

BUZNIK, V. M.; BANDURA, V. N.

"The influence of roughness elementson heat transfer and aerodynamic drag of a heat-transfer surface."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

Nikolayevskiy Ship Building Inst.

1. 38927-66 EWT(1) WW

ACC. NR: AP6016912

(N)

SOURCE CODE: UR/0143/66/000/001/0084/0086

AUTHOR: Buznik, V. M. (Doctor of technical sciences, Professor); Artemov, G. A. (Engineer); Bandura, V. N. (Engineer); Kardashev, Yu. D. (Engineer); Fedorovskiy, A. M. (Engineer)

ORG: Nikolayevskiy Ship-Building Institute im. Admiral S. O. Makarov (Nikolayevskiy korablestroitel'nyy institut)

57  
B

TITLE: Heat transfer from a flat disc rotating in an unlimited space

SOURCE: IVUZ. Energetika, no. 1, 1966, 84-86

TOPIC TAGS: heat transfer, turbulent heat transfer, heat transfer coefficient, ROTATION

ABSTRACT: To accumulate experimental data and to study the heat transfer at a constant thermal flux, the authors experimentally investigate the heat transfer from a rotating disc to moving air at a constant value of the specific heat flux at the surface. The disc-calorimeter was heated by an electrical heater placed inside it. The temperature of the disc surface was measured by copper-constantan thermocouples. The hot junctions of the thermocouples were embedded on the outside surface of the disc at various distances from the axis of rotation. The experimental device is shown schematically. The results of the experiments were compared with the data of other authors investigating heat transfer from a rotating

UDC: 536.244

1/2

ACC NR: AT7002848

(N)

SOURCE CODE: UR/3239/66/000/003/0003/0010

AUTHOR: Buznik, V. M.; Artemov, G. A.; Bandura, V. N.

ORG: none

TITLE: Investigation of heat transfer from a shielded rotating disk

SOURCE: Nikolayev. Korablestroitel'nyy institut. Sudostroyeniye i morskoye sooruzheniya, no. 3, 1966. Sudovyye energeticheskiye ustanovki (Ship power equipment), 3-10

TOPIC TAGS: heat transfer, heat transfer coefficient, gas turbine, turbine disk, turbine cooling

ABSTRACT: Heat transfer from the shielded rotating disk of a gas turbine has been theoretically and experimentally investigated. The temperature fields of the disk, which are characterized by individual heat-transfer coefficients on its surface, were determined from the relative momentum of the gas-core flow along the disk's surface and its radial rate of revolution. On the basis of an integral relationship for a flow between rotating disks (given by Karman), and assuming an analogy with flow conditions in a tube (according to J. Vannerus) and the linearity of a relative flow rate up to 40 m/sec, an expression for determining the gas-core flow rate along the disk's surface is derived. Calculated gas-flow rates for 5 disk radii show a linear relationship for which a simplified characteristic is given. The final formula for determining the local heat transfer contains a Reynolds-number approximation; it has Card 1/2

ACC NR: AT7002848

been experimentally proved at 300--3000 rpm by a described disk-calorimeter. Curves are presented for the cooling-air motion from the center to the periphery of the disk and vice versa which show a good correlation between the theoretical formula and the experiment. The investigations determined the dependence of local heat transfer coefficients along the disk's radius on both the air consumption and the disk's rpm. Orig. art. has: 4 figures and 24 formulas.

SUB CODE: 21,20 / SUBM DATE: none/ ORIG REF: 002/ OTH REF: 002

Card 2/2

ACC NR: AT7002861

(N)

SOURCE CODE: UR/3239/66/000/003/0124/0126

AUTHOR: Buznik, V. M.; Artemov, G. A.; Bandura, V. N.; Fedorovskiy, A. M.; Kardashev, Yu. D.

