S/056/62/043/005/017/058
B102/B104

AUTHORS: Kumekin, Yu. P., Meshcheryakov, M. G., Nurushev, S. B., Stoletov, G. D.

TITLE: Triple scattering of 660-Mev protons. III. Angular dependence of parameter R

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 5(11), 1962, 1665-1671

TEXT: Further experiments on triple scattering of protons were made within the scope of the program of reconstructing the pp-scattering matrix for E_p = 660 Mev (cf. I: ZhETF, 35, 1398, 1958; II: ZhETF, 38, 1451, 1960). Tne change in primary-beam polarization $\vec{P}_1$ was measured which depends on the polarization tensors D_{ip} and K_{iq} of the scattered and recoil protons, respectively:

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Triple scattering of 660-Mev protons ...

$$P_{2p} = \frac{P_{2p}^{(0)} + D_{ip}P_{1i}}{1 + \mathbf{P}_2^{(0)}\mathbf{P}_1}, \quad P_{2q} = \frac{P_{2q}^{(0)} + K_{iq}P_{1i}}{1 + \mathbf{P}_2^{(0)}\mathbf{P}_1}. \qquad \|D_{ip}\| = \begin{matrix} n \\ P \\ K \end{matrix} \begin{Vmatrix} D_{nn} & 0 & 0 \\ 0 & X & Z \\ 0 & -Z & Y \end{Vmatrix};$$

$$\mathbf{P}_2\mathbf{s}_2 = R\mathbf{P}_1[\mathbf{n}_2\mathbf{k}_2] + A\mathbf{P}_1\mathbf{k}_2, \qquad R = Z\sin(\theta/2) + Y\cos(\theta/2),\ A = Z\cos(\theta/2) - Y\sin(\theta/2);$$
$$\mathbf{P}_2\mathbf{k}_2 = R'\mathbf{P}_1[\mathbf{n}_2\mathbf{k}_2] + A'\mathbf{P}_1\mathbf{k}_2, \qquad R' = -Z\cos(\theta/2) + X\sin(\theta/2),\ A' = Z\sin(\theta/2) + X\cos(\theta/2).$$

Tne subscripts p and q refer to the measured polarization components of scattered and recoil protons, $\vec{P}^{(0)}$ is the polarization arising when an unpolarized beam is scattered, the subscript i refers to the initial polarization of the incident beam. The geometry of the experiment may be seen from Fig. 1. Tne parameter R is related to the asymmetries by $R = \varepsilon_{3s}/(\varepsilon_3 \sin\varphi_2)$ where $\varepsilon_3 = P_1P_3$, $\varepsilon_{3s} = RP_1P_3\sin\varphi_2 = (N_L - N_R)/(N_L + N_R)$; for $\varphi_2 = 90^\circ$ (which is the case in Fig. 1) these relations are simplest. The experiments were made with protons of 640±12 Mev and with

Card 2/6

Triple scattering of 660-Mev protons ...

$P_1 = 0.58 \pm 0.03$ from the six-meter synchrocyclotron of the OIYaI. The experimental arrangement of monitor; targets and counter telescopes was such as to satisfy the geometrical demands. The results were used for a phase-shift analysis and for determining the moduli of the scattering matrix M_{pp}. For $\theta = 90^\circ$ and $E_p \approx 640$ Mev:

$$|M_{ss}| = (0{,}24 \pm 0{,}11) \cdot 10^{-13}\ см,$$
$$|M_{01}| = (0{,}51 \pm 0{,}05) \cdot 10^{-13}\ см, \quad |M_{10}| = (0{,}40 \pm 0{,}06) \cdot 10^{-13}\ см \qquad (13)$$

$\cos\varphi_{01,10} = -0.96 \pm 024$ and $\cos\varphi_{01,ss} = 0.84 \pm 0.42$. There are 5 figures and 1 table.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: June 30, 1962

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Fig. 4. Energy dependence of the moduli of the elements of $M_{pp}(90^{\circ})$

Fig. 5. Energy dependence of the phase angles of the elements of $M_{pp}(90^{\circ})$ assuming $|M_{01}(640\ \text{Mev}, 90^{\circ})| = 180^{\circ}$.

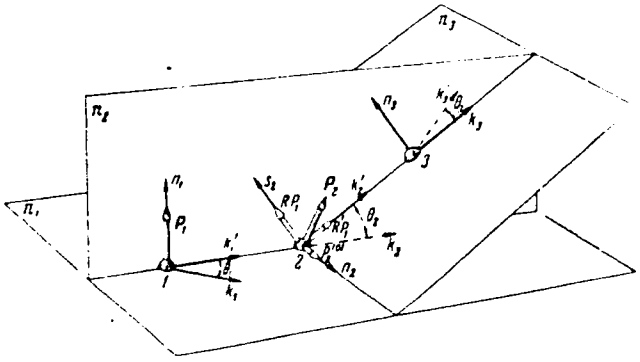

Fig. 1

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Triple scattering of 660-Mev protons ...

Fig. 4

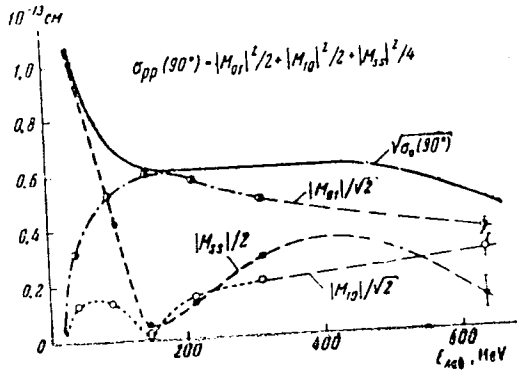
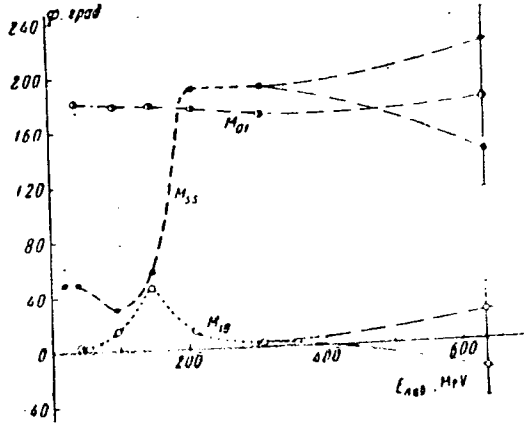


Fig. 5



Card 5/6

Triple scattering of 660-Mev protons ...

Table

θ, град	$\varepsilon_{3S} \pm \Delta\varepsilon_{3S}$, %	$\varepsilon_1 \pm \Delta\varepsilon_1$, %	$R \pm \Delta R$	$D \pm \Delta D$
54	4,9±0,9	10,9±0,3	0,45±0,08	0,99±0,25
72	6,8±1,0	13,8±0,7	0,49±0,08	0,69±0,20
90	5,5±1,4	21,1±1,3	0,26±0,07	0,93±0,17
108	6,9±1,1	20,5±1,1	0,32±0,06	0,28±0,16
126	4,9±1,3	10,2±0,5	0,49±0,13	0,57±0,20

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S/056/62/043/006/039/067
B125/B102

AUTHORS: Azhgirey, L. S., Kumekin, Yu. P., Meshcheryakov, M. G., Nurushev, S. B., Stoletov, G. D.

TITLE: The nucleon-nucleon scattering amplitudes and the complexity of the spin-orbit potential of interaction between nucleons and nuclei

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 6(12), 1962, 2194 -2198

TEXT: Information as to the nucleon-nucleon scattering at high energies can be obtained from experimental data on the scattering of nucleons by nuclei. The differential elastic cross sections of protons scattered by carbon nuclei through small angles and the polarization of these protons were determined by L. S. Azhgirey et al. (ZhETF, 44, 1, 1963) at E_p = 660 Mev. The real and imaginary parts of the Born amplitudes were obtained from these cross sections G(0) and H(0), and the relations

Card 1/4

The nucleon-nucleon...

$$G(\eta) = N\cdot(k/k_0)\left[\tfrac{3}{4}A_1(q) + \tfrac{1}{4}A_0(q)\right], \qquad (3)$$
$$H(q) = -iN\,(k/k_0)^3\left[\tfrac{3}{4}C_1(q) + \tfrac{1}{4}C_0(q)\right].$$

between the amplitudes of nucleon-nucleus scattering and the NN-scattering amplitudes following from the superposition model lead to

$$\bar{A}^R(0) = {}^3/_4 A_1^R(0) + {}^1/_4 A_0^R(0) = -0{,}36 \pm 0{,}03,$$
$$\bar{A}^I(0) = {}^3/_4 A_1^I(0) + {}^1/_4 A_0^I(0) = 0{,}72 \pm 0{,}04, \qquad (4)$$
$$\bar{C}^R(0) = {}^3/_4 C_1^R(0) + {}^1/_4 C_0^R(0) = -0{,}33 \pm 0{,}28,$$
$$\bar{C}^I(0) = {}^3/_4 C_1^I(0) + {}^1/_4 C_0^I(0) = 0{,}77 \pm 0{,}20.$$

for the real and imaginary parts of the amplitudes A and C, averaged over the isotopic states. q is the momentum transferred. The subscripts 1 and zero refer respectively to the isotopic states with T = 1 and T = 0 of the two-nucleon system considered. The negative sign of the real part $\bar{A}^R(0)$

Card 2/4

The nucleon-nucleon...

