

AKHIEZER, A.F., editor collection. nauk, prof., stv. red.

(Proceeding works plants in Eastern Siberia) Selektivna
drevesnykh porod v Vostochnoi Sibiri. Moscow, Izd-vo
Nauki, 1964. 92 p.
(MIA 17:6)

l. Akademiya nauk SSSR. Sibirskoye otdeleniye. Institut
lesa i drevesiny.

CH. AMALIA, Mihailovich; YUHIN A.V., dokt. nizk. nauk, prof.
S. V. Kuznetsov; V. V. S. GVA, A. S., red.

(catalog of trees and shrubs of the USSR); a
manual for amateur, school, and university students
and workers. part 123; publ. by Litt. uchiteli. Leningrad,
1962. 477 p.
(1 fol. 16:1)

ACC NR: AM014011

Monograph

UR/

Verbolov, Vladimir Il'ich; Sokol'nikov, Vladimir Mikhaylovich; Shimarev, Mikhail Nikolayevich.

Hydrometeorological conditions and thermal balance of Lake Baikal. (Gidrometeorologicheskiy rezhim i teplotnyy balans ozera Baikal) Moscow, Izd-vo "Nauka", 1965, 372 p. illus., biblio. (At head of title: Akademiya nauk SSSR. Sibirskoye otdeleniye. Limnologicheskiy institut) Errata slip inserted. 1,000 copies printed.

TOPIC TAGS: hydrometeorology, hydrology, surface water, heat balance, air temperature, moisture measurement, solar radiation absorption, turbulent heat transfer, ice / лед / вода / температура

PURPOSE AND COVERAGE: This book presents the normal properties over several years of radiational and thermal balances of the surface of Lake Baikal. It describes processes of heat and moisture exchange with the atmospheric and internal water exchange ranging from the surface of the lake to depths of 200 meters. Also included is an analysis of the mechanism of a series of processes and phenomena which influence the hydrometeorological conditions of Baikal.

Card 1/2

ACC NR: AM0014511

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SUB CODE: 04,08 / SUBM DATE: 15Mar65/ ORIG REF: 322/ OTH REF: 010/

Card 2/2

VERBICOV, Vladimir Ilich, SOKOLNIKOV, Vladimir Mikhailevich;
SHIMARAYEV, Nikolai Ivanovich. Gidrometeorologicheskii rezhim i teplotovoi balans ozer
Baikal. Moskva, Nauka, 1965. 372 p.

[Hydrometeorological regime and heat budget of Lake Baikal]
Gidrometeorologicheskii rezhim i teplotovoi balans ozer
Baikal. Moskva, Nauka, 1965. 372 p. (MIRA 18:5)

BEZMOZGIN, E.S.; SHIMARAYEV, N.I.

Experimental processing of F layer shales in gas generators.
Trudy VNIIPS no.5:133-141 '56. (MIRA 10:5)
(Oil shales--Refining)

ACC NR: AP7004637

SOURCE CODE: UR/0288/66/000/003/0086/0090

AUTHOR: Makarevich, G. A.; Shimarev, S. K.

ORG: none

TITLE: Formation of stream in an electromagnetic shock tube

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya tekhnicheskikh nauk, no. 3, 1966, 86-90

TOPIC TAGS: shock wave structure, plasma shock wave, shock tube, discharge chamber, plasma electromagnetics, gas discharge

ABSTRACT: Experiments with electromagnetic shock tubes are described whose aim was to form slow ($T_{\text{discharge}} \approx 10^{-4}$ sec) gas discharge and increase the region of discharge ("working plug region") characterized by homogeneous thermically ionized plasma. The three types of discharge chambers were 3m long and 80mm in diameter made of vitreous transparent plastic and vacuum chambers containing physical or aerodynamic models. All chambers had an efficiency of 50--60%. The working gas was air and the discharge was initiated from a 1200 μ fd capacitor bank charged to 5kV. It was established that the "plug" practically could not be observed when initial gas pressure was $P_0 < 1\text{mm Hg}$. Its dimensions, however, increased to 10cm at $P_0 = 5\text{mm Hg}$. To further increase its size the authors attempted to 1) place a metallic section 1m long next to the discharge chamber leaving the rest to be plastic as previously, 2)

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UDC: 533.951+533.6.011.72+533.6.071.8

ACC NR: AP7004637

place a copper or teflon meshed section with 70% transparency in the same manner, and
3) place a pulse accumulator next to the discharge chamber. This accumulator, en-
closing air at $P = 1$ atm by a rubber membrane from one side and by a polyamide film
on the other, let the air flow into the discharge chamber when the membrane broke at
the initial stage of the discharge. Orig. art. has: 1 table and 4 figures.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 001

Card 2/2

L 22324-66 EWT(1)/EMP(m)/EWA(d)/EWA(h)/EWA(1) WW
ACC NR: AP6013206 SOURCE CODE: UR/0421/66/000/002/0108/0114 54
B

AUTHOR: Bogoslovskiy, K. Ye. (Moscow); Kireyeva, N. I. (Moscow); Makarevich, G. A.
(Moscow); Tsvetayev, Yu. A. (Moscow); Shimarev, S. K. (Moscow); Tarantov, Ye. A.
(Moscow)

ORG: none

TITLE: Investigation of unsteady flows past models in an electromagnetic shock tube

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 2, 1966, 108-114

TOPIC TAGS: experiment aerodynamics, electromagnetic shock tube, strong shock wave,
detached shock wave, shock wave reflection, supersonic flow

ABSTRACT: An experimental investigation of unsteady flows moving behind strong shock
waves produced by electric discharges past models of various shape was carried out
in an electromagnetic shock tube. The purpose of this study was to determine the
time of flow transition from an unsteady to a steady state in the stagnation-point
region and to check the theoretical data on flow parameters behind strong shock waves.
The electromagnetic shock tube, experimental set-up, instrumentation, and test proce-
dure are described. The results obtained in an electric discharge shock tube with
wave velocity of the order of 8000 m/sec show that: 1) the obtained dependence of
the nondimensional value of the relative shock wave detachment on bluntness as a
function of nondimensional time makes it possible to determine the time of the estab-

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L 22334-66

ACC NR: AP6013206

lishment of the flow near the stagnation point of spheres and cylinders in flows behind strong shock waves; 2) the experimental values of velocity and pressure behind reflected shock waves from the end plate of a shock tube are in satisfactory agreement with theoretical computations, taking account of dissociation and ionization; 3) the values of the relative, steady shock-wave detachment from the stagnation point of spheres and cylinders with flat bluntness in axial flows agree well with theoretical data obtained by others. Orig. art. has: 9 figures. [AB]

SUB CODE: 20/ SUBM DATE: 23Apr65/ ORIG REF: 006/ OTH REF: 002/ ATD PRESS:

4292

Card 2/2ddc

Soviet, A.S., 1928.

Improvement of the automatic control network of a compressor.
Energetik 12 no.10:21 0 '64. (MIA 17:11)

SHNITKIS, J. I., Card Tech Sci -- (diss) "Investigation of the working process of tractor motors with a chamber in the piston." Kaunas, 1960. 32 pp with illustrations; (State Committee of Higher and Secondary Specialist Education of the Council of Ministers of the Lithuanian SSR, Lithuanian Agricultural Academy); 170 copies; free; (KL, 16-60, 193)

Build. 1978, • •

Build. 1978, 3rd

Address: "Vecheryaya Moskva" (Moscow) 101000, Russia

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Address: "Vecheryaya Moskva" 101000, Russia

SO Vecheryaya Moskva
Sum 71

CHERNYAVSKIY, D.L., kand.tekhn.nauk; DORFMAN, Yu.I., inzh.; SHIMBERG, Ye.I.

Design of the unitized bodywork of the TE10 diesel locomotive.
Vest.TSMII MPS 22 no.5:27-32 '63. (MIRA 16:8)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina i
Khar'kovskiy zavod transportnogo mashinostroyeniya imeni
V.A.Malyshева.
(Diesel locomotives--Design and construction)

BROVAR, Vsevolod Vladimirovich; MAGNITSKIY, Vladimir Aleksandrovich;
SHIMBIREV, Boris Pavlovich; YURKINA, M.I., retsenzent;
MAKAROV, N.P., retsenzent; VIROVTS, A.M., retsenzent;
VASIL'YEVA, V.I., red. izd-va; SUNGUROV, V.S., tekhn. red.

