 ohm.mm^2/m respectively. Thus the tungsten-rhenium alloys possessed several advantages over tungsten.
There are 11 figures and 23 references: 19 Soviet and 4 English.

Card 4/4

ILYUSHIN, S.V.; IPATOVA, S.I.; KONOVALOV, F.S.; LORENTSSON, I.G.; MARSHAK, I.S.; MESHKOV, V.V.; NILENDER, R.A.; PLOKHOTSKIY, Ye.S.; SOKOLOV, I.I. SOUSTIN, V.F.; TSVETKOV, G.M.; YANI, A.K.

Viktor Nikolaevich Fomin, 1904- ; on his 60th birthday. Svetotekhnika 10 no.11:30 N '64. (MIRA 17:12)

L 23621-65 EWT(m)/EPF(n)-2/EWA(d)/EWP(t)/EWP(b)/EWP(l) Pu-4 IJP(c)
MJW/JD/JG/MLK

ACCESSION NR: AT5002784 S/0000/64/000/000/0212/0215

AUTHOR: Danishevskiy, S. K.; Gurevich, A. M.; Smirnova, N. I.; Ipatova, S. I.; Pavlova, Ye. I. B7

TITLE: Development and industrial adoption of thermocouples for high-temperature measurements

SOURCE: Vsesoyuznoye soveshchaniye po probleme reniya. 2d, Moscow, 1962. Reniy (Rhenium); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1964, 212-215

TOPIC TAGS: rhenium alloy, tungsten alloy, thermocouple, temperature measurement, thermoelectrode wire, platinum electrode

ABSTRACT: Three rhenium-tungsten alloys, VR-5, VR-10, and VR-20 (containing 5, 10, and 20% Re, respectively), were used to make two types of thermocouples, VR-5/20 and VR-10/20, which can be used to measure temperatures between 1000 and 2500C. The thermocouples were found to have a high thermo-emf and sensitivity, and a satisfactory stability at temperatures on the order of 2500C in inert gases and hydrogen (both in the stationary state and at high flow rates) as well as under reduced pressures (10^{-4} mm Hg). The effect of different heat

Card 1/2

L 23621-65

ACCESSION NR: AT5002784

treatments on the ultimate strength and elongation of the thermoelectrode wires was studied. The wires were found to be 5 - 15 times as strong as those of platinum and platinum-rhodium thermoelectrodes. All these characteristics make the rhenium-tungsten thermocouples very useful for industrial applications. Orig. art. has: 1 figure and 3 tables.

ASSOCIATION: None

SUBMITTED: 05Aug64 ENCL: 00 SUB CODE: MM, IE

NO REF SOV: 003 OTHER: 002

Card 2/2

ACCESSION NR: AP4029251 S/0125/64/000/004/0005/0009

AUTHOR: Rabkin, D. M. (Doctor of technical sciences); Ivanova, O. N. (Engineer); Ipatova, [illegible] (Engineer); Romanova, V. N. (Engineer); Konstantinov, V. I. (Engineer)

TITLE: Effect of the addition of oxides of some rare and rare-earth metals upon the characteristics of tungsten electrodes

SOURCE: Avtomaticheskaya svarka, no. 4, 1964, 5-9

TOPIC TAGS: welding, welding electrode, tungsten welding electrode, argon arc welding, lanthanated tungsten welding electrode

ABSTRACT: Despite the fact that information regarding the harmful effects of naturally-radioactive thorium in thoriated-W electrodes on human beings had been "contradictory," the possibility of replacing Th was investigated. A 4-mm tungsten wire was prepared by powder-metallurgy methods with the addition of La, Gd, Y, Nd, Ce, Er, Sm, Dy, or Hf. Depending on the mechanical characteristics of the processed electrode, the addition was introduced either into the

Card 1/2

ACCESSION NR: AP4029251

W anhydride or into the W powder. It was found that W electrodes with oxides of Er, Dy, and Sm, in their processing characteristics, are inferior to thoriated-W electrodes but superior to pure-W electrodes. The electrodes with 1-2% of La_2O_3 were found to have the best technological characteristics; they are similar to thoriated-W electrodes and are characterized by the lowest consumption and highest current density. The welding current was 250 amp, at 65 v, with a 3-mm arc. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: Institut elektrosvarki im. Ye. O. Patona AN UkrSSR (Institute of Electric Welding, AN UkrSSR); Moskovskiy elektrolampovy*y zavod (Moscow Electric-Bulb Plant)

SUBMITTED: 12Dec62 DATE ACQ: 27Apr64 ENCL: 00

SUB CODE: MM NO REF SOV: 005 OTHER: 002

Card 2/2

RABKIN, D.M.; IVANOVA, O.N.; IPATOVA, S.I.; ROMANOVA, V.N.; KONSTANTINOV, V.I.