of the zero-spin amplitude is due to the effect of the repulsive hard core in nucleon-nucleon interaction. In first Born approximation the spin amplitude $\bar{C}(0)$ corresponds with the spin-orbit potential of nucleon-nucleus interaction, as is shown by comparing experimentally obtained data on NN-scattering with the phase shift analysis. Between 40 and 660 Mev the energy dependence is described satisfactorily by

$$\begin{aligned} \bar{A}^I(0) &= (7{,}20 \pm 0{,}20)/E_{\text{ц. м.}} + (4{,}68 \pm 0{,}26)\cdot 10^{-3} E_{\text{ц. м.}}, \\ \bar{A}^R(0) &= (0{,}673 \pm 0{,}03) - (6{,}88 \pm 0{,}35)\cdot 10^{-3} E_{\text{ц. м.}}, \\ \bar{C}^I(0) &= (0{,}188 \pm 0{,}038) + (3{,}86 \pm 0{,}70)\cdot 10^{-3} E_{\text{ц. м.}}, \\ C^R(0) &= (2{,}45 \pm 0{,}42)\cdot 10^{-3} E_{\text{ц. м.}} - (1{,}97 \pm 0{,}84)\cdot 10^{-6} E^2_{\text{ц. м.}}. \end{aligned} \qquad (5).$$

The energy $E_{\text{ц.м.}}$ in the c.m.s. is given in Mev and the amplitudes in 10^{-13} cm. The amplitude $\bar{A}^I$ describes mainly the energy dependence of the total cross sections $\bar{\sigma}$ of nucleon-nucleon interaction (averaged over the isotopic spin). The energy dependence of $\bar{A}^R(0)$ leads to the relation $\sigma(0) = (k\sigma_t/4\pi)^2$ for the nucleon-nucleus scattering cross section through

the angle 0°. It also implies the existence of a pure shadow scattering at $\sim$400 Mev in the lab system. $C^{1}(0)$ is positive throughout the energy range investigated. Hence up to 660 Mev the real part of the spin-orbit potential V_{SR} of nucleon-nucleus interaction has the same sign as in the shell model. The parameters of the optical potentials, determined from the nucleon-nucleon scattering, are tabulated. The data obtained on nucleon-nucleon scattering indicate that the real part of V_{SR} diminishes with increasing energy. According to nucleon-nucleon experiments the imaginary part of V_{SR} is likely to be non-zero. There are 1 figure and 1 table.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: June 30, 1962

Table

E, MeV	V_{CR}, MeV	V_{CI}, MeV	V_{SR}, MeV	V_{SI}, MeV
40	82±6	99±3	8,6±2,9	−1,14±0,36
90	65±9	57±9	5,0±0,9	−0,85±0,56
147	52±4	46±3	3,8±0,4	−0,65±0,09
210	33±4	46±3	3,1±0,2	−0,58±0,07
310	17±7	43±3	2,2±0,2	−0,56±0,19
660	−33±3	67±4	1,3±0,3	0,55±0,48

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S/020/62/145/006/006/015
B181/B102

21 2300

AUTHORS: Azhgirey, L. S., Kumekin, Yu. P., Meshcheryakov, M. G., Corresponding Member AS USSR, Nurushev, S. B., Stoletov, G. D., and Huang Tieh-ch'iang

TITLE: Excitation of C^{12} nuclei by 660-Mev protons

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 145, no. 6, 1962, 1249-1252

TEXT: A graphite rod, 1 cm thick, was bombarded by protons having energies of 660 ± 3.0 Mev and a flux density of about $3 \cdot 10^9$ p/cm^2 sec. The protons scattered through 4.2, 5.2, 7.0, 9.1 and 10.7° were deflected magnetically and then conducted through two quadrupole lenses and a collimator into an ionization chamber with three scintillation counters. The inelastic diffusion scattering cross section for 7° is $130 \cdot 10^{-27}$ cm^2/steprad. The maximum energy distribution of the inelastically scattered protons is connected with the energy from the giant photoresonance of the C^{12} nuclei, but is much wider. Interaction between the incident proton and

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the bound nucleons may cause stable collective excitations of the nucleus, i.e. spin, isospin, and spin-isospin waves (ZhETF, 43, no. 6, 1962). Giant photoresonance excitation and excitation of the nucleus by spin waves of the giant resonance energy may set in simultaneously. This is probably what causes the widening of the curve. There are 3 figures.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: May 11, 1962

S/089/63/014/001/004/013
B102/B186

AUTHORS: Meshcheryakov, M. G., Kumenkin, Yu. P., Nurushev, S. B., Stoletov, G. D.

TITLE: The longitudinally polarized proton beam of the six-meter synchrocyclotron

PERIODICAL: Atomnaya energiya, v. 14, no. 1, 1963, 38-40

TEXT: The program for a full investigation of the pp scattering at the Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research) included also experiments with longitudinally polarized proton beams. The experimental arrangement was suggested by S. B. Nurushev (Preprint OIYaI P-278, 1959) and is described here in detail. On account of the proton spin precession the longitudinally polarized component is obtained at the angle $\lambda = \frac{\mu_p - 1}{\sqrt{1-\beta^2}}\psi$. The precession is due to the anomalous magnetic moment of the proton. The longitudinal component of the polarization resulting from this is $P_{long} = P_1 \sin \lambda$ where

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P_1 is the polarization of protons elastically scattered from carbon nuclei, μ_p is the proton magnetic moment in terms of nuclear magnetons, β is the proton velocity in c-units, and φ is the angle of deflection of the proton beam in the magnetic field. For $\chi = 90^\circ$ only the longitudinal component exists. By a suitable choice of φ, ($\varphi = 30^\circ$ for proton primary energy of 660 Mev) it is possible to have the whole beam longitudinally polarized. A flux of $2 \cdot 10^6$ p/cm^2 sec could be attained for an energy $E_{long} = 612 \pm 9$ Mev. The angle of precession under these conditions is $\chi = 89 \pm 2.5^\circ$. The value $P_1 = 0.43 \pm 0.03$ agrees well with the data published in Zh. eksperim. i teor.fiz.,44,no.1,1963. There is 1 figure.

SUBMITTED: October 16, 1962

Card 2/2

45369

S/056/63/044/001/034/067
B188/B180

24.6600

AUTHORS: Azhgirey, L. S., Kumekin, Yu. P., Meshcheryakov, M. G., Nurushev, S. B., Stoletov, G. D., Khuan De-tsyan

TITLE: Elastic small angle scattering of 660 Mev-protons by carbon nuclei

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44, no. 1, 1963, 177- 191

TEXT: The differential elastic scattering cross section of 660 Mev protons by carbon nuclei was measured in the range ($1.8^0 \leq \vartheta \leq 9^0$) where nuclear and Coulomb scattering interfere. The polarization of the scattered protons was also measured, and the results were used to calculate the scattering amplitudes and the corresponding nuclear potentials of the optical model. Determination of the energy spectra of the scattered protons shows that inelastic competes with elastic scattering at small angles also. Reliable results on elastic scattering cross sections at high proton energies can only be obtained if inelastically scattered protons are carefully separated. Here this is done by deflection in a magnetic field. Fig. 4 gives the differential cross section

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Elastic small angle scattering ...

measured for elastic scattering, and Fig. 5 the polarization of scattered protons as a function of the scattering angle. Hence, the components of scattering amplitudes obtained by the method of least squares are (in 10^{-13} cm): $g_{NR}(o) = -5.05 \pm 0.45$ $g_{NI}(o) = 15.26 \pm 0.45$

$h_{NR}(o) = -10.4 \pm 13.3$ $h_{NI}(o) = 37.6 \pm 9.3$

The corresponding radii of the central and spin-orbital potentials are

$$\sqrt{r_g^2} = (2{,}48 \pm 0{,}04) \cdot 10^{-13} \text{ cm}, \quad (14\text{ a})$$

$$\sqrt{r_h^2} = (2{,}83 \pm 0{,}16) \cdot 10^{-13} \text{ cm}, \quad (14\text{ b}).$$

They are much larger than when determined from electron scattering. The values of the integrated potentials of the optical model according to the Born approximation are:

central potential $U = ((-127 \pm 12) + i\,(257 \pm 14)) \cdot 10^{-39}$ MeV·cm³, (22 a)

spin-orbital potential $W = ((14{,}8 \pm 3{,}9) + i\,(6{,}3 \pm 5{,}4)) \cdot 10^{-65}$ MeV·cm⁵. (22 b).

There are 5 figures and 1 table.

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Elastic small angle scattering ...

S/056/63/044/001/034/067
B188/B180

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: June 30, 1962

Fig. 4: Differential scattering cross section for 660 Mev protons by carbon. ● - secondary protons with more than 60 Mev; O elastically scattered protons. Solid curve: calculated values. Legend: (1) $d\sigma/d\omega$, 10^{-24} cm^2/sterad, (2) θ, degrees.

Fig. 5: Polarization of protons (primary energy 660 Mev) after elastic scattering by carbon nuclei. The P value at 6.3° was taken from ZhETF, 35, 89, 1958; bold, solid curve: calculated values with optimum adaptation; hatched area: range of error. Legend: (1) θ, degrees.