[Theory of the earth's figure] Teoriia figury Zemli. Pod
obshchey red. V.A.Magnitskogo. Moskva, Izd-vo geodez. lit-ry,
1961. 256 p. (MIRA 15:3)

(Earth--Figure) (Gravity)

BROVAR, V.V., dotsent, kand. tekhn. nauk; PELLINEN, L.P., kand. tekhn. nauk;
SHIMBEREV, B.P., dotsent, kand. tekhn. nauk

Mikhail Sergeevich Molodenskii, winner of the Lenin Prize.
Izv. vys. ucheb. zav.; geod. i aerof. no.3:53-55 '63.
(MIRA 17:1)

1. Moskovskiy institut inzhenerov geodezii, aerofotos"yemki
i kartografii.

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549510012-3

...; WILMINGTON, DELA., INZ4.

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...; WILMINGTON, DELA., INZ4.

...; WILMINGTON, DELA., INZ4.

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549510012-3"

Shimbireva, K. b.
Kh.

Shimbireva, K. On the theory of partially ordered groups.
Rec. Mat. [Mat. Sbornik] N.S. 20(62), 145-178 (1947).
(Russian. English summary)

L'auteur pose la question sous quelles conditions un groupe peut être donné d'un ordre partiel tel que l'ensemble des éléments plus grands que l'identité engendre le groupe entier. Par exemple, c'est possible pour chaque groupe, dont le facteur-commutateur n'est pas périodique. L'auteur démontre que deux décompositions directes de ces groupes-là possèdent un raffinement commun et donne des conditions pour la possibilité de décompositions sous-directes.
H. Freudenthal (Utrecht).

Source: Mathematical Reviews,

Vol. No. 1947

SHIMKHEVA, Ye. F.

K teorii chastichnykh uporyadochennykh grupp. Matem. sb., 20 (62), (1947), 145-172.

SO: Mathematics in the USSR, 1917-1947
edited by Kurosh, A.G.,
Markushevich, A.I.,
Rashevskiy, P.K.
Moscow-Leningrad, 1948

HAROLD C. HARRIS, JR., WILKINS, S.D.

Report for overdrilling wells. Neft, 1 gas, probe no. 3-42-49
31-5 16th (MORR 17-12)

L 11380-63

EWT(m)/BDS AFFTC/ASD

S/120/63/000/002/013/041

53

52

AUTHORS: Golikov, V. V., Shimchak, G. F., and Shkatula, A. A.

TITLE: A very efficient slow-neutron detector using a ZnS(Ag) + B₂O₃ mixture

PERIODICAL: Pribory i tekhnika eksperimenta, March-April 1963, v. 8, no. 2, 59-62

TEXT: The authors investigated the scintillation properties of the T-1 detector (in which the ratio ZnS:B₂O₃ is 3:1 by weight in a mixture of ZnS(Ag) + B₂O₃) in order to demonstrate that the maximum efficiency of such detectors is greater than the 5 percent estimated in earlier articles. The grain size, surface density, shape of detector surface, and composition were varied to find the highest efficiency: 60 percent for a 125 mg/cm² surface density, saw-toothed surface (30° wedges), 300-570 μ grain size, a boron-oxide enriched composition

Card 1/2

L 11380-63

S/120/63/000/002/013/041

A very efficient flow-neutron...

and γ -ray elimination (achieved by setting the instrument threshold so that its efficiency in registering Co⁶⁰ γ -rays was 10^{-4} percent). Experiments on a laboratory model with a detector area of 2000cm² showed that double-coincidence operation reduces the efficiency by only about 15 percent, as does γ -ray elimination. A detector with 300 cm² area has operated for 14 months without deterioration in its characteristics. There are five figures.

ASSOCIATION: Ob'yedinennyi institut yadernykh issledovaniy (Joint Institute for Nuclear Research)

SUBMITTED: April 28, 1962

ja/
Card 2/2

L. CHMIELEWSKI

POLAND/Cultivated Plants. Commercial. Oil-Bearing. Sugars.

Abs Jour: Ref Jour-Biol., No 5, 1958, 20418.

Author : S. Roscovskiy, L. Chmielewski.

Inst : Institute of Plant Selection and Acclimatization.

Title : Progress in Sugar Beet Selection and Cultivation.
(Destizhenija v selektsii i vyrashchivaniu slobarnyj
svekly).

Orig Pub: Zesz. prabl. "Kszosz", 1955, No 1, 62-77.

Abstract: In the production of sugar, Poland occupies fourth place after the USSR, Germany and France. The consumption of sugar in 1949 was 19 kilograms per person. For the following six years the area growing beets grew by 25%, and the yield by 30%, reaching 240 centners per hectare. Scientific work on the sugar beet has been conducted in the Institute for Plant Selection and Acclimatization.

Card : 1/2

YEVSEYEV, V.S.; KOMAROV, V.I.; KUSH, V.Z.; ROGANOV, V.S.; CHERNOGOROVA,
V.A.; SHIMCHAK, M.M.

[Asymmetry in the angular distribution of neutrons emitted in the
capture of π^- -mesons in calcium] Asimmetriia v uglovom raspredelenii
neutronov, ispuskaemykh pri zakhvate π^- -mesonov v kal'tsii.
Dubna, "U" edinenyi in-t iadernykh issl., 1961. 27 p.
(MIRA 14:11)

(Neutrons) (Mesons--Capture) (Calcium)

20685
3/120/61/00/001/020/062
E32/E314

AUTHORS: Yevseyev, V.S., Komarov, V.I., Kush, V.Z.,
Pogonov, V.S., Chernororova, V.A. and Soshinshak, M.V.
TITLE: A Multilayer Scintillation Detector for the
Recording of Neutrons in the Presence of γ -rays

PUBLICATION: Pribory i tekhnika eksperimenta, 1961, no. 1,
pp. 65-72

TEXT: A description is given of a neutron detector having
a high sensitivity to neutrons but a low sensitivity to
 γ -rays. The detector is designed for the energy range
5-30 MeV. The detector is similar to that reported by Baker
and Rubbia (Ref. 1). The multilayer detector is based on the
difference between the ranges of protons and electrons of the
same energy. The detector consists of a number of thin
scintillators, each having a thickness h . The scintillators
are separated by opaque partitions. The device is so arranged
that scintillations from layers 1, 3, 5, etc. are recorded
by one photomultiplier and scintillations from the remaining
layers by another. If the energy of an electron is sufficient

Card 1/1.

20685

S/120/61/000/001/-20/042
EO22/E31h

A Multilayer....

For it to penetrate into a neighbouring layer, then coincident pulses will be produced in the two photomultipliers. The electronic circuitry employed is such that it rejects coincident pulses. Non-coincident pulses arising in either of the photomultilayers are analysed by a kicksorter. In this way, one can separate recoil protons from electrons due to γ -rays. The multilayer detector consists of 28 discs (diameter 10 mm, $h = 1$ mm). The discs are made from a plastic based on polystyrene with the addition of 2% p-terphenyl + 0.2% a PO. The neighbouring discs are separated from each other by pieces of black paper, 0.05 mm thick. The detector consists of two identical parts placed in series. In each part, scintillations from "even" discs are collected through perspex light pipes by the corresponding two multipliers, whilst the scintillations from the "odd" discs are collected by two other photomultipliers.

In order to prevent the light from the "even" discs from entering the photomultipliers belonging to the "odd" discs (and conversely), the side surfaces of the discs are separated into four equal parts and two (opposite) of these are covered

20685

5/120/61/000/001/020/c62

E032/-314

A Multilayer

by an aluminium foil. Altogether, the detector incorporates 8 photomultipliers of the type ~~62~~ -7 (FEU-29). Each photomultiplier was placed in a separate magnetic screen made of soft iron. The light guides were not in optical contact w.t the scintillators, which reduced the amplitude of the pulses but simplified the operation. Pulses from each photomultiplier group were amplified and equalised in amplitude. The maximum amplitude of Co60 γ -ray pulses was about 0.01 V. The pulses were then fed into an adding circuit and the pulses from the adding circuit and those from one of the photomultiplier groups were fed into a coincidence circuit and a discriminator, which were so arranged that coincident pulses were rejected while those which were not in coincidence were allowed to pass on into a kicksorter. Detailed tests carried out on this detector have shown that its sensitivity to γ -rays is lower by a factor of 2 and its sensitivity to neutrons is higher by a factor of 2, as compared with the detector reported by Baker and Rubbia in Ref. 1. It is said that this is due to the fact that the thickness of each scintillator in the present instrument is

Card 3/h

20685

A multilayer

S/120/61/000/01/020/062
E032/-314

lower by a factor of 1.2 while the total thickness of the device is smaller by a factor of 2.7, as compared with Ref. 4. There are 4 figures and 6 references: 2 Soviet and 4 non-Soviet.