ORG: none

TITLE: Method of measuring flow rates in rotating passages of marine turbines by means of metric pressure gages

SOURCE: Nikolayev. Korablestroitel'nyy institut. Sudostroyeniye i morskaya sooruzheniya, no. 3, 1966. Sudovyye energeticheskiye ustanovki (Ship power equipment), 124-126

TOPIC TAGS: flow rate, flow velocity, gas turbine, turbine cooling, gas turbine engine, marine engine

ABSTRACT: A method for cooling the parts of marine gas turbines is based on various experimental investigations, including studies of gas and cooling-air flow in rotating passages. An arrangement is described for determining the flow characteristics (flow rate and pressure) in the clearance between a gas-turbine disk and a screen rotating along with it, by which a pressure-sensitive directional probe and a traversing micro-pitot probe is used. The probes are shown and their operation is described. By inserting the directional probe into the disk-screen clearance through holes located in the screen at several distances from the center, the flow rate in the flow core can

Card 1/2

UDC: none

ACC NR: AT7002861

be measured. The pressure field across the section of the clearance is measured with the pitot tube. The arrangement for pressure transmission consists of a hollow shaft rotating inside the stator and provided with measuring chambers hermetically sealed by water chambers. The described method is reliable in operation and improves the accuracy of flow rate measurements. Orig. art. has: 3 figures.

SUB CODE: 13, 21/ SUBM DATE: none/ ORIG REF: 001/

Card 2/2

ACC NR: AP6024642

SOURCE CODE: UR/0170/66/011/001/0105/0108

AUTHOR: Buznik, V. M.; Artemov, G. A.; Bandura, V. N.; Fedorovskiy, A. M.

ORG: Shipbuilding Institute im. Admiral S. O. Makarov, Nikolayev (Korablestroitel'nyy institut)

TITLE: Heat transfer of plate in turbulent region with constant superficial heat flux and isothermic wall

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 11, no. 1, 1966, 105-108

TOPIC TAGS: turbulent flow, heat transfer, heat transfer theory, isothermal flow

ABSTRACT: Numerous experimental studies of heat transfer are being conducted under conditions of either constant superficial heat flux or constant wall temperature. This raises the question: in what cases can data obtained under different experimental conditions be compared with each other. It has been shown experimentally that under turbulent flow conditions the heat transfer of tubes at constant wall temperature and heat flux are comparable, i.e., identical. The present article theoretically and experimentally gives a comparative evaluation of local heat transfer of a plate in turbulent air flow with wall temperature and surface heat flux in the turbulent region both constant. Results of processing the experimental data under all conditions are given as the test relationship  $Nu_x = A Re_x^{0.8}$ . ( $Nu_x = \alpha x / \lambda$  and  $Re_x = w_\infty x / \nu$  are local

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UDC: 536.25

ACC NR: AP6024642

values of Nusselt and Reynolds numbers;  $w$  - distance from beginning of plate heating to instantaneous section where heat transfer coefficient takes on value  $\alpha$ ;  $w_{\infty}$  - rate of creeping flow;  $K_{pc}$  - plate-calorimeter heat transfer.) Orig. art. has: 19 formulas and 1 figure.

SUB CODE: 20/ SUBM DATE: 10Feb66/ ORIG REF: 004/ OTH REF: 001

Card 2/2



L 40108-66 EWP(e)/EWT(m)/T/EWP(t)/ETI IJP(c) WH/WW/JD/JG

ACC NR: AR6020536

SOURCE CODE: UR/0031/66/CCC/003/3044/2044

AUTHOR: Baranov, B. V.; Grigor'yeva, V. S.; Kradinova, L. V.; Prochukhan, V. D. 111TITLE: Ternary chalcogenides<sup>4</sup> of type  $A^{II}B_2III_4C_4IV$  B

SOURCE: Ref zh. Khim, Part I, Abs. 3B321

REF SOURCE: Sb. Fizika. Dokl. k XXIII Nauchn. konferentsii Leningr. inzh.-stroit. in-ta. L., 1965, 48-49

TOPIC TAGS: zinc compound, gallium compound, cadmium compound, indium compound, sulfide, crystallization

ABSTRACT: The possibility of obtaining crystals of ternary chalcogenides of type  $A^{II}B_2III_4C_4VI$  (I) having a definite size and habit was investigated. Methods of gas transport reactions and recrystallization from solutions were employed. Coarse crystals of  $ZnGa_2S_4$  and  $CdIn_2S_4$  were obtained. The influence of group VI elements on the transport and shape of the crystals was determined; it was found that the addition of Te impurities leads to a more perfect faceting and to coarser crystals. It is shown that I can be recrystallized from salt melts containing the same component B. S. Rykova. [Translation of abstract] 16

SUB CODE: 07

Card 1/1 00

*BANDURA V YE*  
BANDURA, V. Ye.