Effect of the addition of certain rare and rare-earth metal oxides on the properties of tungsten electrodes. Avtom. svar.17 no.4: 5-9 Ap '64 (MIRA 18:1)

1. Institut elektrosvarki imeni Ye.O. Patona AN UkrSSR (for Rabkin, Ivanova). 2. Moskovskiy elektrolampovyy zavod (for Ipatova, Romanova, Konstantinov).

L 38432-66 EWT(m)/EWP(t)/ETI IJP(c) JG/JD

ACC NR: AP6019579 SOURCE CODE: UR/0115/66/000/004/0050/0054

AUTHOR: Danishevskiy, S. K.; Ipatova, S. I.; Oleynikov, P. P.; Oleynikova, L. D.; Pavlova, Ye. I.; Smirnova, N. I.; Trakhtenberg, L. I.

ORG: none

TITLE: Thermocouples made of molybdenum-rhenium alloys

SOURCE: Izmeritel'naya tekhnika, no. 4, 1966, 50-54

TOPIC TAGS: thermocouple, molybdenum containing alloy, rhenium containing alloy, temperature measurement

ABSTRACT: From a study of the phase diagram of the system it is evident that, with a high rhenium content in the alloy, there is formed a large grain chemical compound (α-phase) which makes mechanical working difficult. Therefore, the present investigation was limited to pure rhenium and to alloys with a rhenium content of not more than 50 weight percent rhenium. The starting materials for production of the alloys were molybdenum powder and ammonium perrhenate. A mixture of molybdenum with a calculated amount of ammonium perrhenate was reduced in a stream of hydrogen in two stages, at temperatures of 350 and 950°C. The powder obtained was pressed into tablets and sintered in a hydrogen medium.

Card 1/2 UDC: 536.532

L 38432-66

ACC NR: AP6019579

Mechanical working of the alloys containing up to 30% of the alloying additive was analogous to that commonly used for molybdenum. The dependence of the electromotive force of the thermocouples on temperature for different alloys of molybdenum and rhenium was determined up to 1800°C. A platinum-platinum rhodium thermocouple was used as a control. Results are exhibited in a series of curves. The thermoelectric and mechanical properties of the thermocouples are listed in several large tables. It is concluded that thermocouples made of molybdenum-rhenium alloys can be used for temperature measurements in hydrocarbon media, for a limited time, not exceeding 1 to 2 hours, at temperatures up to 1500°C. Orig. art. has: 5 figures and 4 tables. [06]

SUB CODE: 11, 20 SUBM DATE: none/ ORIG REF: 006/ OTH REF: 003

09

Card 2/2

IPATOVA, Valentina Vasil'yevna; KOLOMEYTSEV, Ivan Mikhaylovich; LEBEDEVA, Ol'ga L'vovna; ROMYANTSEV, Aleksey Nikolayevich; VOSKRESENSKIY, N.N., redaktor; KOGAN, F.L., tekhnicheskiy redaktor.

[Dismantling and assembling the GAZ-51 automobile] Razborka i sborka avtomobilia GAZ-51. Moskva, Nauchno-tekhn. izd-vo avtotransp.lit-ry, 1956.233 p. (Motortrucks) (MIRA 9:6)

SA IPATOVA, Z.D. Mechanical Measurement

Sci.A

531.787

5971. A universal two-liquid micromanometer. T. M. V[illegible] and Z. D. Ipatova. *Zh. Tekh. Fiz.*, 21, 1448-52 (No. 11, 1951) In Russian.

An inclined, inverted U-tube micromanometer is described, which obtains a gain in sensitivity by using two immiscible liquids of differing specific gravities, the lighter liquid forming an indicating column in the central portion of the U-tube.

F. QUELON

IPATOVA, Z.D.

124-57-1-532

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 1, p 67 (USSR)

AUTHORS: Vasilishin, T.M., Ipatova, Z.D.

TITLE: Experimental-theoretical Investigation of Vortex Motion (Eksperimental'no-teoreticheskoye issledovaniye vikhrevogo dvizheniya)

PERIODICAL: Tr. Ufimsk. aviats. in-ta, 1955, Nr 1, pp 17-27

ABSTRACT: The generation of vortices was studied on an experimental device consisting of a container with circular openings in its horizontal bottom; the plan view of the container had a spiral shape. Prior to the performance of the tests proper, a number of preliminary tests and theoretical investigation were carried out. From theoretical considerations the authors assumed that the velocity distribution in the funnels obeys the area law. This assumption, according to the authors, was confirmed by the tests. The main tests were conducted on five different sizes of scale models, which afforded some conclusions relative to the possibilities and requirements of model tests on the formation of funnels. The tests indicated that the dimensions of the funnels do not obey Froude's law. The authors conclude that the