ASSOCIATION: Ob'yedinennyy institut vodorayz issledovaniy
(Institute for Nuclear Research)

SUBMITTED: February 5, 1960

Card 1/1

YEVSEYEV, V.S.; KOMAROV, V.I.; RUSH, V.Z.; ROGANOV, V.S.; CHERNOGOROVA,
V.A.; SHIMCHAK, M.M.

Scintillation laminer detector recording fast neutrons in the
presence of gamma quanta. Prib. i tekhn. eksp. 6 no.1:68-72
Ja-F '61. (MIRA 14:9)

1. Ob'yedinennyy institut yadernykh issledovaniy.
(Neutrons) (Scintillation counters)

YEVSEYEV, V.S.; KOMAROV, V.I.; KUSH, V.Z.; ROGANOV, V.S.; CHERNOGOHOVA, V.A.;
SHIMCHAK, M.M.

Asymmetry of the angular distribution of neutrons emitted in the
capture of μ^- -mesons in calcium. Zhur.eksp.i teor.fiz. 41
no.1:306-307 Jl '61. (MIRA 14:7)

1. Ob'yedinenyyi institut yadernykh issledovaniy.
(Mesons—Capture) (Neutrons—Scattering)

Joint Institute for Nuclear Research, Dubna, USSR, Vol. 1, No. 1, 1962, p. 10.
"Activity in the Acceleration and Distribution of Particles Related to
NUCLEAR REACTIONS IN NUCLEI"

Report presented at the Int'l. Conference on High Energy Physics, Geneva,
4-11 July 1962

Joint Institute for Nuclear Research
Lab. of Nuclear Problems

Z RDP86-00513R001549510012-3
ACC NR: AP6009334

SOURCE CODE: FO/0095/65/013/008/0111/0118

AUTHOR: Sz. meczek, R.—Shimchak, R.

ORG: Department of magnetics, Institute of Fundamental Technical Problems, Polish Academy of Sciences (Zaklad Magnetykow, Instytut Podstawowych Problemow Techniki, PAN)

TITLE: Wavy structure of uniaxial ferromagnetics

SOURCE: Polska akademia nauk. Bulletin. Serie des sciences techniques, v. 13, no. 8, 1965, 111-118

TOPIC TAGS: ferromagnetic structure, crystal, magnetic domain structure, uniaxial crystal

ABSTRACT: Theoretical analysis was made of the domain wavy structure of the uniaxial ferromagnetics. The dependence of the width of domain D and parameters characterizing the shape of the regions α and γ on the thickness of crystal L was derived. Precise calculations and their comparison with the experimental data were carried out for magnetoplumbite. The author expresses his thanks to Professor A. K. Smolinski for affording the possibility to carry out this investigation and for his valuable remarks. Thanks are due also to Docent R. Wadas for his interest in the course of this work and for the discussion which helped the author to elucidate many problems under consideration. Orig. art. has: 7 figures and 14 formulas. [Based on author's abstract.]

[AM]

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 002/
Card 1/1

BELYAYEV, B.N.; MAL'TSEVA, N.S.; MEKHEDOV, V.N.; MIN NAM BUK;
SHIMCHAK, R.A.; SARANTSEVA, V.R., tekhn. red.

[Formation of At²⁰⁹ and At²⁰⁷ in the bombardment of Bi and Pb
with high-energy protons] Obrazovanie At²⁰⁹ i At²⁰⁷ pri bom-
bardirovke Bi i Pb protonami vysokikh energii. Dubna, Ob"edinen-
nyi in-t iadernykh issledovanii, 1962. 9 p. (MIRA 15:6)
(Astatine--Isotopes) (Protons)

S/056/62/043/004/001/061
B102/B186

AUTHORS: Belyayev, B. N., Mal'tseva, N. S., Mekhedov, V. N., Min Nam
Buk, Shimchak, R. A.

TITLE: Formation of At²⁰⁹ and At²⁰⁷ isotopes on bombardment of bis-muth and lead with high-energy protons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43,
no. 4(10), 1962, 1129 - 1134

TEXT: The yields of the lightest astatine isotopes (At^{207, 209}), formed through the capture of fragments impelled by more than 40 Mev, were studied in the course of radiochemical examinations of astatine formation reactions during the bombardment of Bi⁸³ and Pb⁸² with high-energy protons (cf. ZhETF, 35, 56, 1958; 39, 230, 1960). Under the same experimental conditions as in preliminary studies, the synchrocyclotron of the OIYAI was used for proton irradiation at 120-660 Mev. The spectra were measured using an ionization- α -spectrometer with a grid and the relative yields were calculated from the height of the individual peaks. The astatine isotopes 207-211 are assumed

Card 1/2

Formation of At²⁰⁹ and ...S/056/d2/c43/c04/c01/c01
S102/S103

to form with a greater probability than obtained in previous investigations (ZhETF, 39, 527, 1960) in "secondary" capture reactions of superbarrier nuclei, such as He³, He⁴, and Li, which have themselves been formed multiple interactions of high-energy nucleons. There are 1 figure and 1 table.

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

SUBMITTED:	March 31, 1962	(1)	(2)	At ²⁰⁹	At ²¹⁰	At ²¹¹	At ²¹²
Table: Relative yields with respect to At ²¹¹ .	Bi	{ p, 660	0.81±0.08	0.72±0.06	0.40±0.04	0.51±0.04	
		{ p, 660 [1]	0.82±0.12	—	—	—	
		{ a, 120	0.96	0.64±0.06	~0.5	0.30±0.03	
		{ p, 130 [1]	0.63±0.10	—	—	—	
		{ p, 150 [1]	1.02±0.20	0.81±0.22	0.22±0.05	0.10±0.04	
Legend: (1) Target; (2) bombarding particle and its energy in Mev.	Pb	{ p, 660	—	1.43±0.43	—	0.61±0.13	
		{ p, 200	—	1.31±0.28	—	(0.62±0.13)	
		{ a, 400	—	1.52±0.25	—	0.56±0.20	
		{ a, 800	—	—	—	0.52±0.1	
						(0.72±0.1)	
						(0.71±0.1)	

Card 2/2

L 13622-63 EWT(m)/FCS(f)/BDS AFFTC/ASD
ACCESSION NR: AP3003100

5/0056/63/044/006/1800/1805 547

AUTHOR: Wang, Ch'uan-p'eng; Mekhedov, V. N.; Rybakov, V. N.; Shimchak, R. A.

TITLE: Search for secondary deuterium and tritium capture reactions 19

SOURCE: Zhurnal eksper. i teor. fiziki, v. 44, no. 6, 1963, 1800-1805

TOPIC TAGS: heavy arsenic isotope yield, deuterium capture, tritium capture

ABSTRACT: The yields of heavy arsenic isotopes produced by bombarding germanium with 120, 300, 480, and 660 MeV protons are measured by a radiochemical method. With increase of proton energy, all yields decrease monotonically, with values ranging from 3.4--1.0, 1.0--0.38, and 0.13--0.035 mb for As⁷⁴, 76, and 77, respectively. The main interest was in the study of reactions involving superbarrier deuterium and tritium capture reactions. The primary (p,xn) reactions are apparently the mechanism for the production of As⁷⁴ and As⁷⁶. The isotope As⁷⁷ is probably formed as a result of capture of superbarrier tritium nuclei. The origin of As⁷⁷ is more complicated. At low proton energies (120 and 300 Mev) it is essentially obtained via secondary deuterium and tritium nuclear capture reactions. At higher proton energies the overwhelming part of the isotope is apparently obtained via secondary Alpha-particle capture

Card 1/2

L 13622-63

ACCESSION NR: AP3003100

3

reactions. "The authors thank B. V. Kurchatov and V. M. Mal'tsev for valuable remarks." Orig. art. has: 4 formulas and 1 table.