The SI-1 stroboscopic recorder. Priborostroenie no.10:71-3 of cover  
0 '57. (MIRA 10:11)  
(Stroboscopy) (Electronic instruments)

~~BANDURA, V.Ye.~~

Universal instrument for the measurement of h-parameters of  
junction triodes. Poluprov.prib. 1 ikh prim. no.3:96-103  
'58. (MIRA 12:4)

(Transistors--Measurement)

L 27842-65 EWT(a)/EWA(b) RM

ACCESSION NR: AP5000094

S/0205/64/004/006/0865/0869 24

AUTHOR: Bandura, Z. I.; Voronina, Ye. N.; Foslovina, A. S.; Goryukhova, N. V.; Saizhanik, F. E.

TITLE: Investigation of the combined action of chemical and ultraviolet mutagens on the formation of reversible mutations in *E. coli*

SOURCE: Radiobiologiya, v. 4, no. 6, 1964, 865-869

TOPIC TAGS: E. coli 113-3 culture, ultraviolet irradiation, chemical mutagen, formaldehyde, hydroxylamine, desoxyribonucleic acid, nucleotide, mutation

ABSTRACT: Literature sources indicate that under the effect of ultraviolet irradiation certain chemical mutagens can change the mutability of the same DNA locus differently depending on its nucleotide composition. In the present study the combined mutagenic effects of ultraviolet irradiation and the chemical mutagens, hydroxylamine and formaldehyde, were investigated in cultures of *E. coli* 113-3, an auxotrophic mutant deficient in 113-3 cultures with the addition of formaldehyde ( $3 \cdot 10^{-4}$  M

Card 2/3



L 27842-65

ACCESSION NR: AP5000094

ASSOCIATION: Institut tsitologičeskij i genetičeskij SSSR  
(Institute of cytology and genetics SSSR)

SUBMITTED: 07Sep63

ENGL: 00

SOV CODE: 00

NR REF SOV: 010

OTHER: 008

Card 3/3

2(1)

PHASE I BOOK EXPLOITATION SOV/2761

Bandurin, Mikhail Kuz'mich, and Lev Grigor'yevich Rukin

Sbornik zadach po teorii vzryvchatykh veshchestv (Collection of Problems on the Theory of Explosives) Moscow, Oborongiz, 1959. 187 p. Errata slip inserted. 5,000 copies printed.

Reviewers: A. G. Gorst, Doctor of Chemical Sciences, Professor, and A.I. Gol'binder, Candidate of Technical Sciences; Ed. of Publishing House: E.A. Shekhtman; Tech. Ed.: V. P. Rozhin; Managing Ed.: A.I. Sokolov, Engineer.

PURPOSE: This manual is intended for students and technical personnel studying the theory of explosives.

COVERAGE: This book contains problems which are to be used in conjunction with the text, Teoriya vzryvchatykh veshchestv (Theory of Explosives). Each chapter is preceded by a brief introduction containing the required basic concepts and an analysis of solutions of typical problems. At the end of each chapter there

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## Collection of Problems on the Theory (Cont.)

SOV/2761

are 10 to 15 problems for independent work. A separate chapter includes "mixed" problems which refer to all chapters of the text. The Supplements include tables necessary for solving the problems. The authors thank Professor A.G. Gorst. There are 7 Soviet references.

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1-14-60

BANDURIN, A. (g.Izhevsk); CHEREZOV, V. (g.Izhevsk); NIKITIN, V. (g.Yaroslavl');  
YURTSEV, V.; PERMYAKOV, M.V., inzh.; KOKORIN, V.K., inzh.;  
TASHKINOV, V., inzh.-konstruktor; IVLIYEV, V., tekhnik-stroitel'  
(pos.Ashukino Moskovskoy obl.); DUBROVIN, B., g.Votkinsk);  
GUSAROV, L. (g.Aleksin); SHCHETININ, N.

Advertising board. Izobr. i rats. no. 5:60-61 My '61.