Card 1/2

124-57-1-532

Experimental-theoretical Investigation of Vortex Motion

Reynolds law provides the criterion of dimensional similarity in the formation of funnels, which in turn corresponds to the area law for the velocity distribution in a funnel. By means of dimensional analysis a non-dimensional relationship was obtained for the discharge coefficient μ. The tests have shown that the value of μ increases with increasing head H and decreases with increasing opening diameter. In the derivation of the formulas the authors assumed that the discharge coefficient in the absence of any funnel would be the same as that corresponding to the discharge of the liquid through the annular section, that is, through that part of the opening in the horizontal bottom only that is actually occupied by the hollow vortex. The test data have been condensed in a graph which yields the discharge coefficient μ for given values of the head H and the opening diameter d. From the value of μ thus obtained, the geometrical parameters of a funnel and the liquid discharge may then be obtained.

O.F. Vasil'yev, N.A. Pritvits

1. Liquids--Flow--Analysis 2. Vortices--Applications

Card 2/2

KOSAREV, V.S.; KOZYAR, L.A.; IPATOVA, Z.M.

New data on the canyon in the Maikop sediments in the northern part of Stavropol Territory. Dokl. AN SSSR 165 no.2:403-406 N '65. (MIRA 18:11)

1. Submitted April 29, 1965.

CHOCHIA, N.G.; KRASNOV, V.I.; IPATOVA, Z.N.

Minusinsk Basin. Trudy VNIGRI no.96:215-234 '56. (MLRA 10:1)
(Minusinsk Basin--Geology, Stratigraphic)

KONDRAT'YEVA, Z.A. geolog; IPATOVA, Z.N., petrograf; CHIZHOV, A.A. vedushchiy red.; DROBYSHEV, D.V., prof., red.; SAFRONOVA, I.M., tekhn.red.

[Zayarsk well in Irkutsk Province. Key wells of the U.S.S.R.] Zaiarskaia opornaia skvazhina (Irkutskaia oblast'.) Leningrad, Gostoptekhizdat, 1962. 161 p. (Leningrad. Vsesoiuznyi neftianoi nauchno-issledovatel'nyi geologorazvedochnyi institut. Trudy, no.198) (MIRA 16:4)

1. Vsesoyuznyy neftyanoy nauchno-issledovatel'skiy geologorazvedochnyy institut, Leningrad (for Kondrat'yeva, Ipatova).
(Irkutsk Province--Petroleum geology)

IPATOVA, Z.N.

Some data on lithopetrographic studies of fractured rocks in Upper Devonian sediments of the Pripet trough. Trudy VNIGRI no.193:56-68 '62. (MIRA 15:12)

(Pripet Valley—Oil sands)

IPATOVO, M. V.

Implements and machinery for vegetable cultivation. Leningrad, 1955. 46 p.

IPATOVTSEV, Yu.N.; KURDYUMOV, A.A.

Analyzing the standard (root mean square deviation) of the bending moment on the midship of a symmetrical vessel. Trudy LKI no.35:51-58 '62. (MIRA 16:7)

1. Kafedra stroitel'noy mekhaniki korablya Leningradskogo korablestroitel'nogo instituta.
(Hulls (Naval architecture))

ACC NR: AR6036133 (N) SOURCE CODE: UR/0398/66/000/010/A012/A012

AUTHOR: Ipatovtsev, Yu. N.

TITLE: Calculation of the wave bending moment in a vessel's midship section

SOURCE: Ref. zh. Vodnyy transport, Abs. 10A86

REF SOURCE: Tr. Leningr. korablestroit. in-ta, vyp. 49, 1965, 35-45

TOPIC TAGS: shell structure dynamics, structure dynamic stability, bending strength, shipbuilding engineering, HYDRODYNAMICS, PROBABILITY

ABSTRACT: The application of probability methods for solving problems relative to the external forces acting on a ship at sea requires a knowledge of the transfer function characterizing the ship's amplitude frequency response. In calculating the transfer function, the additional hydrodynamic forces acting on a ship in motion have to be taken into consideration. Formulas are given for calculating the effect of speed on ships with a bend or a camber in still water.

SUB CODE: 13/ SUBM DATE: none

Card 1/1 UDC: 629.12:624.02/09

ACC NR: AR6036133 (N) SOURCE CODE: UR/0398/66/000/010/A012/A012

AUTHOR: Ipatovtsev, Yu. N.

TITLE: Calculation of the wave bending moment in a vessel's midship section

SOURCE: Ref. zh. Vodnyy transport, Abs. 10A86

REF SOURCE: Tr. Leningr. korablestroit. in-ta, vyp. 49, 1965, 35-45

TOPIC TAGS: shell structure dynamics, structure dynamic stability, bending strength, shipbuilding engineering, HYDRODYNAMICS, PROBABILITY

ABSTRACT: The application of probability methods for solving problems relative to the external forces acting on a ship at sea requires a knowledge of the transfer function characterizing the ship's amplitude frequency response. In calculating the transfer function, the additional hydrodynamic forces acting on a ship in motion have to be taken into consideration. Formulas are given for calculating the effect of speed on ships with a bend or a camber in still water.