Fig. 5

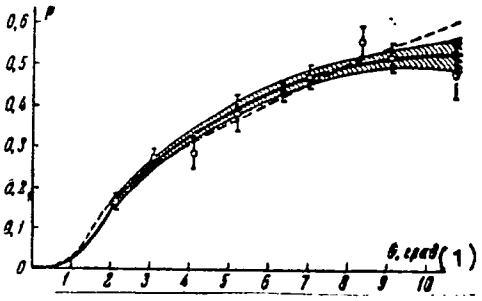

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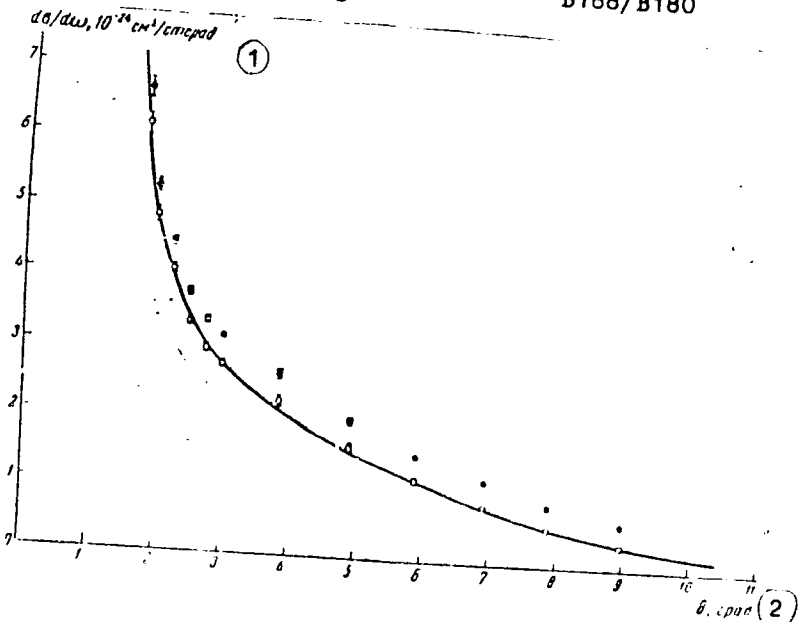
Fig. 4



Card 4/4

AZHGIREY, L.S.; KLEPIKOV, N.P.; KUMEKIN, Yu.P.; MESHCHERYAKOV, M.G.; NURUSHEV, S.B.; STOLETOV, G.D.; SARANTSEVA, V.R., tekhn.red.

[Phenomenological analysis of pp-interaction at 657 Mev] Fenomenologicheskii analiz pp-vzaimodeistviia pri 657 mev. Dubna, Ob"edinennyi in-t iadernykh issledovanii. Pt.1. 1963. 3 p. (MIRA 16:6)

(Protons--Scattering)

KUMEKIN, Yu.P.; MESHCHERYAKOV, M.G.; NURUSHEV, S.B.; STOLETOV, G.D.

Triple scattering of 660 Mev. protons. Part 4: Angular dependence of the A parameter. Zhur. eksper. i teor. fiz. 46 no.1:50-58 Ja'64. (MIRA 17:2)

1. Ob"yedinennyy institut yadernykh issledovaniy.

ACCESSION NR: AP4025940 S/0056/64/046/003/1074/1078

AUTHOR: Azhgirey, L. S.; Klepikov, N. P.; Kumekin, Yu. P.; Meshcheryakov, M. G.; Nurushev, S. B.; Stoletov, G. D.

TITLE: Further refinement of pp scattering phase shifts at 657 MeV

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 46, no. 3, 1964, 1074-1078

TOPIC TAGS: pp scattering, scattering phase shift, triple scattering parameter, mixing parameter, absorption parameter, phase shift real part, unique phase shift set, statistical reliability

ABSTRACT: In view of additional information recently obtained by various investigators, the results of a phase shift analysis of pp scattering at 657 MeV are refined by taking into account new data on the angular dependence of the triple-scattering parameter A. These experimental data are found to be represented with statistical reliability by a set of the real parts of the phase shifts, the mixing parameters, and the averaged absorption parameters. Arguments are presented which indicate that the obtained phase shift set is unique, particularly in view

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ACCESSION NR: AP4025940
of the smooth transition between the solution and the corresponding curves for energies below 345 MeV. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: 30Aug63 DATE ACQ: 16Apr64 ENCL: 01

SUB CODE: PH NR REF SOV: 006 OTHER: 003

Card 2/3

L 26682-66 EWT(m)/T

ACC NR: AP6016898 SOURCE CODE: UR/0367/65/002/005/0892/0896

AUTHOR: Azhgirey, L. S.--Azgirey, L. S.; Kumekin, Yu. P.--Kumekin, Ju. P.; Meshcheryakov, M. G.--Mescheryakov, M. G.; Stoletov, G. D.; Nurushev, S. G.; Solov'yanov, V. L.--Solovyanov, V. L.

ORG: Joint Institute for Nuclear Research (Ob"yedinennyy institut yadernykh issledovaniy)

TITLE: Measurement of polarization in pp-scattering with 667 mev

SOURCE: Yadernaya fizika, v. 2, no. 5, 1965, 892-896

TOPIC TAGS: proton scattering, proton polarization

ABSTRACT: The polarization in pp-scattering in the interval $4.4^\circ \leq \theta \leq 48.2^\circ$ is found from an experiment on double scattering of protons by protons; for large angles, by means of renormalization of the measurements with 635 mev. An increase in polarization in pp-scattering appeared with an increase in energy from 602 to 656 mev. Analysis of the angular dependence of the polarization showed that with 667 mev a significant contribution to the polarization is made by the triplet states with angular momentum up to and including $l = 5$. The set of phase shifts is described by the values of polarization obtained with other experimental data in the vicinity of 660 mev. Orig. art. has: 2 figures and 1 table. [JPRS]

SUB CODE: 20 / SUBM DATE: 02Jul65 / ORIG REF: 004 / OTH REF: 005
SOV REF: 004

Card 1/1 BLG

ZVONOV, N.V.; ALEKSENKO, Yu.N.; STROGONOV, V.A.; MESHCHERYAKOV, M.N.; BUYNITSKAYA, V.I.; YAROSLAVTSEV, B.Ye.

[Critical tests of an organic moderator - monoizopropylbiphenyl] Kriticheskie opyty s organicheskim zamedlitelem-monoizopropilbifenilom. Moskva, In-t atomnoi energii AN SSSR, 1960. 42 p. (MIRA 16:12)
(Nuclear reactors--Materials) (Biphenyl)

L 40001-65 EPA(s)-2/EWT(m)/EPF(c)/EPF(n)-2/EWG(m)/EPR/EWP(j)/T Pc-4/Pr-4/
Ps-4/Pu-4 RM/DJ/GS
ACCESSION NR: AT5007908 S/0000/64/000/000/0182/0193

AUTHOR: Alekseenko, Yu. N.(Candidate of technical sciences); Buynitskaya, V.I.; Zaslavskiy, V.V.; Zvonov, N.V.; Kozlov, V.N.; Meshcheryakov, M.N.; Rogozhkin, I.V.; Stolpnik, V.P.; Strogonov, V.A.; Yaroslavtsev, B.Ye.

TITLE: Critical tests with the organic moderators monoisopropylbiphenyl and gas oil

SOURCE: Moscow. Institut atomnoy energii. Issledovaniya po primeneniyu organicheskikh teplonositeley-zamedliteley v energeticheskikh reaktorakh (Research on the use of organic heat-transfer agents and moderators in power reactors). Moscow, Atomizdat, 1964, 182-193

TOPIC TAGS: organic reactor coolant, power reactor, nuclear power plant, thermal reactor, heat transfer agent, organic moderator, isopropylbiphenyl, gas oil, thermal neutron

ABSTRACT: The article presents the results of critical tests on the organic moderators\\isopropylbiphenyl and gas oil, a description of anexperimental"organic reactor", and some results of measurements carried out on this reactor. Graphs are included showing the distribution of thermal neutrons for different values of lattice spacing, the calculated dependence of the effective addition for gas oil and mono-

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L 40001-65
ACCESSION NR: AT5007908

isopropylbiphenyl, the dependence of the critical number of channels for monoisopropylbiphenyl on the lattice spacing and for gas oil on both the temperature and lattice spacing, as well as the calculated values of the square length of moderation for biphenyl, monoisopropylbiphenyl, and gas oil. The authors conclude that the physical experiments with critical assemblies carried out on monoisopropylbiphenyl and gas oil have made it possible to verify the method and system of constants used for calculating the physical characteristics of reactors with organic heat-transfer agents. Orig. art. has: 12 figures and 2 tables.

ASSOCIATION: None

SUBMITTED: 01Aug64 ENCL: 00 SUB CODE: NP, ID

NO REF SOV: 000 OTHER: 000

Card 2/2

22c

L 24212-65 EWT(m)/EPF(c)/EPF(n)-2/EPR Pr-4/Ps-4/Pu-4 DM

ACCESSION NR: AP5001265 S/0089/64/017/006/0439/0448

AUTHOR: Polushkin, K. K.; Yemel'yanov, I. Ya.; Delens, P. A.; Zvonov, N. V.; Alekseenko, Yu. I.; Grozdov, I. I.; Kuznetsov, S. P.; Sirotkin, A. P.; Tokarev, Yu. I.; Lavrovskiy, K. P.; Brodskiy, A. M.; Belov, A. R.; Borisyuk, Ye. V.; Gryazev, V. M.; Tetyukov, V. D.; Popov, D. N.; Koryakin, Yu. I.; Filippov, A. G.; Petrochuk, K. V.; Khoroshavin, V. D.; Savinov, N. P.; Meshcheryakov, M. N.; Pushkarev, V. P.; Suroyegin, V. A.; Gavrilov, P. A.; Podlazov, L. N.; Rogozhkin, I. N.

TITLE: Atomic electric power installation "Arbus" with organic coolant and moderator

SOURCE: Atomnaya energiya, v. 17, no. 6, 1964, 439-448

TOPIC TAGS: small nuclear reactor, organic coolant, organic moderator, reactor economy, nuclear reactor

ABSTRACT: The paper is a summary of the SSSR # 307 report at the Third Inter-

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L 24212-65

ACCESSION NR: AP5001265

national Conference on Peaceful Uses of Atomic Energy, 1964. It describes an installation of a reactor in which organic liquid serves as the coolant, and as the moderator. The low-power reactors of about 5 Mw are expected to be economical in the remote regions where the usual energy sources are not available. A regeneration system is described for the coolant which removes the products of radiolysis. Orig. art. has: 7 figures

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: NP

NR REF SOV: 000 OTHER: 000

Card 2/2

MESHCHERYAKOV, Marklen Tikhonovich

[Labor movement in Spain from 1918-1939; lectures] Rabochee dvizhenie v Ispanii v 1918-1939 godakh; lektsii prochitannye v Kazanskoi Vysshei partiinoi shkole. Moskva, 1958. 53 p. (MIRA 14:12)

(Spain--Labor and laboring classes)

MESHCHERYAKOV, M.