ASSOCIATION: Ob'yedinenny'y institut yaderny'kh issledovaniy (Joint Institute for Nuclear Research)

SUBMITTED: 07Jan63 DATE ACQ: 23Jul63 ENCL: 00
SUB CODE: 00 NO REF SOV: 008 OTHER: 020

Card 2/2

GZHESIK, Ya.; LEMPKOVSKI, A.; TURCHIN'SKI, B.; FAZANOVICH, Ya.;
SHIMCHIK, K.

Comparison of methods for estimating loudness, based on data
published in 1930-1957; a survey. Akust. zhur. 6 no. 4:419-440
'60. (MIRA 13:12)

1. Institut meditsiny truda; Meditsinskaya akademiya g. Zabzhe i
Kafedr akustiki i teorii kolebaniy Universiteta im. Adama Mits-
kevicha g. Pozman' (Pol'sha).
(Sound—Measurement)

S/186/61/003/001 019/026
A051/A129

AUTHORS: Tolok, L.A., Utronskii, I.I., Shinshik, S.Ya.

TITLE: Separation of iron and cobalt using ASD-2 (ASD-2) anionite

PUBLICATION: Radiokhimiya, v. 3, no. 1, 1961, p. 114-116

TEXT: The Soviet authors used ASD-2 strongly-basic anionite was used to separate small quantities of iron and cobalt in addition to the radioactive isotopes Fe^{59} and Co^{60} . It was found that admixtures of Fe^{55} and Co^{60} were present in the radioactive Fe^{59} sample. The authors showed that it was possible to use the ASD-2 anionite instead of the Dowex-1X8 for separating iron and cobalt. The experimental procedure was as follows: the radioactive solutions of iron and cobalt were prepared in two ways. a) 1.15 g of iron powder containing its radioactive isotope were dissolved in 10 ml of hot 6 n. HCl and evaporated until almost dry, then FeCl_3 was dissolved at room temperature in 40 ml of 11.3 n HCl. Ammonia was passed through the solution in order to

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S/186/61/003/001/019/020
A051/A129

Separation of iron and cobalt ...

flow of the washing-out agents was regulated by the height of the mercury column and was equal to $0.05 \text{ ml} \cdot 0.03 \text{ cm}^{-2} \cdot \text{min}^{-1}$. The separation was carried out at room temperature. The activity of the initial solution and eluates was measured on a butt counter with a statistical error of $\pm 3\%$. There are 2 graphs and 9 references: 5 Soviet-bloc, 4 non-Soviet-bloc.

Card 3/4

SHIMCHISHIN, Ye.F.

Industrial training in well drilling. Neft.khoz.33 [i.e.34]
no.9:68-70 S '56. (MIRA 9:10)
(Oil well drilling)

SHIMCHISHIN, Ye.F.

Results of the Turkmen Petroleum Association's introduction of
consolidated norms for derrick construction. Neft.khoz. 35 no. 3:57-
60 Mr '57. (MLRA 10:4)
(Turkmenistan--Oil wells--Equipment and supplies)

SHIMCHISHIN, Yevgeniy Fedorovich; ISAYEVA, V.V., vedushchiy red.;
GANINA, L.V., tekhn.red.

[Work organization for the erection of drilling rigs and
supporting structures; practices of drillers in the Turkmen
S.S.R.] Organizatsiya truda pri stroitel'stve burovyykh;
opyt burovikov Turkmenskoi SSR. Moskva, Gos.nauchno-tekhn.
izd-vo neft. i gorno-toplivnoi lit-ry, 1960. 41 p.

(MIRA 13:5)

(Boring machinery) (Oil well drilling rigs)

SHIMCHISHIN, Ye.F.; KAYESHKOVA, S.M., vedushchiy red.; VORONOVA, V.V.,
tekhn. red.

[Labor productivity in oil well drilling; practices of the drilling department of the Oil Field Administration of the Cheleken-neft'. Moskva, Gostoptekhizdat, 1962. 70 p. (MIRA 15:7)
(Trust) (Cheleken region—Oil well drilling—Labor productivity)

SHIMCHISHIN, Ye.F.

Hourly bonus and piecework wage systems in drilling. Neft.
khoz. 40 no.7:8-11 J1 '62. (MIRA 17:3)

SHIMCHISHIN, Ye.F.

Completed well as a basic index for the planning and calculation
of drilling operations; discussion of I.IA. Vainer's article.
Neft, khoz. 41 no.2:10-12 F '63. (MIRA 17:8)

5-10-29/30

AUTHORS: Karzhizek, A. and Shimechek, V., Senior Assistants

TITLE: The Teaching of Foreign Languages at the Prague Institute of Transports (Prepodavaniye inostrannyykh yazykov v Prazhskom transportnom institute)

PERIODICAL: Vestnik Vysshey Shkoly, 1957, # 10, pp 94-95 (USSR)

ABSTRACT: The Prague Engineering Institute of RR Transport has four faculties, - Building, Mechanical, Exploitation, Electrical Engineering - and correspondence courses.

The authors point out that knowledge of foreign languages is very important to future engineers. A compulsory course of Russian was included into the program.

The chair of languages at the institute has three senior assistants, elected for three years. They may remain for nine years at the chair in the capacity of assistants. During that period they must reach the grade of a dotsent. Experienced workers who do not obtain a grade may be transferred to the category of lecturer-specialists.

Requirements in the study of Russian are very high. The study of other foreign languages is not yet compulsory, but is planned for the future, i.e. the introduction of German

Card 1/2

SHIMECHEK, Ya.; OPPL, L.

Evaluation of dust in the air of working areas according to the
weight and number of the particles. Gig.i san. 25 no.1:97-99
Ja '60. (MIRA 13:5)

1. Iz Instituta gigiyeny truda i professional'nykh zabolеваний,
Praga.
(DUST)

CZECHOSLOVAKIA / Microbiology. Medical and Veterinary Microbiology.

F-5

Abs. Jour: Referat Zh.-Biol., № 6, 25 March, 1957, 22101

Author : Shimek, Frants, Shtedran, Gais

Inst :

Title : Antitubercular Factor in Milk.

Orig Pub: Českosl. hyg., epidemiol., mikrobiol., immunol., 1955, 4, № 3,
124-127

Abstract: By experiments in vitro and in vivo (on mice) in human and goat milk and in milk whey, the presence of a thermostable and acid resistant agent, which inhibits development of tubercular microbacteria, was established. This agent is retained in milk even after filtration through a cellophane membrane. By its nature and characteristics this so far unknown agent must probably be classified as an antibiotic.

Card : 1/1

-61-

KUTIL, I.; KURACHKA, F.; SHIMEK, I.

Use of polyelectrolytes for the recovery of gold from waste waters.
Zhur.prikl.khim. 34 no.11:2430-2435 N '61. (MIRA 15:1)

1. Gosudarstvennyy institut blagorodnykh metallov, Praha i
Issledovatel'skiy institut sinteticheskikh smol i lakov, Pardubitse.
(Waste products) (Gold)

... -- "The Wine Growing in Czechoslovakia and Measures to Improve It." Moscow Order of Lenin Agricultural Academy imeni V. I. Ulyanova-Lenina. 1956. (Dissertation for the Degree of Candidate of Agricultural Sciences.)

O: Agribusiness Internist, No. 4, Moscow, 1956

DRAGNY, M.; SHIMEK, S.

Symposium on technical and economic problems in nuclear engineering.
Atom. energ. 12 no.5:436-438 My '62. (MIRA 15:5)
(Nuclear engineering)

ACC NR: AP6033605

SOURCE CODE: CZ/0043/66/000/001/0043/0054

AUTHOR: Simek, Ivan--Shimek, T. (Engineer; Candidate of sciences; Bratislava); Smid, Jaroslav--Shmid, Ya. (Engineer; Bratislava) 32

ORG: [Simek] Department of Organic Technology, Slovak Technical University, Bratislava (Katedra organickej technologie Slovenskej vyskej skoly technickej); [Smid] Slovak Petroleum n.p., Bratislava (Slovnaft, n.p.) B

TITLE: Influence of atacticity and crystallinity upon the dynamic and mechanical properties of polypropylene

SOURCE: Chemicke zvesti, no. 1, 1966, 43-54

TOPIC TAGS: polypropylene plastic, crystalline polymer, mechanical property

ABSTRACT: The dynamic and mechanical properties of polypropylene determined by the method of free torsional vibrations are related to the densimetric and extraction data of polypropylene characteristic for its atacticity and crystallinity. Orig. art. has: 6 figures and 2 tables. [JPRS: 34,805]

SUB CODE: 11, 20 / SUBM DATE: 23Jul65 / ORIG REF: 003 / SOV REF: 001

Card 1/1

0930-16319

SHIMEL', I. N.[deceased]

Characteristics of the morphological changes in the vessels of
the brain in the cerebral form of malignantly progressing
hypertension. Nauch. trudy Inst. nevr. AMN SSSR no.1:457-473
'60. (MIRA 15:7)

1. Institut nevrologii AMN SSSR.

(HYPERTENSION) (BRAIN—BLOOD SUPPLY)

Category : USSR/Solid State Physics - Mechanical properties of crystals and poly E-9
crystalline compounds

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 1374

Author : Nemchinskiy, A.L., Fokina, N.M., Shimelevich, I.L.