SUB CODE: 13/ SUBM DATE: none

Card 1/1 UDC: 629.12:624.02/09

ACC NR: AR7004677 (N) SOURCE CODE: UR/0124/66/000/010/V062/V062

AUTHOR: Ipatovtsev, Yu. N.

TITLE: Computation of the wave bending moment in the midship section of a ship

SOURCE: Ref. zh. Mekhanika, Abs. 10V483

REF SOURCE: Tr. Leningr. korablestroit. in-ta, vyp. 49, 1965, 35-45

TOPIC TAGS: elasticity theory, ship, wave bending, moment, transfer function

ABSTRACT: An approximate expression for the transfer function which converts the effect of a ship's tossing into the bending moment of the ship's hull is derived on the basis of substantial simplifications of the ship's tossing equations. Examples of computation of the transfer function are presented for a number of practical cases and a series of wave frequencies. The influence of ship's speed is evaluated. The investigation is of a qualitative nature. Some simplification could have been avoided if use were made of computational techniques. G. S. Migirenko. [Translation of abstract]

[DW]

SUB CODE: 20/

Card 1/1

IPAT'IYEV, A.N.

[Problems in the cultivation of various vegetable crops] Voprosy sortovoi agrotekhniki v ovoshchevodstve. Minsk, Gos. izd-vo, BSSR, 1954. 111 p. (MLRA 10:4)
(Vegetable gardening)

Country : USSR M
Category: Cultivated Plants. Potatoes. Vegetables. Melons.

Abs Jour: RZhBiol., No 11, 1958, No 48940

Author : Ipat'yev, A.N.
Inst : Belorussian Agricultural Academy.
Title : Diversity of Vegetable Plant Species. (A List of the Cultivated and Wild Species).

Orig Pub: Tr. Belorussk. s.-kh. akad., 1957, 24, No 2, 45-76

Abstract: The list includes species of vegetable plants belonging to 79 families. A brief characteristic of the species little known in the USSR is given.

Card : 1/1

M-59

IPAT'YEV, A.N.

USSR/General Biology. Evolution

Abs Jour : Ref Zhur - Biol., No 22, 1958, No 99008

Author : Ipat'yev A.N. - Cand Agri. Sci
Inst : Belorussian University
Title : Systematical Principle in the Studies about the Correlation

Orig Pub : Uch. zap. Belorussk. un-ta, 1957, vyp. 37, 41-89

Abstract : Various types of the correlation recorded in flora are indicated. Ontogenetic and different static correlations are particularly examined. Stated is the fact that certain correlations produce usually a different effect within the limits of some large and small systematical units and can be restricted by their limits. Some correlation examples within the type (tomato) and within the geographical groups (pea) are given. Leaving some unclarity of the immediate reasons for certain

Card : 1/2

30

IPAT'YEV, A.N., Doc Agr Sci --(diss) "World resources of vegetable plants, ~~the~~ their selection use, and ~~the agrotechnical~~ agricultural engineering of ~~their~~ varieties." Mos, 1958. 24 pp (Mos Order of Lenin Agr Acad im K.A.Timiryazev), 150 copies. List of author's works at end of text (14 titles)

(KL,46-58, 141)

IPAT'YEV, A.N.

[Methods and techniques in vegetable plant breeding] Metody i tekhnika selektsii ovoshchnykh rastenii. Gorki, BSSR, 1958. 119 p. (MIRA 12:11)
(Plant breeding) (Vegetables)

VAVILOV, Nikolay Ivanovich, akademik [deceased]; SUKACHEV, V.N., akademik, glavnyy red.; BARANOV, P.A., red.; BARULINA-VAVILOVA, Ye.I. [deceased], red.; BAKHTEYEV, F.Kh., red.; ZHUKOVSKIY, P.M., red.; IPAT'YEV, A.N., red.; RODIN, L.Ye., otv.red.toma; YAKOVLEVA, V.M., red.izd-va; BLEYKH, E.Yu., tekhn.red.

[Selected works in five volumes] Izbrannye trudy v piati tomakh. Moskva, Izd-vo Akad.nauk SSSR. Vol.1.[Agricultural Afghanistan] 1959. 415 p. (MIRA 12:8)

1. Chlen-korrespondent AN SSSR (for Baranov). 2. Deystvitel'nyy chlen Vsesoyuznoy akademii sel'skokhoz.nauk imeni V.I.Lenina (for Zhukovskiy).