Economic cooperation of the People's Republic of Mongolia with socialist countries. Vnesh.torg. 29 no.2:10-14 '59. (MIRA 12:4)

(Mongolia--Foreign economic relations)

MESHCHERYAKOV, M.

Soviet exhibition in Mexico. Vnesh.torg. 30 no.1:5-7 '60. (MIRA 13:2)
(Mexico City--Exhibitions)

MESHCHERYAKOV, M.

Expansion of trade and economic relations of the Mongolian People's Republic. Vnesh.torg. 30 no.7:26-28 '60. (MIRA 13:7)

(Mongolia—Foreign economic relations)

BAVRIN, Ye.P.; MESHCHERYAKOV, M.V., red.; SLADKOVSKIY, M.I., doktor ekon. nauk, red.; ZINCHENKO, V.S., red. izd-va; TSAGURIYA, G.M., tekhn. red.

[The Mongolian People's Republic; economy and foreign trade] Mongol'skaia Narodnaia Respublika; ekonomika i vneshniaia torgovlia. Moskva, Vneshtorgizdat, 1961. 151 p. (MIRA 14:11)
(Mongolia--Commerce) (Mongolia--Economic conditions)

MESHCHERYAKOV, M.

People's Mongolia expands its foreign economic relations [with English summary in insert]. Vnesh. torg. 41 no.7:19-24 '61. (MIRA 14:7)

(Mongolia--Economic conditions)
(Russia--Foreign economic relations--Mongolia)
(Mongolia--Foreign economic relations--Russia)

MESHCHERYAKOV, N. A.,

"Lipoma of the Bronchus," Vest Khir, No 2, 1955.

Second Faculty Surgical Clinic, Military Medical Academy imeni Kirov.

MESHCHERYAKOV, N.A.

Use of artificial hypotension in surgery [with summary in English]. Vest.khir. 79 no.11:31-40 N '57. (MIRA 11:3)

1. Iz khirurgicheskoy kliniki usovershenstvovaniya vrachey (nach.-prof. P.A.Kupriyanov) Voyenno-meditsinskoy ordena Lenina akademii im. S.M.Kirova.

(SURGERY, OPERATIVE
hypotension, controlled, indic. (Rus)
(HYPOTENSION, CONTROLLED
in surg., indic. (Rus)

MESHCHERYAKOV, N.A.; UVAROV, B.S.; SHANIN, Yu.N.

Use of ganglion-blocking agents in surgery of the major blood vessels and of the heart. Grud. khir. 1 no.4:44-50 Jl-Ag '59. (MIRA 15:3)

1. Iz khirurgicheskoy kliniki dlya usovershenstvovaniya vrachey i kafedry anesteziologii (nachal'nik - deystvitel'nyy chlen AMN SSSR prof. P.A. Kupriyanov) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova. Adres avtorov: Leningrad,pr.Karla Marksa,d.7/8, Khirurgicheskaya klinika dlya usovershenstvovaniya vrachey Voyenno-meditsinskoy akademii imeni S.M. Kirova.
(AUTONOMIC DRUGS) (BLOOD VESSELS--SURGERY)
(HEART--SURGERY)

MESHCHERYAKOV, N. A, UVAROV, B. S., SHANIN, Yu.N., GRIGORYEV, M. S. (Prof.) AKSENOV, B. N., and IZBINSKIY, A. P., -- Leningrad

"Anthesia for Intrathoracic Operations on the Esophagus."

Report submitted for the 27th Congress of Surgeons of the USSR, Moscow, 23-28 May 1960.

MESHCHERYAKOV, N.A., podpolkovnik meditsinskoy sluzhby

Use of ganglionic blocking agents for the prevention of massive hemorrhage and shock during operations. Voen.-med. zhur. no.3:56-62 Mr '60. (MIRA 14:1)
(AUTONOMIC DRUGS) (SURGERY, OPERATIVE)
(HEMORRHAGE)

KUPRIYANOV, P.A.; VINOGRADOV, V.M.; MESHCHERYAKOV, N.A.; UVAROV, B.S.; SHANIN, Yu.N.

Demands of contemporary anesthesiology on pharmacology and pharmaceutical chemistry. Vest. khir. 84 no. 4:86-93 Ap '60. (MIRA 14:1)
(ANESTHESIOLOGY) (PHARMACOLOGY)

SHANIN, Yu.N.; STASYUNAS, V.P.; UVAROV, B.S..; MESHCHERYAKOV, N.A.

Use of imbretil in anesthesia with controlled respiration.
Vest.AMN SSSR 17 no.8:53-56 '62. (MIRA 15:12)

1. Kafedra anesteziologii Voyenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova.
(IMBRETIL) (ANESTHESIA)

AUTHORS: Klassen, V. I., Meshcheryakov, N. F. SOV/20-12-4-[illegible]

TITLE: Flotation of Mineral Grains Under 10 μ by Gases Evolving From Solution (Flotatsiya zeren mel'che 10μ gazami, vydelyayushchimisya iz rastvora)

PERIODICAL: Doklady Akademii nauk SSSR, 1956, Vol 121, Nr 4, pp. 697 - 699 (USSR)

ABSTRACT: The lower limit of size of mineral grains which can be effectively separated by flotation is 10 5μ The selection in the flotation of grains with a size beyond this limit is insufficient and their extraction is inconsiderably small That is why precious ores of many deposits are nonworkable; in several dressing plants fine muds are practically not enriched. There are a number of opinions on the cause of this poor separation (Ref 1). These causes are due to physical factors; one of the most wide-spread factors is the low probability that the grains collide with air bubbles The finest grains are carried away by the water current and do not touch the bubbles long and intimately enough to become attached (Refs 2-5). Already earlier the authors proved

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theoretically the necessity of the process mentioned in the title (Ref 9). In this case it is not necessary that the grains collide with the bubbles. The latter are formed on the sufficiently hydrophobic surface of the grains. Kinetics as well as mechanism of the formation of bubbles have been quite thoroughly investigated (Refs 1,9). In practical investigation the so-called "vaccum-process" was applied. Thus supersaturation of the gas solution was brought about in suspension by reduction of the pressure above the suspension. The possibility of using this process for grains below 10μ is denied; today the application of this process is practically abandoned (Ref 10). In the course of experiments with grains below 10μ the authors compared the two methods of: Vacuum and mechanical flotation. In the case of mechanical flotation air is dispersed by the mechanical effect of the medium. Figure 1 reveals a scheme for both methods. The process is described. Figures 2,3 show characteristic results. When studying the effect of waterglass the authors found that the vacuum method improves flotation considerably by increasing the barite or fluorite content

Flotation of Mineral Grains Under 10μ by Gases Evolving SOV/20-121-3-44/64
From Solution

by 15 - 20% and the extraction for 10 - 15%. In the diluted pulp the advantage of the suggested method appears in a particularly clear way. Flotation may be controlled by the degree of supersaturation of the solution with air (modification of vacuum). There are 3 figures and 9 references, 6 of which are Soviet.

PRESENTED: April 2, 1958, by A.A Skochinskiy, Member, Academy of Sciences, USSR

SUBMITTED: April 2, 1958

Card 3/4

MESHCHERYAKOV, [illegible] (Use) -- "The [illegible] with gases evolved from solution". Moscow, 1959. 2 pp (Acad Sci USSR, Inst of Mining), 150 copies (KL, No 1, 1959, 10)

KLASSEN, V.I.; MESHCHERYAKOV, N.F.

Flotation in the comminution cycle. Izv. AN Kazakh.SSR. Ser. met. obog. i ogneup. no.3:3-8 '60. (MIRA 14:4)
(Flotation)

MESHCHERYAKOV, N.F., kand.tekhn.nauk

Differential flotation as a way of dressing ores. Gor. zhur. no.9:62-64 S '62. (MIRA 15:9)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut gornokhimicheskogo syr'ya, Moskva.
(Flotation)

MESHCHERYAKOV, N.F.

Ways for improving the treatment of sulfur ores of the Gaurdak Deposits. Khim.prom. no.10:736-739 O '62. (MIRA 15:12)
(Gaurdak—Sulfur)

ARUTYUNYAN, B.Sh.; MESHCHERYAKOV, N.F.

Results of industrial testing of deep air lift flotation machines. TSvet.met. 35 no.8:17-20 Ag '62. (MIRA 15:8)
(Flotation--Equipment and supplies)

KNAUS, O.M.; MESHCHERYAKOV, N.F.

Means of increasing the efficiency of the gravity methods of flotation in a spiral separator. Gor. zhur. no.6:76-77 Je '63. (MIRA 16:7)

1. Gosudarstvennyy institut gornokhimicheskogo syr'ya, Moskva.
(Flotation--Equipment and supplies)

ARUTYUNYAN, B.Sh.; BORISOV, V.M.; ZHEPLINSKIY, B.M.; MESROPYAN, N.N.; MESHCHERYAKOV, N.F.; UL'YANOV, N.S.

Apparatus for the destruction of flotation froth. Khim. prom. no.2:146-147 F '63. (MIRA 16:7)

(Flotation)

MESHCHERYAKOV, N.F.

Flotation with mineralization of air bubbles in a fluidized bed. TSvet. met. 37 no.11:29-31 N '64. (MIRA 18:4)

MESHCHERYAKOV, N.F.

Results of the industrial testing of a fluidized bed flotation machine. TSvet.met. 38 no.3:7-8 Mr '65. (MIRA 18:6)

MESHCHERYAKOV, N.F.

Some problems of separation-flotation, flotation of coarse-grained pulps, table flotation, and jigging. TSvet. met. 38 no.11:40-43 N '65. (MIRA 18:11)

MESHCHERYAKOV, N. N.

Electric Meters

Use of seals made from waste steel, Rab, energ, 2, no. 3, 1952.

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

MESHCHERYAKOV, N.N., elektromonter.