Inst : Centr. Scientific Res. Inst., MSP, USSR

Title : On the Mechanical Properties of Steel with Austenite-Martensite Structure

Orig Pub : Metallovedeniye i obrabotka metallov, 1956, No 1, 30-35

Abstract : The investigation concerned the influence of the qualitative relationship between austenite and martensite on the mechanical properties of steel containing 0.2 -- 0.86% carbon. The specimens were hardened in air from 900 or 1150°, depending on the composition; the amount of martensite was determined by metallographic and magnetic methods. The quantitative ratio of the phases was changed by alloying the steel with Mn, Ni, and Cr and by cold working. It is shown that increasing the amount of martensite in low-carbon steel raises the yield point and the ultimate strength, the sharpest increase being observed at the start of the transformation. Scott's suggestion, that the abrupt change in the yield point in the martensitic transformation is caused by formation of a martensite skeleton, is not confirmed. In high and medium carbon steels, a relatively small degree of martensitic transformation (10 -- 20%) is enough to destroy the plasticity completely.

Card : 1/1

137-58-1-2002

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p269 (USSR)

AUTHOR: Shimelevich, I. L.

TITLE: On Static Bending Tests of Notched Specimens (Ob ispytanii na staticheskiy izgib nadrezannykh obraztsov)

PERIODICAL: V sb.: Metallovedeniye, Leningrad, Sudpromgiz, 1957,
pp 70-80

ABSTRACT: An energy analysis is presented of the diagram of static bending of notched specimens, and data obtained from these experiments are presented. Specimens of the Mesnager type, with an acute 60° notch and a radius of curvature at the bottom of the notch of 0.2-0.3 mm, were tested on a IM-4A TsNIITMash machine for various values of accumulated system energy (E) (0.79-4.5 kgm). The change in the magnitude of elastic energy is brought about by a special device with a set of Belleville disc springs. From the diagrams obtained the following characteristics were obtained by planimetry: a) the elastic E accumulated by the system at the moment the maximum load was attained; b) the supplementary work performed by the machine to develop an incipient crack; c) the ultimate work required to cause the specimen to

1/2

137-58-1-2002

On Static Bending Tests of Notched Specimens

fail. It is shown that the nature of the terminal portion of the diagram of static bending of notched specimens is determined by the ratio between the magnitude of the ultimate work of destruction of the specimen (the work involved in propagating a crack) and the elastic E accumulated in the specimen and in the parts of the machine. The type of fracture of the specimens may govern the nature of the diagram only if a change therein results in a change in the ratio indicated. Precise determination of the ultimate work of failure by planimetry of the diagram of flexure is possible only in the absence of discontinuities in the final portion of the diagram. In this connection, planimetry should be performed over an area separated from the initial portion by an inclined straight line plotted from the point of maximum load parallel to the elastic portion of the diagram, and not by the ordinate as had previously been believed. If there are discontinuities, plastic deformation may also occur in the specimen, but the expenditure of E thereon is not subject to precise determination and may be either very small or quite large. The claim that the ultimate work at fracture is equal to zero is not founded. The elastic energy accumulated by the system, which is largely dependent upon the rigidity of the testing machine, is a most important factor in determining the nature of the terminal portion of the bending diagram.

V. G.

Card 2/2

1. Materials--Test methods 2. Materials--Test results

137-58-1-1658

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 226 (USSR)

AUTHOR: Shimelevich, I. L.

TITLE: Spread of Cracks in Steel Sheets Due to Internal Stresses (Ras-
postraneniye treshchin v stal'nykh listakh pod vliyaniyem vnut-
renni kh napryazheniy)

PERIODICAL: V sb.: Metallovedeniye. Leningrad, Sudpromgiz, 1957,
pp 81-99

ABSTRACT: On the basis of experimental investigations of the development of cracks (C) in steel sheets under the effect of internal stresses, it is established that the work of deformation to develop C may occur only at the expense of the reserve of elastic energy accumulated in the sheet. The magnitude of the elastic energy released as the C develop is directly proportional to the square of the magnitude of the internal stresses and the length of the C; this determines the conditions for the possibility of C formation. Comparison of the liberated elastic energy and the work of deformation necessary to cause metal to fail resulted in establishing a relationship for the critical dimensions of C (at which they will spread) due to internal stresses. In crystal-

Card 1/2

137-58-1-1658

Spread of Cracks in Steel Sheets Due to Internal Stresses

line fracture of steel, the critical length of the C is 8-15 mm, and in fibrous fracture it is 250-300 mm. Therefore, the presence of small C in the vicinity of welds may serve as the cause of brittle fracture of a structure. Fibrous fracture cannot occur in welded structures, as this requires exceedingly high stresses, attaining the order of magnitude of σ_b .

1. Steel--Fracture 2. Steel--Stresses 3. Steel--Deformation

V.G.

Card 2/2

sov/123-59-15-58973

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1959, Nr 15, p 18 (USSR)

AUTHORS: Kroshkin, A.A., Shimelevich, I.L.

TITLE: Investigations of the Strength of Notched Specimens of Brittle Steel

PERIODICAL: V sb.; Metallovedeniye, Vol 2, L., Sudpromgiz, 1958, pp 175 - 185

ABSTRACT: As a result of experimental investigations carried out it was found that, when submitting specimens of brittle materials to tensile strength tests, the effective coefficient of concentration of stress does not agree with the theoretical coefficient of concentration of stress. The cause of this discrepancy is the local plastic deformation at the basis of the notch which is taking place even in the case of the tested material being, to all appearance, in a brittle state. It is stated that the following factors influence the magnitude of the effective coefficient:

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SOV/123-59-15-58973

Investigations of the Strength of Notched Specimens of Brittle Steel

test temperature, size of the specimen, depth and pointedness of the notch. When testing various materials with the aim of determining the actual stress in a state of an existing concentration of stress it is recommended to use less pointed notches (with a larger radius of rounding at the top and with a great depth).

B.A.M.

Card 2/2

SOV/32-24-10-25/70

AUTHORS: Danilov, T. L., Ivanov, A. P., Kroshkin, A. A., Razov, I. A.,
Shevandin, Ye. M., Shimelevich, I. L.

TITLE: Investigation of the Bending of a Broad Sample in Classifying
the Deformability of Metals (Ispytaniye shirokoy proby na zagib
dlya otsenki deformatsionnoy sposobnosti metallov)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 10, pp 1233-1236 (USSR)

ABSTRACT: Testing the bending strength in the cold state serves to classify
the plasticity of steel. According to OST 1683 a certain ratio
between the width and the thickness of the sample must exist
in the bending tests of sheet iron and other sectional materials.
Under actual conditions the width of the sheet of metal exposed
to bending exceeds, however, the thickness by ten- to one hundred-
fold. For this reason the testing of sheet iron is carried out
with broad samples at present. The new steel types (Shk14,09g 2,
MK have a higher resistance to brittle breaking. The use of a
wide sample in cold bending tests makes possible the classi-
fication of the deformability of steel under rigid limiting
conditions, close to real ones. The testing of the broad sample
with respect to bending is to be arranged for sheet iron of

Card 1/2

SOV/32-24-10-25/70

Investigation of the Bending of a Broad Sample in Classifying the Deformability
of Metals

any thickness. The results obtained are called satisfactory if the sample can be bent by 120° in the case of a special mandrel diameter, and if the sample does not break into two pieces on a further bending to 180° . From a diagram it may be seen that the extent of the maximum deformation of steel of type **SKH11** decreases to a great extent with increase in the span width (Ref 2). According to a suggestion by A. P. Ivanov and S. S. Kanfer and parallel to tests with samples of normal width tests on tread samples with cores were also carried out. In papers by E. S. Volokhvyanskaya (Ref 6) tests of samples with grooves and numbered cores are described. It was found that the bending tests according to OST 1683 concerning the narrow samples ($b=2a$) should be followed by those for broad samples ($t=5a$) ($b=\text{width}$; $a=\text{thickness}$). There are 2 figures and 6 references, 5 of which are Soviet.