(Afghanistan--Agriculture)

IPAT'YEV, A.N.; NIKITINA, L.V.; BOGDANOVA, Yu.G.; TSENILOVA, N.A.

Varieties of Antonovka apple trees in Mogilev and Gomel' Provinces.
Bot.; issl. Bel. otd. VBO no.5:44-49 '63. (MIRA 17:5)

IPAT'YEV, A.N.

Annual tomatoes with the tendency of ripening simultaneously.
Dokl. AN BSSR 7 no.12:851-854 D '63. (MIRA 17:8)

1. Belorusskiy gosudarstvennyy universitet imeni Lenina.
Predstavleno akademikom AN BSSR A.R. Zhebrakom.

IPAT'YEV, A.N.; BOGDANOVA, Yu.G.; KIL'CHEVSKAYA, Yu.F.; NIKITINA, L.V.; POLUBESOVA, Ye.I.; TSENILOVA, N.A.

Autumn apple varieties of Mogilev and Gomel' Provinces in White Russia. Bot.; issl. Bel. otd. VBO no.6:235-242 '64. (MIRA 18:7)

ACCESSION NR: AP5011090 UR/0250/65/009/003/0202/0204

AUTHOR: Avramenko, B. I.; Ipat'yev, A. N.; Mushkovskaya, [illegible]; Savchenko, A. P.; [illegible], A. R.

TITLE: Male sterility in plants caused by penetrating radiation

SOURCE: AN BSSR. Doklady, v. 9, no. 3, 1965, 202-204

TOPIC TAGS: radiobiology, gamma ray, cobalt 60, radiation effect, seed, plant genetics

ABSTRACT: It is a laborious and costly process to obtain hybrid seeds by the usual method of flower castration. The authors studied the possibility of inducing male sterility in plants by irradiating air-dried cucumber, rye, wheat, tomato, [illegible] and other seeds with gamma rays from Co^{60} in the atomic reactor of the AN BSSR. Critical doses for each species of plants were used. A relationship was noted between sterility and the radiation dose in the case of mustard, cabbage, cucumber, and rape. In corn and beans, some varieties were less sensitive than others to the same radiation dose. Pollen was found to be sterile in non-irradiated plants, indicating that male sterility may be due to some other factors. In

Card 1/2

L 55133-65

ACCESSION NR: AP5011090

O

general, however, the results of the experiments showed that irradiation of seeds increases pollen sterility so that joint planting of an irradiated maternal variety with a non-irradiated paternal variety increases the hybridity of the seeds. Orig. art. has: 4 tables.

ASSOCIATION: Otdel genetiki i tsitologii AN BSSR (Genetics and Cytology Section AN BSSR)

SUBMITTED: 29Jan64 ENCL: 00 SUB CODE: LS

NO REF SOV: 017 OTHER: 003

Card 2/2

AVRAMENKO, B.I.; IPAT'YEV, A.N.; MISHINSKAYA, L.G.; SAVCHENKO, A.P.

Male sterility in plants induced by penetrating radiation. Dokl. AN BSSR 9 no.3:202-204 Mr '65. (MIRA 18:6)

1. Otdel genetiki i tsitologii AN BSSR.

IPAT'YEV, A.N.; YEVTIKHEVICH, V.G.

Changes in the seeds of hybrids of various plants. Dokl. AN BSSR 9 no.8:547-549 Ag '65. (MIRA 18:10)

1. Belorusskiy gosudarstvennyy universitet imeni V.I.Lenina.

L 23922-66 - EWT(m)

ACC NR: AP6014957 SOURCE CODE: UR/0250/65/009/005/0340/0343

AUTHOR: Avramenko, B. I.; Ipat'yev, A. N.; Mushinskaya, L. G.; Savchenko, A. P.

ORG: Institute of Genetics and Cytology, AN BSSR (Institut genetiki i tsitologii AN BSSR)

TITLE: Morphological and biological changes in plants induced by gamma rays

SOURCE: AN BSSR. Doklady, v. 9, no. 5, 1965, 340-343

TOPIC TAGS: gamma ray, radiation plant effect, plant chemistry

ABSTRACT: Critical and sublethal doses of gamma rays stunted the growth of tomatoes, cucumbers, cabbage, mustard, radishes, beans, beets, and onions. Seeds exposed to such doses germinated 1-14 days later than did the control. Subsequent development was also slower. These doses likewise altered the plants' morphology, particularly the leaves. However, all the changes gradually disappeared by the time the plants flowered, indicating that plants recover at a certain stage of development, even after receiving very high doses of radiation. Irradiation also affected the biochemical composition of the plants. For example, it reduced the fat content of mustard and cabbage seeds below that of the control.