Order of phase rotation. Energetik 1 no.2:36-37 Jl '53. (MLRA 6:8)
(Electric currents, Alternating)

MESHCHERYAKOV, N. V., (Engr)

Dissertation: "The Viscosity of Hydrocarbon Gases and Their Mixtures Under High Pressures." Cand Tech Sci, Moscow Order of Lenin Power Engineering Inst imeni V. M. Molotov, 23 Jun 54. (Vechernyaya Moskva, Moscow, 14 Jun 54)

SO: SUM 318, 23 Dec 1954

Meshcheryakov, N. I.

USSR/Physical Chemistry - Thermodynamics, Thermochemistry, Equilibria, Physical-Chemical Analysis, Phase Transitions. B-8

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3831.

Author : N.V. Meshcheryakov, I.F. Golubev.
Inst : State Scientific Research and Planning Institute of Nitrogen Industry.
Title : Viscosity of Hydrocarbon Gaseous Mixtures at High Pressures.

Orig Pub: Tr. Gos. n.-i. i proyektn. in-ta azotn. prom-sti, 1954, vyp. 3, 27-45.

Abstract: The viscosity of gaseous mixtures methane (I) - propane (II), ethane - ethylene, ethane - propylene at temperatures up to 250° and pressures up to 600 abs. atm. and of mixtures ethane - ethylene - propylene at 50, 100 and 150° and pressures up to 450 abs. atm. was determined by the capillary method (RZhKhim, 1955, 53138). The lower the temperature is, the more the mix-

Card : 1/3

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3831.

ture viscosity increases with the pressure increase; under low pressure, viscosity increases with the temperature, and it decreases with the temperature rise under high pressures. The experimental values under all pressures are below the values computed according to the additivity rule and agree satisfactorily with values computed according to the equation of Golubev and Petrov $\eta_{P_t} = \eta_t + a(P_t / T)^n$, where a and n are constants for each of the gases, P_t is the pressure at the temperature t, η_{P_t} and η_t are the viscosities at the temperature t and pressures P and of 1 atm. correspondingly. The value of a for gaseous mixtures can be computed from the equation $a_m + a_1 x_1^2 + 2/3(a_1 + a_2)x_1x_2 + a_2x_2^2$, where a_1 and a_2 are constants of the 1st and 2nd components of the mixture, and x_1 and x_2 are their molar shares in the mixture. Considerable discrepancies (up to 20%) between the bibliographical data for I - II mixtures

USSR/Physical Chemistry - Thermodynamics, Thermochemistry, Equilibria. Physical-Chemical Analysis, Phase Transitions. B-8

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3831.

determined by the rolling ball method and the data of the authors were stated.

Card : 3/3

FD-2643

MESHCHERYAKOV, N.V.

USSR/Chemistry - Ammonium nitrate

Card 1/1 Pub. 50-8/18

Authors : Kil'man, Ya. I., Meshcheryakov, N. V., Klevke, V. A.

Title : Concerning the design of granulation towers for ammonium nitrate

Periodical : Khim. prom. No 3, 156-157, Apr-May 1955

Abstract : Discuss a method of cooling granulated ammonium nitrate proposed by A. I. Brushteyn in Khim. prom. No 4, 200, 1954, and propose other procedures for this purpose.

SOV/124-58-1-873

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 1, p 117 (USSR)

AUTHORS: Golubev, I. F., Meshcheryakov, N. V., Olevskiy, V. M.

TITLE: Rotor Rectification Columns With Turbulence Stimulation in Liquid and Vapor (Rotornyye rektifikatsionnyye kolonki s turbulizatsiyey zhidkosti i para)

PERIODICAL: Tr. Gos. n.-i. i proyektn. in-ta azotn. prom-sti, 1956, Nr 5, pp 316-328

ABSTRACT: The authors present designs for rotor-type rectification columns (glass or metal) with concurrent mechanical turbulence stimulation in the liquid and the vapor; these designs were developed and tested in the Process and Equipment Laboratory of the GIAP (Gosudarstvennyy institut azotnoy promyshlennosti - State Institute of the Nitrogen Industry). In operations on standard and working mixtures the columns exhibited an elevated effectiveness with a comparatively small hydraulic resistance. The angular speed of the rotor did not exceed 1400 rpm. The design of a multicylinder rotor rectification column with opposite-sense rotation of adjacent cylinders is described. The authors are of the opinion that columns of such type

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Rotor Rectification Columns With Turbulence Stimulation Liquid (cont.)

may be capable of high productivity. Considerations are adduced relative to the advisability of the application of rotor rectification columns with mechanical turbulence stimulators for vacuum rectification. Bibliography: 9 references.

Yu. A. Lashkov

MESHCHERYAKOV, N.V.

D-7

USSR / Gases.

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 9064

Author : Golubev, I.F., Meshcheryakov, N.V.

Title : Use of the Law of Corresponding States in the Determination of the Viscosity of Gases at Various Temperatures and Pressures.

Orig Pub : Tr. gas. n.-i. i proyekt. in-ta azot. prom-sti, 1956, vyp. 6, 52-55

Abstract : It is shown that the law of corresponding states, in which one of the variables is the ratio of the viscosity of the substance at a pressure P and temperature to the viscosity at the same temperature and pressure of one atmosphere, namely $\eta_{P,t}/\eta_t$, gives a correct qualitative picture for the variation of viscosity of various substances (Referat Zhur Fizika, 1955, 641) with the temperature and pressure. The authors give a corresponding graph in the form of isotherms

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USSR / Gases. D-7

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 9064

Abstract : showing the dependence of $\eta_{p,t}/\eta_t$ on π (π is the reduced pressure, corresponding to the pressure range from 1 -- 800 atmospheres) at reduced temperatures τ = 0.85, 0.9, 1.0, 1.1, 1.4 and 2.5. There are considerable quantitative discrepancies which reach 30 percent for some substances with the exception of propane and propylene ($\sim$ 3 percent). As τ increases, the discrepancies diminish noticeably.

Card : 2/2

MESHCHERYAKOV, N.V., kand. tekhn. nauk; ARTEM'YEVA, N.N.

Granulation of ammonium nitrate. Trudy GIAP no.8:194-212 '57. (MIRA 12:9)

(Ammonium nitrate)

S/064/60/000/02/10/025
B022/B005

AUTHORS: Kazakova, Ye. A., Meshcheryakov, N. V., Artem'yeva, N. N.

TITLE: Cooling of Granulated Ammonium Nitrate in a Pseudo-liquid Layer

PERIODICAL: Khimicheskaya promyshlennost', 1960, No. 2, pp. 132 - 138

TEXT: The authors made experiments with periodic and continuous air cooling of ammonium nitrate granules in a pseudo-liquid layer the results of which are given in the present paper. The experiments of periodic cooling of granules were made in a laboratory plant described. Some results obtained in this plant for the granules of ammonium nitrate and of urea in a pseudo-liquid layer are given in Table 1. Experiments with continuous cooling of granules were carried out in the workshop of the Kemerovskiy ATZ (Kemerovo ATZ). The diagram of the experimental arrangement used is shown in Fig. 1. The output of the plant was varied within 161 - 268 kg/h, and the height of the pseudo-liquid layer within 50 - 150 mm while the air velocity was 0.6 - 0.8 m/sec. The influence of the air-flow velocity on the amount of heat abducted from the granules

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(Fig. 2), and the mean heat emission coefficient (Fig. 3), are studied. The results obtained in experiments of continuous cooling of ammonium nitrate granules in a pseudo-liquid layer are compiled in Table 2. Fig. 4 shows the dependence of the mean heat emission coefficient on the Reynolds number for different heights of the pseudo-liquid layer, and Fig. 5 the influence of the height of the pseudo-liquid layer h on the mean heat emission coefficient. Further, the influence of the output of the plant, the wear and the entrainment of granules are investigated. Fig. 6 shows the dependence of the specific heat abducted from the granules on the specific air consumption in cooling, Fig. 7 the dependence of the temperature drop of granules on the specific air consumption in the cooling of granules. Table 3 gives the results obtained for the temperature drop in the cooling of granules, Table 4 indicates the results obtained for the cooling of granules on the passage of one and two pseudo-liquid layers. Fig. 8 shows the sketch of a granulation tower with a device for cooling the granules in a pseudo-liquid layer. There are 8 figures, 4 tables, and 3 non-Soviet references.

BELOUSOV, I.P.; MESHCHERYAKOV, N.V.; NIKIFOROVA, N.V.

Production of granular urea. Khim.prom. no.12:865-868 D '61.
(MIRA 15:1)

(Urea)

KAZAKOVA, Ye.A., kand.tekhn.nauk; MESHCHERYAKOV, N.V., kand.tekhn.nauk; MUZYCHENKO, L.V.; DENEGA, A.I.; KHORDINA, Yu.A.; NIKIFOROVA, N.V.

Cooling of granulated fertilizers in a fluidized bed. Khim. prom. no.5:330-336 My '62. (MIRA 15:7)
(Fertilizers and manures)
(Fluidization)

TOLSTOV, Yu.G., doktor tekhn. nauk, prof., otv. red.; LEVITOV, V.I., kand. tekhn. nauk, red.; MARKOVICH, I.M., doktor tekhn. nauk, prof., red.; MIKHEYEVICH, G.V., doktor tekhn. nauk, red.; MESHCHERYAKOV, P., kand. tekhn. nauk, red.; STEKOL'NIKOV, I.S., doktor tekhn.nauk, prof., red.

[Operating modes of electrical systems and regulation of synchronous machines] Rezhimy raboty elektrosistem i regulirovanie sinkhronnykh mashin. Moskva, Nauka, 1964. 150 p. (MIRA 17:9)

1. Moscow. Energeticheskiy institut.

MESHCHERYAKOV, P. A.