Card 2/2

SYML'YEV, Yu.S., KHARLAMOV, N. K. and GRINOV, V. I.

"The Possibilities of Using Neutron-Induced Active Sodium for Locating Oil-Containing and Water-Containing Layers and for Determining Water-Oil Contacts in Drive-Pipe Well Conditions".

Report appearing in 1st Volume of "Session of The Academy of Sciences USSR in the Peaceful Use of Atomic Energy, 1-5 July 1955", Publishing House of Academy of Sciences USSR, 1956.

SO: Sum 721, 28 Nov 1955.

Shimelevich, Yu. S.

Ref ✓ Neutron induced radioactive sodium for locating oil and
water-containing strata and for determining the water-oil
interface in water drives. N. K. Kukharenko, V. P.
Odinkov, and Yu. S. Shimelevich. Conf. Acad. Sci.
U.S.S.R. on Peaceful Uses of Atomic Energy, Session Div.
Tech. Sci. 1955, 103-71(Pub. 1956)(Engl. translation).--
See C.A. 50, 559d. B. M. R.

3

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549510012-3

Chernyavich Yu S

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549510012-3"

KUKHARENKO, N.K.; SHIMELEVICH, Yu.S.; BESPALOV, D.F.; OKINOKOV, V.A.

New geophysical method of exposing petroleum- and water-bearing strata,
and determination of the water-oil boundary in cased wells. Neft.khoz.³⁴
no.3:43-49 Mr '56. (MLRA 9:7)
(Oil well logging)

SAL'LEVICH, Yu. S. Cand Tech Sci -- (disc) "Activ~~ation~~ analysis
of mining rocks ~~surrounding~~ ^{under} oil well and its use for ~~the~~ ^{water}
~~the~~ ^w ~~of petroleum-~~ ^{conditions} determining ~~the~~ ^{on} location ~~of~~ ⁱⁿ oil-bearing [petroliferous] and
water-bearing strata." Ros, 1957. 13 pp 20 cm. (Acad Sci USSR.
Inst of Petroleum.) 100 copies. (KL, 25-57, 114)

-93-
85

DAKHNOV, V.N., prof., doktor geol.-miner. nauk; SHIMELEVICH, Iu.S., kand. tekhn.nauk; TARKHOV, A.G., prof., doktor fiz.-mat.nauk, red.; KALANTAROV, A.P., vedushchiy red.; FEDOTOVA, I.G., tekhn.red.

[Exploration and working of mineral deposits; proceedings]
Razvedka i razrabotka poleznykh iskopaemykh. Moskva, Gos. nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1958. 250 p.
(MIRA 12:1)

1. Vsesoyuznaya nauchno-tehnicheskaya konferentsiya po pri-meneniyu radioaktivnykh i stabil'nykh izotopov i izlucheniyu v narodnom khozyaystve i naуke, Moscow, 1957. 2. Moskovskiy neftyanoy institut im. I.M. Gorkina (for Dakhnov). 3. Institut nafti AN SSSR (for Shimelevich).

(Radioisotopes--Industrial application)
(Mines and mineral resources) (Oil wells)

GRIGOROVICH, V. S., SHIBOV, A. I., AVDEEV, N. A., TROFIMOV, V. M., GELIN, Y. A.

"Using the Method of Atomic Physics in Oil Prospecting and Production."

^{wb}
Report submitted at the Fifth World Petroleum Congress, 30 May -
5 June 1959. New York.

SHMUELEVICH, Y.A.S.

PAGE I BOOK EXPLOITATION

SOY-5620

Tedemova, Nefitina; Shorokhov, Semyon - Radiometric methods in petroleum industry
I. Ionometry and other methods [including Geophysical Collection of Articles on the Use of Radiometric Methods and Isotopes in Petroleum Geology] Moscow, Gostoptekhnizdat, 1959. 370 p. (Gavia slip inserted). 4,000 copies printed.

**Ed.: P.A. Alekseyev, Professor, Doctor of Geological and Mineralogical Sciences;
 Sov. Ed.: A.P. Malinovskiy, Tech. Ed.: A.S. Polozkin.**

PURPOSE: This book is intended for petroleum geologists, geophysicists and scientists engaged in geological research who are interested in radiometric techniques of petroleum prospecting.

CONTENTS: The collection contains 30 articles compiled by staff members and experts of the Laboratory for Petrological Geology and Geophysics of the Petroleum Institute (now the Institute for Geology and Mineral Resources) of the Academy of Sciences USSR, the Laboratory for Radiometric Logging of the All-Union Scientific Research Institute of Geophysics, and the heads of research and planning research projects for petroleum enterprises. The articles treat on material on radiometric surveys in petroleum geology, describe radiometric instruments (counters, etc.) for radioactive methods and some papers give the results of research with models of rock strata, introduce methods and details of a new method for effectively utilizing radioactivity in the analysis of rock samples from petroleum-survey bore holes, etc. Problems of method in the study and interpretation of radiometric measurements in bore holes are reviewed as well as the results of studies in the methodology of tritium in tritium in tritium in the movement of petroleum and water in reservoirs. Finally, a new method of surveying based on natural radioactivity and the properties of a protonic probe is described. No permanent tables are mentioned. References accompany each article.

Contributors: A.P. V.T. Malyutov, G.S. Semenov, and A.D. Smirnov. **Bulletin** **metallocyclized paraffins**, and the use in **radiometric oil and gas Prospecting**.

279

Makarov, I.I., and D. Slobodan. **Distillation liquid radiometers. A review of articles for aerial prospecting**

299

Svirshchik, A.E. **Experiment in the Separate Registration of the Tritium and Helium Components of Gamma Radiation Using Proportional Glass-Enclosed Radiometers**

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Philipov, Ye. M. **Some Problems in the Methodology and Theory of the Gamma-Counting Method**

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Zil'ster, A.V. **Effective Cross Sections of Collisions for Slow Neutrons**
Terent'ev, Yu. G., and A.S. Shatovskiy. **A Method of Separating Oil- and Water-bearing Gravels, Based on Use of a Pulse-type Electric Source**

322

Dobrolyubov, D.P., and A.I. Danilenko. **A High Voltage Source of 100 KV for Neutron Generators Used in Coal Wells**
Terent'ev, Yu. G., L.F. Kondratenko, L.B. Vorotil, Yu. S. Shmel'kin,
and L.I. Yulin. **A Small-Sized Sealed Beta-ray Tube**

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Vorotil, L.B., and Yu.G. Terent'ev. **A Laboratory Neutron Generator**

351

AVAILABLE: Library of Congress

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PHASE I BOOK EXPLOITATION

SOV/3600

Yadernaya geofizika; sbornik statey po ispol'zovaniyu radioaktivnykh izlucheniy i izotopov v geologii nefti (Nuclear Geophysics; Collection of Articles on the Use of Radioactive Radiation and Isotopes in Petroleum Geology) Moscow, Gostoptekhizdat, 1959. 370 p. Errata slip inserted. 4,000 copies printed.

Ed.: F.A. Alekseyev, Professor, Doctor of Geological and Mineralogical Sciences;
Exec. Ed.: A.P. Kalantarov; Tech. Ed.: A.S. Polosina.

PURPOSE: This book is intended for petroleum geologists, geophysicists and scientists engaged in geological research who are interested in radiometric techniques of petroleum prospecting.

COVERAGE: The collection contains 28 articles compiled by staff members and aspirants of the Laboratory for Nuclear Geology and Geophysics of the Petroleum Institute (now the Institute for Geology and Mineral Fuel Processing) of the Academy of Sciences USSR, the Laboratory for Radioactive Logging of the All-Union Scientific Research Institute of Geophysics, and the heads of councils for planning research projects for petroleum enterprises. The articles treat new material on radiometric surveying in petroleum geology, describe radio-

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Nuclear Geophysics; (Cont.)

SOV/3600

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Nuclear Geophysics; (Cont.)