Low doses of gamma rays, on the other hand, had a stimulating effect. They hastened the ripening of the fruits and increased the plants' productivity. This paper was presented by Academician AN BSSR A. R. Zhebrak. Orig. art. has: 3 tables. [JPRS]

SUB CODE: 06 / SUBM DATE: 28Feb64 / ORIG REF: 007 / OTH REF: 003

Card 1/1

AVRAMENKO, B.I.; IPAT'YEV, A.N.; MUSHINSKAYA, L.G.; SAVCHENKO, A.P.

Morphological and biological changes in plants subjected to gamma irradiation. Dokl. AN BSSR 9 no. 5:340-343 My '65 (MIRA 19:1)

1. Institut genetiki i tsitologii AN BSSR. Submitted February 28, 1964.

FROST, Andrey Vladimirovich, prof. [deceased]. Prinimali uchastiye: BUSHMAKIN, I.N.; VVEDENSKIY, A.A.; GRYAZNOV, V.M.; DEMENT'YEVA, M.I.: DINTSES, A.I.; DOBROSRAVOV, R.K.; ZHARKOVA, V.R.; ZHERKO, A.V.; IPAT'YEV, V.N.; KVYATKOVSKIY, D.A.; KOROBOV, V.V.; MOOR, V.G.; NEMTSOV, M.S.; RAKOVSKIY, A.V.; REMIZ, Ye.K.; RUDKOVSKIY, D.M.; RYSAKOV, M.V.; SEREBRYAKOVA, Ye.K.; STEPUKHOVICH, A.D.; STRIGALEVA, N.V.; TATEVSKIY, V.M.; TILICHEYEV, M.D.; TRIFEL', A.G.: FROST, O.I.; SHILYAYEVA, L.V.; SHCHEKIN, V.V.. DOLGOPOLOV, N.N., sostavitel'; GERASIMOV, Ya.I., otv.red.; SMIRNOVA, I.V., red.; TOPCHIYEVA, K.V.; YASTREBOV, V.V., red.; KONDRASHKOVA, S.F., red. izd-va; LAZAREVA, L.V., tekhn.red.

[Selected scientific works] Izbrannye nauchnye trudy. Moskva, Izd-vo Mosk.univ., 1960. 512 p. (MIRA 13:5)

1. Chlen-korrespondent AN SSSR (for Gerasimov).
(Chemistry, Physical and theoretical)

IPAT'YEV, V.V.

Deceased

S/780/62/000/005/002/002
I060/I242

AUTHORS: Bezdel', L.S., Brounshteyn, B.I., Ipat'yev, V.V. (Deceased), and Teodorovich, V.P.

TITLE: Purification of liquid propane-propylene fraction (PPF) from hydrogen sulfide by phosphate

SOURCE: Vsesoyuznyy nauchno-issledovatel'skiy institut neftekhimicheskikh protsessov. Trudy. no.5. Leningrad, 1962. Protsessy i apparaty neftekhimicheskoy tekhnologii, 217-255

TEXT: The authors reject the nitric acid purification method and recommend the US phosphate method. Solutions of K_3PO_4 of various concentrations were prepared by neutralization of KH_2PO_4 or of orthophosphoric acid by caustic potash. The physical-chemical properties such as specific weight, boiling point, viscosity, and specific heat of 1 M and 2 M solutions of K_3PO_4 were studied at various degrees of saturation with H_2S. The authors determined the

Card 1/3

S/780/62/000/005/002/002
I060/I242

Purification of liquid...

equilibrium distribution of H_2S between the liquid PPF and the 2 M solution of K_3PO_4 and between the PPF fraction and the 0.18 M solution of $NaPO_3$ at 20°C. The vapor pressures of H_2S and water over a 2 M solution of K_3PO_4 at 100, 120, and 140°C and of H_2S and water over a solution of K_3PO_4 + K_2HPO_4 at 120 and 140°C were determined. The rate of absorption of H_2S from liquid PPF fraction by a 2 M solution of K_3PO_4 was measured. The driving force was determined by the difference between the concentration of K_3PO_4 in solution not combined with H_2S and its equilibrium concentration in relation to PPF. The formula for calculation of the rate of mass transfer was empirically confirmed by a series of experiments where the degree of saturation of the K_3PO_4 solution varied between 0.38 and 0.95, the concentration of H_2S in PPF from 0.8 to 6.3 mole %, and the height of the column between 0.32 and 1.30 m. The contact surface between phases in a spray column was determined and the value of the extraction coefficient was reduced to a unit of contact area

Card 2/3

S/780/62/000/005/002/002
I060/I242

Purification of liquid...

between the calculated phases. The number of theoretical plates required in the regeneration column for the solutions of K_2PO_4 saturated with H_2S and the minimum steam expenditure were calculated. There are 19 figures and 17 tables.

Card 3/3

IPAT'YEVA, G.V.