"Data on the Pathophysiology of Ascaris Infestation (Intoxication) (Experimental Investigation)." Dr Vet Sci, Kazan' State Veterinary Inst, Kazan', 1953. (RZhBiol, No 5, Nov 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (11)

SO: Sum. No. 521, 2 Jun 55

ZAYKOV, M.A.; TSELUYKOV, V.S.; KAMINSKIY, D.M.; DALOCHKIN, N.V.; LAR'KINA, F.G.; MESHCHERYAKOV, P.A.; Prinimali uchastiye: PERMYAKOV, V.M.; MERKUTOV, V.N.; PROKOP'YEV, KAPTNAOV, M.P.; MARAMYGIN, G.F.; ZHURAVLEV, M.A.; MARININ, P.G.; NASIRUDIN, A.S.; MANCHEVSKIY, I.V.; PELYAVSKIY, M.A.; SERGEYEV, V.V.; CHVANOV, L.K.; KOBYLEV, V.K.; KUCHKO, I.I.; MIRENSKIY, M.L.

Pressure of the metal on rolls in rolling carbon and alloyed steels on a three-high billet mill. Izv. vys. uchet. zav.: chern. met. 4 no.8:79-83 '61. (MIRA 14:9)

1. Sibirskiy metallurgicheskiy institut.
(Rolling mills)

ZAYKOV, M.A.; TSELUYKOV, V.S.; KAMINSKIY, D.M.; DADOCHKIN, N.V.; MESHCHERYAKOV, P.A.; MARININ, P.G.; MIRENSKIY, M.L.; PROKOP'YEV, A.V.; OVCHINNIKOVA, R.F.; Prinimali uchastiye; BELYAVSKIY, M.A.; KAFTANOV, M.P.; KUCHKO, I.I.; LAR'KINA, F.Ye.; MANCHEVSKIY, I.V.; MARAMYGIN, G.F.; MERKUTOV, V.N.; NASIBULIN, A.S.; NEFEDOV, M.K.; PERMYAKOV, V.M.; CHELYSHEV, N.A.; CHVANOV, L.K.

Investigating conditions of rolling on three-high billet mills. Izvy vys. ucheb. zav.; chern. met. 6 no.10:74-83 '63. (MIRA 16:12)

1. Sibirskiy metallurgicheskiy institut i Kuznetskiy metallurgicheskiy kombinat.

MUSHCHERYAKOV, R.K.; SHEVCHENKO, T.A.

Introducing cutting tools equipped with mineral-cera[illegible] tips.
Trudy SMTO MVTU no.3[illegible]6-53 '57.
(Cutting tools)

ACC NR: AP7005235 (A) SOURCE CODE: UR/0145/66/000/009/0137/0144

AUTHOR: Garagash, I. A. (Student); Malinin, N. N. (Doctor of technical sciences, Professor); Meshcheryakov, R. K. (Senior instructor)

ORG: MVTU im. N. E. Bauman

TITLE: Peculiarities in calculating calibration of thin-walled cylinders with elongation

SOURCE: IVUZ. Mashinostroyeniye, no. 9, 1966, 137-144

TOPIC TAGS: cylindric shell structure, metal drawing

ABSTRACT: Equations are derived for calculating the stresses, forces and changes in the diameter of the opening, wall thickness and length of a thin cylinder during calibration with elongation. The proposed method of calculation is based on the momentless theory of shells of revolution and the Prandtl-Reuss flow theory, assuming that there is no reinforcement. The calibration process is treated as elastoplastic deformation of the cylinder. The following sections of the region of contact between the deforming die and the cylinder are considered (see figure): 1-2--the elastic region touching this same cone; 2-3--the elastoplastic region touching the leading cone; 3-4--the section touching the cylindrical part of the die and 4-5--the section touching the trailing cone. An example is given showing application of the proposed

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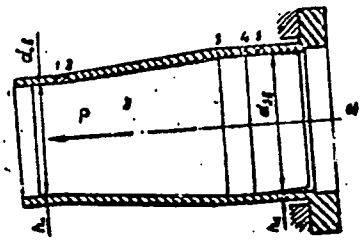
UDC: 621.7

ACC NR: AP7005235

method to calculation of the calibrating process for the shock absorbers in the Moskvich-408 automobile. A comparison of the absolute values of wall thicknesses calculated by the proposed method with experimental data shows a difference of only a few microns, which is quite satisfactory for practical problems. The observed discrepancies are partially due to the considerable effect of variations in the thickness of the cylinder walls which may be as high as 0.25 mm. Orig. art. has: 3 figures, 3 tables, 26 formulas.



SUB CODE: 13/ SUBM DATE: 30Mar66/ ORIG REF: 03

Card 2/2

BERZIN, A.K.; MESHCHERYAKOV, R.P.; YAKOVLEV, B.M.

Space distribution of radiation from a betatron. Izv. vys. ucheb. zav.; fiz. no.4:130-134 '59. (MIRA 13:3)

1.Tomskiy politekhnicheskiy institut imeni S.M. Kirova.
(Betatron) (Bremsstrahlung)

S/139/59/000/05/023/026
E032/E114

AUTHORS: Berzin, A.K., Meshcheryakov, R.P., and Yakovlev, B.M.

TITLE: Threshold Energies for the (γ, n) Reactions for Elements including Isotopes with 50 and 82 Neutrons

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1959, Nr 5, pp 148-153 (USSR)

ABSTRACT: The present work is a continuation of the work reported in Refs 1 and 2 by the first of the present authors. Threshold energies have been measured for 26 isotopes. Of these, 15 thresholds for photoneutrons have been measured for the first time and 8 have been measured with increased accuracy. The experimental error present in 4 of the thresholds measured in Ref 2 has been removed. A 25 MeV betatron was used as the source of the gamma radiation, and in the majority of cases the neutrons were detected as in Refs 1 and 2, using two scintillation counters in coincidence. The results obtained are summarised in Table 1 (p 152) in which the first column gives the name of the isotope, the fourth column gives the threshold measured in the present work (in MeV), the fifth column gives the threshold as measured by other

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S/139/59/000/05/023/026
E032/E114

Threshold Energies for the (γ, n) Reactions for Elements including Isotopes with 50 and 82 Neutrons

workers, and the last column gives the references. The results are also shown in the form of graphs in Figs 2 and 3 (these include results of other workers). Fig 2 shows that the thresholds for even-even isotopes containing 50 neutrons lie on a single straight line (except for Zr^{90} which has two thresholds because of the presence of a metastable state). A similar situation is observed in the case of isotopes with 82 neutrons (Fig 3). Here the exception is the isotope Sm^{144}. In the case of the isotope Xe^{136} the threshold was measured with the aid of the apparatus shown schematically in Fig 1. The irradiated gas was in a metallic envelope A which was connected to the recording part of the apparatus B by means of a needle valve a. The recording of conversion electrons with energies of about 0.5 MeV which are formed as a result of the formation of a metastable state of Xe was carried out with the aid of a sodium iodide crystal.

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S/139/59/000/05/023/026
E032/E114

Threshold Energies for the (γ, n) Reactions for Elements including Isotopes with 50 and 82 Neutrons

There are 3 figures and 14 references, of which 9 are English and 5 Soviet. There is also 1 table.

ASSOCIATION: Tomskiy politekhnicheskiy institut imeni S.M. Kirova
(Tomsk Polytechnical Institute imeni S.M. Kirov)

SUBMITTED: December 27, 1958

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82839
S/048/60/024/008/016/017
B012/B067

9.3100

AUTHORS: Vlasov, A. G., Vorob'yev, A. A., Kislov, A. N., Meshcheryakov, R. P.

TITLE: Investigation of the Losses in Electrons Due to Scattering in the Residual Gas in the Accelerating Chamber

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1960, Vol. 24, No. 8, pp. 1006-1012

TEXT: In the present paper the theoretical calculations of the losses in accelerated particles due to scattering in the residual gas were experimentally examined. A suggestion is made for calculating these losses. First, only the definite results of calculations according to the methods by N. M. Blachman and E. D. Courant (Refs. 5,6), J. M. Greenberg and T. H. Berlin (Refs. 7,8) and A. N. Matveyev (Refs. 9,10) are studied and compared in a Table. This comparison shows that the various methods lead to different results. The control method and the

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Investigation of the Losses in Electrons Due to Scattering in the Residual Gas in the Accelerating Chamber

experimental apparatus are then described. Fig. 1 shows the measuring block diagram. The results of measurements are given and compared with the results of theoretical calculations. In conclusion the following is stated: character and quantitative comparison of the curves shown in Fig. 6 indicate that the losses in electrons due to scattering in the residual gas can be calculated according to the method of Greenberg and Berlin as well as according to that of Matveyev with sufficient accuracy since the results differ only by 1.5 ÷ 1.7 times from one another. According to the method of Blachman and Courant the losses in protons due to scattering in the gas may be estimated, whereas for the electrons the values obtained by this method are too low. The sufficient agreement between the experimental and the theoretical results also confirm the correctness of the method of measurement chosen. V. G. Shestakov assisted in the measurements. The collaborators of the NII TPI and FTF assisted the authors in this work. There are 6 figures, 1 table, and 15 references: 8 Soviet and 7 British.

82839
S/048/60/024/008/016/017
B012/B067

Investigation of the Losses in Electrons Due to Scattering in the Residual Gas in the Accelerating Chamber

ASSOCIATION: Nauchno-issledovatel'skiy institut pri Tomskom politekhnicheskom institute im. S. M. Kirova (Scientific Research Institute at the Tomsk Polytechnical Institute imeni S. M. Kirov)

Card 3/3

S/058/63/000/001/030/120
A062/A101

1A564

AUTHORS: Yakovlev, B. M., Meshcheryakov, R. P., Gryaznov, A. L.