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Alekseyev, F.A., S.A. Denisik, V.V. Miller, and V.P. Odinokov. The Use of Gamma-Ray Spectrometry to Investigate Bore Holes

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Guberman, Sh. A. Gamma-Ray Spectroscopy of Natural and Artificial Radioactive Isotopes Under Bore Hole Conditions

146

Odinokov, V.P., S.A. Denisik, and Yu. S. Shimelevich. Determination of the Point of Water-Petroleum Contact From Data Obtained Using the Neutron Gamma Method With Scintillation Counters (NGM-IS) and the Neutron-Neutron Method Based on Thermal Neutrons (NNM-T)

154

Blankov, Ye.B. Separation of the Radiation of Different Elements During the Investigation of Petroleum-Survey Bore Holes by the Method of Induced Radioactivity of Sodium and Chlorine

170

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Zolotov, A.V. Distribution of Slow Neutrons in a Homogeneous Medium

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Nuclear Geophysics; (Cont.) SOV/3600

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Nuclear Geophysics; (Cont.)

SOV/3600

Yerozolimskiy, B.G., L.N. Bondarenko, L.R. Voytsik, Yu. S. Shimelevich,
and L.I. Yudin. A Small-Sized Seamless Neutron Tube

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Voytsik, L.R., and B.G. Yerozolimskiy. A Laboratory Neutron Generator

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AVAILABLE: Library of Congress

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TM/mfd
5-24-60

SOVIEC VYDANIE YU-5

PHASE I BOOK EXPLOITATION NOV/5592

Vsesoyuznoye soveshchaniye po vnedreniyu radioaktivnykh izotopov i yadernykh izlucheniy v narodnom khozyaystve SSSR. Riga, 1960.

Radioaktivnyye izotopy i yadernyye izlucheniya v narodnom khozyaystve SSSR; trudy Vsesoyuznogo soveshchaniya 12 - 16 aprelya 1960 g. g. Riga, v 4 tomakh. t. 4: Poiski, razvedka i razrabotka poleznykh iskopayemykh (Radioactive Isotopes and Nuclear Radiation in the National Economy of the USSR; Transactions on the Symposium Held in Riga, April 12 - 16, 1960; in 4 volumes. v. 4: Prospecting, Surveying, and Mining of Mineral Deposits) Moscow, Gostoptekhizdat, 1961. 284 p. 3,640 copies printed.

Sponsoring Agency: Gosudarstvennyy nauchno-tehnicheskiy komitet Soveta Ministrov SSSR. Gosudarstvemnyy komitet Soveta Ministrov SSSR po ispol'zovaniyu atomnoy energii

Eds. (Title page): N. A. Petrov, L. I. Petrenko, and P. S. Savitskiy; ed. of this volume: M. A. Speranskiy; Scientific ed.: M. A. Speranskiy; Executive Eds.: N. N. Kuz'mina and A. G. Ionel';

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Radiactive Isotopes and Nuclear (Cont.)

SOV/5592

Tech. Ed.: A. S. Polosina.

PURPOSE : The book is intended for engineers and technicians dealing with the problems involved in the application of radioactive isotopes and nuclear radiation.

COVERAGE: This collection of 39 articles is Vol. 4 of the Transactions of the All-Union Conference of the Introduction of Radioactive Isotopes and Nuclear Reactions in the National Economy of the USSR. The Conference was called by the Gosudarstvennyy nauchno-tehnicheskiy komitet Sovet Ministrov SSSR (State Scientific-Technical Committee of the Council of Ministers of the USSR), Academy of Sciences USSR, Gosplan SSSR (State Planning Committee of the Council of Ministers of the USSR), Gosudarstvennyy Komitet Soveta Ministrov SSSR po avtomatizatsii i mashinostroyeniyu (State Committee of the Council of Ministers of the USSR for Automation and Machine Building), and the Council of Ministers of the Latvian SSR. The reports summarized in this publication deal with the advantages, prospects, and

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Radioactive Isotopes and Nuclear (Cont.)

SOV/5592

development of radioactive methods used in prospecting, surveying, and mining of ores. Individual reports present the results of the latest scientific research on the development and improvement of the theory, methodology, and technology of radiometric investigations. Application of radioactive methods in the field of engineering geology, hydrology, and the control of ore enrichment processes is analyzed. No personalities are mentioned. There are no references.

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SHIMLEVICH, Yu. S.

Defense of Dissertations, Jan-Jul 1957, Section of Technical Sci.
Vest. AN SSSR, 1957, Vol. 27, No. 12, pp 122-123

At the Petroleum Institute.

Applications for the degree of Cand. of Tech. Sci.:

AMIYAN, V. A. - Putting into operation, utilization and repair of fountain wells.

GRIGOR'YEV, V. I. - The Prevention of the Arbitrary bending of Opening Shafts
in Turbine Drilling.

SERGEYEVICH, V. I. - Investigation of the Viscosity and the Density of Deposit
Water of Mineral Oil Deposits and the Binary Electrolyte Solutions in Dependence on
Temperature and Pressure.

SHIMLEVICH, Yu. S. - Activation Analysis of Rocks under the Conditions of
Drill Holes and their Utilization for the Determination of the Position of Mineral oil
and Water-containing Deposits.

Application for the degree of Candidate of Chemical Sci: N. Ya. CHERNYAK - The
kinetics and the Mechanism of the Liquid-phase oxidation of dibenzyl and
"dicyclohexyl ethane.

S/169/61/000/011/027/065
D228/D304

AUTHORS: Alekseyev, F.A., Yerzolimskiy, B.G., Bespalov, D.P., Bendarenko, L.N., Boytsik, I.P., Popov, M.V., Khastov, A.I., Romanovskiy, V.P., Shimelevich, Yu.S. Shkol'nikov, A.S., and Yudin, L.I.

TITLE: The result of applying neutron impulse methods and apparatus for investigating borehole logs

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 11, 1961, 34, abstract 11A304 (V sb. Yadern. geofiz. pri poiskakh polezn. iskopayemykh, M., Gostoptekhizdat, 1960, 3-20)

TEXT: A borehole impulse generator of neutrons is described together with the method of impulse-neutron neutron-logging (ИНЛ). A description is given for the electronic layout of the borehole generator of neutrons and the surface apparatus for impulse neutron logging. During laboratory tests of the generator a stable mean neutron yield of $\sim 2 \times 10^7$ neutr./sec. was obtained at 100 kv. of accelerating voltage in the tube. The impulse duration amounted to 100

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D228/D3C4

The result of applying neutron ...

spec, the transmission frequency being 400 c/s. The neutron generator was used in the commercial testing of INNL. INNL readings against oil-bearing beds exceed by 10 times those for aquiferous beds containing mineralized water, at a delay time of 1000 microseconds. Certain limitations of thermal impulse neutron-logging in different oil- and water-saturated beds are indicated, and the requirements for the apparatus are stated. Further prospects are indicated for the application of impulse neutron generators. [Abstractor's note: Complete translation]. 

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18. Xalqaroja konferentsiya po mirnomu ispol'zovaniyu atomnoy energii, Tashkent, 1959.

Printed (2nd) edition of the Tashkent Conference on the Peaceful Use of Atomic Energy) v. 2. Tashkent, Izd-vo AN UzSSR, 1960.
160 p. Errata slip inserted. 1,500 copies printed.

Submitting Agency: Akademiya nauk Uzbekskoy SSR.

Editor-in-Chief: S. V. Starodubtsev, Academician, Academy of Sciences Uzbek SSR. Editorial Board: A. A. Abduvalayev, Candidate of Physics and Mathematics; D. N. Abduvalyev, Doctor of Medical Sciences; U. A. Arifov, Academician, Academy of Sciences Uzbek SSR; A. A. Berodulina, Candidate of Biological Sciences; V. N. Ivashev; G. S. Ikratova; A. Ye. Miv; Ye. N. Piltanov, Candidate of Physics and Mathematics; A. I. Nikolaev, Candidate of Medical Sciences; D. Nishanov, Candidate of Chemical Sciences; A. S. Sadykov, Corresponding Member, Academy of Sciences Uzbek SSR; Yu. N. Talanin,

DATE 1/20

Transactions of the Tashkent (Cont.)

SC7/5410

Candidate of Physics and Mathematics; Ya. Kh. Turakulov, Doctor of Physical Sciences. Ed.: R. I. Khamidov; Tech. Ed.: A. G. Mamedjanova.