(MIRA 14:5)

1. Glavnyy inzh.fabriki "Iskra", g. Blagoveshchensk, Amurskaya obl. (for Yurtsev).
2. Zavod imeni Sergo Ordzhonikidze, konstruktorskoye byuro, g. Chelyabinsk (for Parmyakov, Kokorin).
3. Zamestitel' glavnogo inzh.Zyryanovskogo svitsovogo kombinata (for Shchetinin).  
(Technological innovations)

LASHKOV, K.V., podpolkovnik meditsinskoy sluzhby; KAPUTIN, V.I., mayor meditsinskoy sluzhby; FLORIYA, A.A., starshiy leytenant meditsinskoy sluzhby; BANDURIN, V.I., kapitan meditsinskoy sluzhby

Method of keeping medical records at mobile medical stations.  
Voen.-med.zhur. no.6:15-16 Je '59. (MIRA 12:9)  
(MEDICINE, MILITARY AND NAVAL  
disposal of documents at mobile med. stations  
(Rus))

BANDURIN, V.V.; YERMILOV, A.A.

In the Technical Council of the State Design and Planning Institute  
for Heavy Electric Industry. Prom.energ. 17 no.10:47 0 '62.  
(MIRA 15:9)

(Lightning protection)

ZAFRANSKIY, Yu.N.; BANDURINA, K.V.; CHURIKOVA, I.A.; Prinizala uchastiye:  
BAZANOVA, N.I.

Vapor - liquid equilibrium of the system isopropylbenzene -  $\alpha$ -methyl-  
styrene. Zhur.prikl.khim. 37 no.1:230-231 Ja '64. (MIRA 17:2)

1. Krasnoyarskiy zavod sinteticheskogo kauchuka.



BANDERINA, K.V.

Oxidation of *o*-ethylstyrene during storage. Mik. prom. 41  
no. 4:87 Ap '65. (MIRA 18:3)

L. Krasnoyarskiy zavod sinteticheskogo kauchuka.

GATSURA, V.V.; BANDURINA, L.A.; VANCHAKOVA, S.B.

Effect of glycosides of the strophanthin group on blood coagulation. Farm. i toks. 25 no.5:584-587 S-C '62 (MIRA 18:1)

1. Kafedra farmakologii (zav. - dotsent V.V.Gatsura) Kemerovskogo meditsinskogo instituta.

GATSURA, V.V.; BANDURINA, L.A.

Analysis of the effect of strophanthinlike glycosides on collateral  
blood circulation in the myocardium. Biul. eksp. biol. i med. 55  
no.3:52-55 Mr '63. (MIRA 18:2)

1. Iz kafedry farmakologii (zav. - dotsent V.V. Gatsura) Kemerov-  
skogo meditsinskogo instituta. Submitted April 28, 1962.

GATSURA, V.V.; BANDURINA, L.A.

Methodology for the analysis of the effect of drugs on collateral  
myocardial circulation. Farm. i toks. 27 no.1:100-102 Ja-F '64.  
(MIRA 17:11)

1. Kafedra farmakologii (zav. - dotsent V.V. Gatsura) Kemerovskogo  
meditsinskogo instituta.

GATSURA, V.V.; BANDURINA, L.A.

Changes in the sensitivity to strophanthin under the effect of substances influencing the efferent innervation of the heart. Farm. i toks. 28 no.1:46-48 Ja-F '65. (MIRA 18:12)

1. Kafedra farmakologii (zav. - doktor med.nauk V.V.Gatsura) Kemerovskogo meditsinskogo instituta. Submitted August 19, 1963.

BORISOV, S.N.; KARLIN, A.V.; Prinimali uchastiye: MALYSHEVA, I.A.;  
BANDURINA, R.A.

Organic silicone elastomers containing diphenyl siloxan links  
in the basic chain. Kauch.i rez. 21 no.12:3-5 D '62.  
(MIRA 16:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskogo  
kauchuka im. S.V.Lebedeva. (Elastomers) (Siloxanes)

KRISHTUL, F.B.; MALCHENKO, A.L.; GROMOVICH, V.F.; RODIONOVA, Ye.A.;  
GOLODOVSKAYA, A.I.; BANDURINA, Ye.Ya.