TITLE: On the distribution of thermal neutrons emerging from a betatron

PERIODICAL: Referativnyy zhurnal, Fizika, no. 1, 1963, 65, abstract 1A564 (In collection: "Elektron. uskoriteli". Tomsk, Tomskiy un-t, 1961, 178 - 183)

TEXT: The thermal neutron background was investigated in the betatron laboratory of the Tomsk Polytechnic Institute (near the 25-MeV betatron and in the neighboring premises). It is shown that the maximum value of the thermal neutron flux in the main γ-ray beam is equal to $7 \cdot 10^3$ neutron/cm^2 per 1 roentgen of γ-bremsstrahlung. The magnitude of the neutron flux in the experimental room strongly depends on the design of the protective shields and the collimator, being in the worst case equal to $2 \cdot 10^3$ neutron/cm^2 per 1 roentgen of bremsstrahlung. It is pointed out that shielding against the bremsstrahlung from accelerators does not yet ensure a complete shielding against the neutrons. The measurements of the thermal neutrons were carried out by different methods (with the

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S/058/63/000/001/030/120
A062/A101

On the distribution of therm... ...

standard type "Efir-1" radio... ...measuring the induced activity in In^{116} and Mn^{56}).

V. Kanunnikov

[Abstracter's note: Complete translation]

Card 2/2

S/058/63/000/001/027/129
A062/A101

AUTHORS: Meshcheryakov, R. P., Yakovlev, B. M.

TITLE: Device for determining the center of a γ-ray beam

PERIODICAL: Referativnyy zhurnal, Fizika, no. 1, 1963, 44, abstract 1A419 (In collection: "Elektron. uskoriteli". Tomsk. Tomskiy un-t, 1961, 284 - 287)

TEXT: To determine the position of the beam center of the 25 - 30 MeV γ-bremsstrahlung in betatrons, it is proposed to measure the induced activity in a radiator made of aluminum or lead. This measurement is carried out, while the betatron is in operation, with the aid of 4 counters arranged in two pairs opposite to one another, using for this purpose only the 3/4 of the magnetic field variation period, when no electron acceleration takes place. The pulses from the counters are fed to two comparison circuits utilizing in their output pointer microammeters. A drawback of the device resides in the strong effect of the background induced in the counters and its shield.

V. Kanunnikov

[Abstracter's note: Complete translation]

Card 1/1

S/058/63/000/001/013/120
A062/A101

AUTHOR: Vlasov, A. G., Kislov, A. N., Meshcheryakov, R. P.

TITLE: Apparatus for measuring short-life isometric transitions

PERIODICAL: Referativnyy zhurnal, Fizika, no. 1, 1963, 37, abstract 1A353 (In collection: "Elektron. uskoriteli". Tomsk, Tomskiy un-t, 1961, 288 - 291)

TEXT: Apparatus for measuring short-life isometric transitions is described. The measurements were carried out on a betatron of 25 MeV maximum energy. The apparatus comprised a cutting-off circuit which permitted also the control of the maximum energy of bremsstrahlung and the prevention of the error due to oscillations of the radiation intensity, a scintillation spectrometer operating with a pulse supply, an amplitude analyzer and a 16-channel time analyzer. The duration of the cut-off was 3 μsec.

K. Aglintsev

[Abstracter's note: Complete translation]

Card 1/1

BERZIN, A.K.; MESHCHERYAKOV, R.P.

(γ, n)-Reaction thresholds for silicon isotopes. Zhur.eksp.i teor. fiz. 41 no.4:1013-1014 O '61. (MIRA 14:10)

1. Institut yadernoy fiziki, elektroniki i avtomatiki Tomskogo politekhnicheskogo instituta.
(Nuclear reactions) (Silicon--Isotopes)

L 9377-65 EWT(m)/EWA(h) ASD(a)-5/AFWL S/0058/63/000/011/V022/V022

ACCESSION NR: AR4044031

B

SOURCE: Ref. zh. Fizika, Abs. 11V153

AUTHOR: Berzin, A. K.; Meshcheryakov, R. P.; Shornikov, S. I.; Yakovlev, B. M.

TITLE: The connection between the width of the giant resonance of the (γ, n)-reaction and filling of the energy levels of the nucleus

19

CITED SOURCE: Izv. Tomskogo politekhn. in-ta, v. 122, 1962, 14-18

TOPIC TAGS: isotope, threshold energy, giant resonance

TRANSLATION: Measures the threshold energies for certain isotopes of the Mo and Nd nuclei. Threshold energies in the (γ, n)-reaction for the isotopes Mo^{92}, Mo^{94}, Mo^{100}, Nd^{142}, and Nd^{150} are determined by the method of induced activity, and for the isotopes Mo^{97} and Nd^{145} by the method of direct neutron registration. The values of the threshold energies of the other isotopes were determined while processing the general curve of the yield of photoneutrons from all isotopes of a given element. It is shown that for isotopes each containing 8 neutrons above the filled shell

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L 8377-65
ACCESSION NR: AR4044031

there are observed somewhat too high values of the threshold energies of the (γ, n)-reaction. There were also studied cross sections of the (γ, n)-reactions for isotopes of La, Ce, and Pr^{141}, Nd, Nd^{142}, and Nd^{150}. The authors note that the insignificant difference in the widths of the giant resonances for the Nd^{150} isotope and nuclei having a filled neutron shell indicates slight deformation of the Nd^{150} nucleus, since strongly deformed nuclei have high values for the giant resonance width. From this fact (together with data on the thresholds of the (γ, n)-reaction) the authors conclude that for the Nd^{150} isotope there is no filling of the $2f_{7/2}$ level or realisation of any other configuration.

SUB CODE: NP ENCL: 00

Card 2/2

BERZIN, A.K.; MESHCHERYAKOV, R.P.

Measuring the thresholds of the (γ, n)-reaction in silicon isotopes. Izv. TPI 122:30-32 '62. (MIRA 17:9)

S/0139/63/000/006/0129/0134

ACCESSION NR: AP4025096

AUTHORS: Meshcheryakov, R. P.; Mikhaylov, G. P.

TITLE: Effect of a surface charge on photomultiplier operation

SOURCE: IVUZ. Fizika, no. 6, 1963, 129-134

TOPIC TAGS: photomultiplier operation, impulse regime, oscillogram, blanketing pulse, scintillation spectrometer, loading characteristic, divider current

ABSTRACT: A detailed review of experimental analyses on photomultiplier operations has been presented along with some additional investigations by the authors. The study includes operation in the impulse regime of several photomultipliers (FEU-13B, FEU-11B, FEU-12B, and FEU-29) as recorded on oscillograms. The characteristics of the recorded curves seem to be independent of both the operation region of the photomultipliers and the method of pulse feed generation. The inertia in photomultipliers is discussed, and the necessity of increasing the blanketing pulse duration is considered. The operation of photomultipliers at various counter speeds is investigated in the scintillation spectrometer regime with NaI(Tl) crystals, using two sources of Co^{60} (1 and 0.03 μ curie activity). The loading

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ACCESSION NR: AP4025096

characteristics are displayed graphically, and they show no dependence on the intercascade divider current. Finally, the volt-ampere characteristics are measured at 8×10^2 and 2×10^4 imp/sec counter speeds. Orig. art. has: 6 figures.

ASSOCIATION: NII pri Tomskom politekhnicheskom institut imeni S. M. Kirova (NII, Tomsk Polytechnical Institute)

SUBMITTED: 18May62 DATE ACQ: 14Feb64 ENCL: 00

SUB CODE: GE NO REF SOV: 011 OTHER: 004

Card 2/2

L 64799-65 EWT(m) DIAAP

ACCESSION NR: AR5004575 S/0275/64/000/011/A054/A054

621.384.6

SOURCE: Ref. zh. Elektronika i yeye primeneniye. Svodnyy tom, Abs. 11A340 11 B

AUTHOR: Meshcheryakov, R. P. 44,55

TITLE: Design of a quantometer for measuring bremsstrahlung with a maximum energy under 100 Mev 19,44,55 9 M

CITED SOURCE: Sb. Elektron. uskoriteli. M., Vyssh. shkola, 1964, 417-419

TOPIC TAGS: quantometer, bremsstrahlung measurement

TRANSLATION: A method is considered of eliminating the inaccuracy of integration of the area under the transition curve of a quantometer intended for measuring bremsstrahlung with a maximum energy under 100 Mev. For integration of the ascending segment of the transition curve, a method of parabolas is used; for the descending segment, a method of Gaussian quadrature with six nodes. The results are submitted of calculation of the diameter and thickness of plates and gaps for a quantometer having a gap of 7 mm between the first plates and a total plate thickness of 11.3 cm. The calculation allows for straying electrons. The error of integration of the entire transition curve by the above method is 0.4% or smaller, when the quanto-