PURPOSE : The publication is intended for scientific workers and specialists employed in enterprises where radioactive isotopes and nuclear radiation are used for research in chemical, geological, and technological fields.

CONTENTS. This collection of 153 articles represents the second volume of the Transactions of the Tashkent Conference on the Industrial Uses of Atomic Energy. The individual articles deal with a wide range of problems in the field of nuclear radiation, including, production and chemical analysis of radioactive isotopes; kinetic investigation of the kinetics of chemical reactions by means of isotopes; application of spectral analysis for the manufacturing of radioactive preparations; radioactive methods for determining the content of elements in the rocks; and an analysis of methods for obtaining pure substances. Certain

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SOV/5410

Instruments used, such as automatic regulators, flowmeters, level gauges, and high-sensitivity gamma-relays, are described. No personnelities are mentioned. References follow individual articles.

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RADIOACTIVE ISOTOPES AND NUCLEAR RADIATION
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Lobanov, Ye. M. [Institut yadernoy fiziki USSR - Institute of Nuclear Physics AS USSR]. Application of Radioactive Isotopes and Nuclear Radiation in Uzbekistan

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Tulksar, I. M., and V. A. Yanushkovskiy [Institut fiziki AN Latv SSR - Institute of Physics AS Latvian SSR]. Problems of the Application of Automatic-Control Apparatus Based on the Use of Radioactive Isotopes

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ODINOKOV, V.P.; PUZHARADZE, L.A.; SHIMELEVICH, Yu.S.

Neutron-neutron pulse method for investigating wells and results of
its use in the Balakhan'-Sabunchi-Rayany field. Azerb. neft. khoz.
(MIRA 13:12)
39 no.11:9-13 N '60.
(Apsheron Peninsula—Oil well logging. Radiation)

SHIMELEVICH, YU.S.

S/169/62/000/005/041/033
D228/D307

AUTHORS: Aleksayev, P. A., Gulin, Yu. A., Dakhnov, V. N., Fic-
rov, G. N. and Shimelevich, Yu. S.

TITLE: Use of methods of atomic physics in seeking and ex-
ploring oil and gas

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 5, 1962, 39, ab-
stract 5A204 (V. so. 5-y Mezhdunar. naft. kongress,
v.t. M., Gosoptekhnizdat, 1961, 325-338)

TEXT: The results of the application of radioactive methods in the
oil and gas industry are reviewed. The accuracy of estimating the
rock porosity from radioactivity logging data depends on a number
of causes of a geological and a tectonic character: The salinity of
the stratal waters and the drilling solution, the chemical compo-
sition of the rocks, borehole - design, the position of the instru-
ment in it, etc. The depth potential of all radioactivity logging
methods is very small: In neutron-gamma logging it comprises 10 -
30 cm, while in gamma-gamma logging it is 5 - 8 cm. It is noted

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S/169/62/000/005/041/093
D228/D307

Use of methods ...

In porosity measurements the gamma-gamma logging and the neutron-neutron logging methods are more sensitive than neutron-gamma logging, especially in the region of high porosity values. Side by side with the advantages of the methods of neutron-neutron logging and gamma-gamma logging against neutron-gamma logging (the absence of any influence of the mineralization of stratal waters and drilling solutions on the readings, the high sensitivity) they have an essential defect -- to wit, the strong influence of the borehole wall on the measurements results. The reliability of the results of porosity determinations rises considerably if a complex, combined, neutron-neutron and gamma-gamma logging, is used. A complex device, whose design is given and which ensures the simultaneous recording of neutron-neutron and gamma-gamma logging diagrams, has recently been developed; it is intended for obtaining data about the rock porosity in unstrengthened wells. The movement both about the oil-water and the gas-liquid contact zone during the exploitation of oil and gas fields can be successfully followed by means of radiometric methods. The most sensitive method of separating sand and carbonate beds into the oil- and water-bearing parts at

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Use of methods ...

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D226/3307

the present time is the induced activity technique, whose survey depth amounts to 15 - 30 cm. The methods of neutron-gamma logging and neutron-neutron logging are less sensitive; they are being used in fields with sandy collectors, saturated with highly mineralized stratal waters containing more than 150 g/l of NaCl. At the present time it has become possible to determine quite rapidly and accurately the content of Al, Na, Cl, Si, Ca, Mg, Fe, Cu, Sr, Cr, U, Th, Nd, Y, and other elements in rock samples by radioactive methods, using powerful neutron sources. Radioactive isotopes are being applied in oil-industrial practice to control a well's technical state, to fracture beds hydraulically, and to solve other oil-geochemical problems in petroleum extraction. Research into the possibility of applying radiometry for direct oil and gas searches is cited. It is established that in the vicinity of oil fields radionmetric anomalies are a particular case of the general geochemical anomaly indigenous to the latter. Hence the radionmetric method should be considered as a composite part of the radio-geochemical procedure for seeking oil and gas fields. [Abstractor's note: Complete translation.]

Card 3/3

LETPUNAYA, D. I., BLAGAVA, N. I., CHURKOVICH, Yu. S., DUROV, D. M., and LAYTOV, K. L.

"Application of Po + Th and AC + Be neutron sources in well-logging."

report to be submitted for the Conference on Nuclear Geophysics,
Krakow, Poland, 24-30 Sept 1962.

"APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R001549510012-3

ALFRED W. FALKEN, PH.D., D.V.P., C.I.T., T.R.D.
EMERITUS PROFESSOR OF PHYSICS, D.V.P.

"The Neutron-neutron Pulse Width Effect."
Report submitted for the Conference on Nuclear Geophysics,
Krakow, Poland, 24-30 Sept 1962.

APPROVED FOR RELEASE: 08/23/2000

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FILIPPOV, Yevgeniy Mikhaylovich. Prinimali uchastiye: GUBERMAN, SH.A.; LEYPUNSKAYA, D.I., nauchnyy sotr., red.; BESPALOV, D.F., nauchnyy sotr., red.; SREERODOL'SKIY, D.M., nauchnyy sotr., red.; SHIMELEVICH, Yu.S., nauchnyy sotr., red.; TEMKIN, A.Ya., red.; MEDER, V.M., red. izd-va; PRUSAKOVA, T.A., tekhn. red.; MAKUNI, Ye.V., tekhn. red.

[Applied nuclear geophysics; use of sources of nuclear radiation in geology and geophysics] Prikladnaia iadernaia geofizika; pri-menenie istochnikov iadernogo izlucheniia v geologii i geofizike. Pod obshchei red. L.S. Polaka. Moskva, Izd-vo Akad. nauk SSSR, 1962. 579 p.

1. Chlen-korrespondent Akademiya nauk SSSR (for Filippov). 2. Institut geologii i razrabotki goryuchikh iskopayemykh (for Ley-puskaya, Bespalov, Srebrodol'skiy, Shimelevich). 3. Institut neftekhimicheskogo sinteza Akademii nauk SSSR (for Temkin).
(Nuclear geophysics)

KAIPOV, R.L.; ZIV, D.M.; LEYPUNSKAYA, D.I.; SAVOSIN, S.I.; FEDOROV, V.V.;
PRADKIN, G.M.; SHIMELEVICH, Yu.S.; BASIN, Ya.N.; KUKHARENKO, N.K.;
SHESTAKOV, B.I.

Use of Ac - Be neutron sources in industrial geophysics. Atom energ.
(MIRA 17:3)
16 no.3:269-270 Mr '64.

SHIMEL'FENIG, S., kand..tekhn.nauk (Saratov); SMIRNOV, V., kand.tekhn.nauk
(Saratov)

Standards for the consumption of gas in the home in rural areas. Zhil.
-kom. knaz. 12 no.10:27 Ja '62,
(Gas as fuel) (MIA 16:2)

SHIMEL'FENIG, S.A., kandidat tekhnicheskikh nauk.

Efficient tracing of access roads. Avt.dor. 20 no.9(179):25 S '57.
(MIRA 10:10)

(Roads--Design)

SHIMEL'FENIG, S.A., kand. tekhn. nauk

Traffic capacity and performance of automobiles on highways.
Avt. dor. 22 no.10:31 O '59. (MIRA 13:2)
(Transportation, Automotive)

SHIMEL'FENIG, S.A., kand.tekhn.nauk

Methods for comparing highway variants in conducting economic
investigations. Avt.dor. 23 no.6:25-26 Je '60.
(MIRA 13:6)

(Roads--Estimates and costs)