A new mermithid Filipjevimermis pologenzevi sp. n. (Mermithidae, Nematoda) from the larvae of cockchafers (Melolontha hippocastani F.) Zool. zhur. 42 no.6:944-947 '63. (MIRA 16:7)

1. Wood Processing Institut of Voronezh.
(Bryansk Province—Nematoda)
(Bryansk Province—Parasites—Cockchafers)

IPAT'YEVA, I.S.

Morphological features of zircon from granites of the Omchikandya massif. Nauch.soob.IAFAN SSSR no.4:26-32 '60. (MIRA 14:12)
(Omchikandya region—Zircon)

NEKRASOV, I.Ya.; IPAT'YEVA, I.S.

Mineralogical and geochemical characteristics of metal-bearing granites as revealed by the Omchikandya massif. Mat.po geol.i pol.iskop.IAk.ASSR no.5:32-50 '61. (MIRA 15:7)
(Yakutia—Granite)

IPAT'YEVA, I.S.

Analysis of the distribution of accessory and postmagmatic minerals in granites of the Omchikandinskiy massif and ore veins. Nauch.soob. IAFAN SSSR no.7:151-154 '62. (MIRA 16:3)
(Polousnyy Range--Minerals)

IPATYEVA, NINA V. (USSR)

"Investigations on the influence of food and temperature on the reproduction of Citellus pygmaeus in Russia."

report presented at the Intl. Symposium on Methods of Theriological Investigation. Brno, Czech.,
26 aug-4Sept. 1960

IPAT'YEVA, T.L.; KUDRYASHOVA, Ye.N.

Technological standards of the products of Moscow enterprises. Kozh.-obuv. prom. 7 no.5:5-9 My '65. (MIRA 18:8)

1. Glavnyy inzhener Upravleniya obuvnoy i kozhevennoy promyshlennosti Moskovskogo gorodskogo soveta narodnogo khozyaystva (for Ipat'yeva).
2. Nachal'nik tekhnicheskogo otdela Upravleniya obuvnoy i kozhevennoy promyshlennosti Moskovskogo gorodskogo soveta narodnogo khozyaystva (for Kudryashova).

IPAT'YEVA, T.L.

Measures for the improvement of the quality, widening of the assortment of footwear and consumers' goods, and better organization of commercial operations. Kozh.-obuv. prom. 4 no.7:3-5 Jl '62. (MIRA 17:1)

ociety June 1, 1954
Cements, Limes and Plasters

Unfired gypsum cement. P P Budnikov, I G Gulinova, and V. A. Ipat'eva. *Dopovidi Akad. Nauk Ukr. R.S.R.*, 1953, No. 4, pp 231-35.—Unfired gypsum cement can be obtained by ball milling the $CaSO_4 \cdot 2H_2O$ to a fine degree by wet or dry method, without the addition of artivators. The high strength of such cement is due to its capacity to form supersaturated solutions and to recrystallize. The finer the grind, the more complete is the recrystallization process and the greater is the cement strength. The hardened cement has a fine crystalline structure. To attain a crushing strength of 250 to 350 kg./cm.², ground gypsum should give a 3.5% residue on a sieve of 10,000 openings per sq. cm. Suggested additions to increase water resistance are about 2% $Ca(OH)_2$, basic blast-furnace slag, or schist ash; these should be introduced during the grinding of the original gypsum.

R. Z. K.

[redacted] A. inzhener. (Kiyev).

Effect of plaster stone properties on the quality of gypsum. Stroi. mat. 3 no.3:33-34 Mr '57. (MLRA 10:4)
(Gypsum)

IPAT'YEVA, T.

Shoe section. Sov. torg. 35 no.5:8-10 My '62. (MIRA 15:5)

1. Zamestitel' nachal'nika Upravleniya Mosgorsovnarkhoza.
(Shoe industry)

IPAT'YEVA, V.A.; KOSTYUK, B.V.

Physicochemical conditions for the production of high-strength gypsum at atmospheric pressure. Ukr.khim.zhur. 24 no.5:681-685 '58. (MIRA 12:1)

1. Kiyevskiy zavod gipsovykh dosok i blokov.
(Gypsum)

IPAT'YEVA, V. A., CAND TECH SCI, "~~INVESTIGATION~~ Study OF ~~THE~~ the THERMOCHEMICAL PROCESSES IN HEATING of A CALCIUM SULFATE dihydrate AND THEIR EFFECT upon THE PHYSICAL AND MECHANICAL PROPERTIES OF BOILING GYPSUM." KIEV, 1960. (KIEV ORDER OF LENIN POLYTECH INST). (KL, 2-61, 208).

BAYDAKOV, L.A.; BORISOVA, Z.U.; IPAT'YEVA, V.V.