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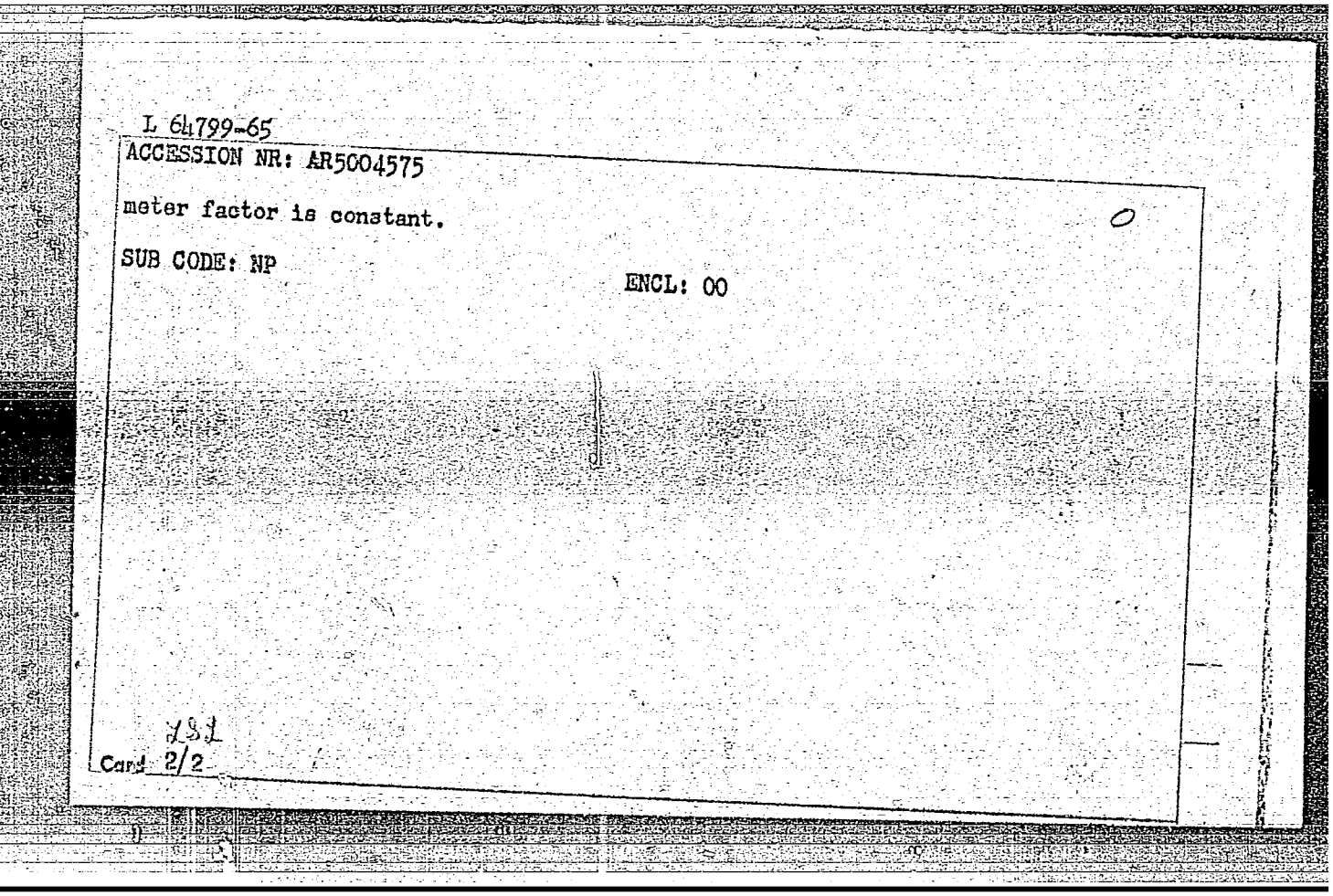

L 64799-65
ACCESSION NR: AR5004575

meter factor is constant.

SUB CODE: NP ENCL: 00

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L 26660-66 EWT(d)/EWT(m)/EWP(w)/EWP(v)/T-2/EWP(k)/EWA(h)/ETC(m)-6 EM

ACC NR: AP6006434 SOURCE CODE: UR/0420/65/000/003/0036/0040

AUTHORS: Shun, M. S.; Meshcheryakov, S. F.

37
B

ORG: none

TITLE: On the edge effect in a finite tube under pressure

SOURCE: Samoletostroyeniye i tekhnika vozdushnogo flota, no. 3, 1965, 36-40

TOPIC TAGS: stress analysis, pressure effect

ABSTRACT: The solution for infinite tubes by Lyame (e.g., A. Lyav, Matematicheskaya teoriya uprugosti. ONTI NKTP SSSR, 1935) is generalized to finite length tubes with edge effects and under arbitrary axial loads. Consider the finite cylinder

$$r_1 < r < r_2, \quad -h < z < +h$$

acted upon by forces on its surface as

$$P(r_i, z) = f_i(z) \quad (i = 1, 2),$$

where $f_i(-z) = f_i(z)$, $\tau_{rz} = 0$ at $r = r_{1,2}$. The governing displacement equations in two dimensions are solved to yield the following formulae for the normal and

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tangential stresses:

$$\sigma_r(r, z) = \sum \sigma_k(r) \cos qz$$
$$\tau(r, z) = \sum \tau_k(r) \sin qz,$$

$$\sigma_k(r) = 2\mu q Z_0(qr) - \frac{2\mu}{r}[Z_1(qr) + \bar{Z}_1(qr)] -$$
$$- \frac{\mu(\lambda+\mu)}{\lambda+2\mu} q^2 r \bar{Z}_1(qr) + \frac{\mu(2\lambda+3\mu)}{\lambda+2\mu} q\bar{Z}_0(qr),$$
$$\tau_k(r) = \frac{\lambda+\mu}{\lambda+2\mu} q^2 r \bar{Z}_0(qr) - q\bar{Z}_1(qr) - 2q\bar{Z}_1(qr),$$

Several special cases are considered, including the case where $f_s(z) = -p_s (s = 1,2)$, the solid cylinder ($r_1 = 0$, $p_2 = p$), the thin tube, the slab with a circular hole, and the case of a ring

$$r_{1,2} = 0(1), \; h \sim 0 \; (r_2 - r_1 = 0(1)).$$

Orig. art. has: 23 equations and 1 figure.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 001

Card 2/2 BLG

L 17012-66 EWT(d)/EWT(1)/EPF(n)-2 IJP(c) WW

ACC NR: AP6006435 SOURCE CODE: UR/0470/65/000 /47

AUTHOR: Meshcheryakov, S. F.

ORG: none

TITLE: Nonsteady-state temperature field inside an infinite cylinder in the presence of an internal heat source 21,44,55

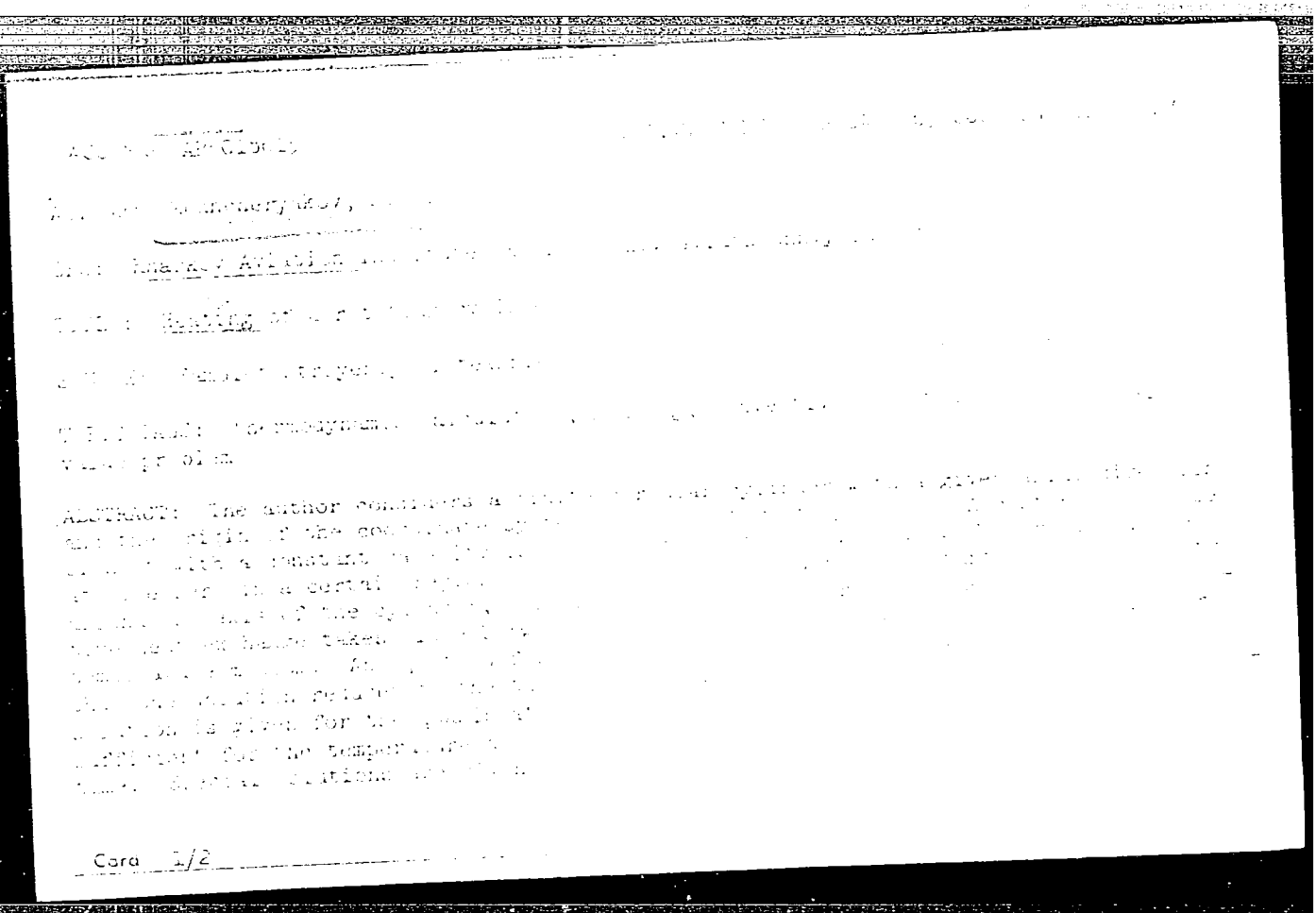
SOURCE: Samoletostroyeniye i tekhnika vozdushnogo flota, no. 3, 1965, 41-43

TOPIC TAGS: heat transfer, temperature distribution, temperature profile

ABSTRACT: An analysis was made of the nonsteady-state temperature distribution in an infinite cylinder containing a heat source of variable intensity. The heat source initially had a temperature T and the other parts of the cylinder a temperature of zero. The cylinder was ideally insulated. Expressions for the temperature profile as a function of time were obtained by means of Laplace and Fourier transforms. Orig. art. has: 10 formulas. [PV]

SUB CODE: 21/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 001/ ATD PRESS: 4207

Card 1/1 mjs



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