Conductivity of vitreous $AsSe_a - {}_xS_x$. Vest.LGU 17 no.22:90-95 '62. (MIRA 15:12)

(Arsenic) (Vitreous materials—Electric properties)

ACCESSION NR: AP4036500 S/0298/64/017/004/0011/0020

AUTHOR: Khidrogluyan, Sh. A.; Ipekchyan, N. M.

TITLE: Spinal cord regeneration in rats

SOURCE: AN ArmSSR. Izvestiya. Biologicheskiye nauki, v. 17, no. 4, 1964, 11-20

TOPIC TAGS: spinal cord injury, spinal cord regeneration, spinal cord anterior root, spinal cord posterior root, root nerve fiber, spinal cord functional restoration

ABSTRACT: Spinal cord regeneration was investigated in 9 rats with a complete spinal cord section and in 3 rats with an incomplete spinal cord section. In the postoperative period the spinal cords were fixed in 12% neutral formalin and sections were prepared for histological investigations. Spinal cord regeneration processes were observed in the animals until death. Findings show that regeneration took place in 11 of the 12 animals, but the regenerating nerve fibers belonged mostly to the spinal cord anterior and posterior roots rather than to the spinal cord itself. The regenerating nerve fibers

Card 1/2

ACCESSION NR: AP4036500

of the posterior and anterior roots are identical in structure. These root nerve fibers are found mostly on the spinal cord surface with a considerable number growing through the scar tissue and connecting the severed cord ends. The problem is raised whether spinal cord function can be restored with the absence of spinal cord nerve fiber regeneration. The authors take the position that in animals with a spinal cord injury, nerve excitation can be accomplished by the regenerating root fibers which connect the severed spinal cord ends and ensure restoration of spinal cord function to a certain degree. Orig. art. has: 7 figures and 1 table.

ASSOCIATION: Institut fiziologii im. L. A. Orbeli AN ArmSSR (Physiology Institute AN ArmSSR)

SUBMITTED: 05Nov63 ENCL: 00 SUB CODE: LS

NR REF SOV: 004 OTHER: 014

Card 2/2

IPEKDZHIYAN, V. M.

"Study of the Drought Resistance of Perennial Grasses and Ways of Increasing It." Sub 28 Dec 51, Inst of Plant Physiology imeni K. A. Timiryazev, Acad Sci USSR.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

IPEKDSHIYAN, V. M.

USSR/Biology - Plant Physiology

Card : 1/1

Authors : Krayevoy, S. Ya., Oknina, E. Z., and Ipekdzhiyan, V. M.

Title : Effect of low critical temperatures on oak seedlings

Periodical : Dokl. AN SSSR, 96, Ed. 4, 841 - 844, June 1954

Abstract : The effect low temperature on oak seedlings is described. Eight references. Tables.

Institution : Acad. of Sc. USSR, Forest Institute and the K. A. Timiryazev Institute of Plant Physiology

Presented by: Academician V. N. Sukachev, April 5, 1954

IPEKDZHIYAN, Vagan Mushegovich, kandidat biologicheskikh nauk; NEMAKHOV, I.D., redaktor; GLOTOVA, M.I., tekhnicheskiy redaktor

[The cultivation of Sudan grass] Vozdelyvanie sudanki. Rostov-na-Donu, Rostovskoe kn-vo, 1955. 7 p. (MLRA 9:10)
(Sudan grass)

IPEKDZHIYAN, V.M.

Winter transpiration in young oak shoots in relation to frost resistance of the plants. Fiziol.rast.2 no.4:373-377 Jl-Ag'55. (MLRA 8:12)

1. Institut fiziologii rasteniy imeni K.A.Timiryazeva Akademii nauk SSSR, Moscow
(Oak) (Plants--Transpiration)

USSR/General Biology. Genetics. The Genetics of Plants. B-5

Abs Jour: Ref Zhur-Biol., No 20, 1958, 90424.

Author : Lyashchenko, I.F., Ipekdzhian, V.M., Alekseyeva, R.I.
Inst : Rostov Univ.
Title : A Contribution to the Interspecies Hybridization of Wheat.

Orig Pub: Uch. zap. Rostovsk. n/D. un-ta, 1957, 28, 73-77.

Abstract: The results of the hybridization of various wheat species are described. They were: T. vulgare with T. sphaerococcum, T. spelta with T. compactum, T. sphaerococcum with T. spelta, T. durum with T. dicoccum, T. polonicum, T. persicum and T. spelta. The authors support the findings of many previous works on similar wheat intercrosses, although no survey of the plentiful

Card : 1/2

IPEKDZHIYAN, V.M.; NIKITENKO, N.D.

Interrelationships between leguminous and gramineous plants in mixed corn-soybean plantations. Fiziol. rast. 6 no.4:491-493 Jl-Ag '59. (MIRA 12:10)

1.Rostov Variety Station.
(Corn (Maize)) (Soybean) (Allelopathy)