Production of yeast feeds from the vinasse of distilleries  
processing sugar beet molasses. Trudy TSNIISP no.12:51-63  
'62. (MIRA 17:3)

GNILORYBOV, I.V., kandidat meditsinskikh nauk; PIKUS, Z., kandidat  
meditsinskikh nauk; BANDURISTYY, N.V., kandidat meditsinskikh  
nauk; OSTREYKO, V.Ye.

Expert medical determination of working capacity in osteoarticular  
tuberculosis. Ortop., travm. i protes. 17 no.3:36-41 My-Je '56.  
(MLRA 9:12)

1. Iz Denpropetrovskogo filiala Tsentral'nogo nauchno-issledovatel'-  
skogo instituta ekspertizy trudosposobnosti i organizatsii truda  
invalidov (dir. - prof. A.P.Kotov)

(TUBERCULOSIS, OSTEOARTICULAR,  
working capacity determ. (Rus))

(WORK,  
capacity determ. in osteoarticular tuberc. (Rus))



137-58-6-13958

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 393 (USSR)

AUTHOR: Banduristyy, N.V.

TITLE: The Prevention of Permanent Disability After an Occupational Injury at Metallurgical Plants and the Creation of Employment for the Handicapped (Preduprezhdeniye stoykoy utraty trudosposobnosti posle trudovogo uvech'ya na metallurgicheskikh zavodakh i trudoustroystvo invalidov)

PERIODICAL: Sb. nauchn. tr. Dnepropetr. med. in-t, 1957, Nr 3, pp 14-16

ABSTRACT: On the basis of data resulting from an investigation of a group of permanently disabled workers it was deduced that in most cases injury occurred among workers of auxiliary professions not representative of the metallurgical industry. Lowering of working ability of workers under observation was mostly due to injuries incurred while carrying and pulling heavy loads, as a result of cave-ins and falling of objects, falls of workers from heights, etc., resulting from insufficient supervision, non-observation of safety measures, poor instruction, and inadequate training of the workers.

Card 1/1

1. Industrial plants--USSR 2. Employee relations

Ye.L.

BANDURKA, Mieczyslaw

Plans for the foundation of the Politechnical College in Lodz.  
Przegl wlokien 16 no.3:181-183 Mr '62.

1. Archiwum Panstwowe, Lodz.

BANDURKA, Mieczyslaw

Archives of the Leinweber family; pharmacists and physicians  
of the city of Lodz. Farmacja Pol. 19 no.19/20:416-417, 1963

1. Katedra Historii Farmacji, Akademia Medyczna, Lodz. Kie-  
rownik: prof.dr. R. Rembielinski.

\*

BANDURKIN, G.A.

Behavior of rare earth elements in a fluorine-bearing environment.  
Geokhimiia no.2:143-149 '61. (MIRA 3413)

1. Institut geokhimi Sibirskogo otdeleniya AN SSSR.  
(Rare earth metals) (Flourine)

ACCESSION NR: AF30001464

S/0007/63/000/005/0493/0499

AUTHOR: Pachadzhancv, D. N.; Bandurkin, G. A.; Migdisov, A. A.; Girin, Yu. P.

TITLE: Some data on the geochemistry of manganese concretions in the Indian Ocean

SOURCE: Geokhimiya, no. 5, 1963, 493-499

TOPIC TAGS: concretions, Mn, Nb, Ta, Th, V, Co, Ni, Ce, Fe, rare earths, red clay, diagenesis, Indian Ocean

ABSTRACT: Two concretions and samples of red clay, collected by L. M. Khitrov from depths below 5000 m in the Indian Ocean, were used in this study. A distinct difference in composition was found between inner and outer zones of the concretions, the inner zone being richer in silica and alumina and poorer in iron, manganese, and the rare elements (Nb, Ta, V, Th, and rare earths). Red clay has a composition nearer that of the inner zone. The authors conclude that the composition of the inner zone suggests volcanic origin and that correlation between oxidation-reduction potentials and concentrations of Mn, Co, Ni, Ce, V, and Fe in the concretions points to the importance of these potentials in the formation of manganese concretions. "In conclusion, the authors consider it their pleasant duty to express gratitude to L. M. Khitrov for supplying the material for study,

Card 1/2

ACCESSION NR: AP30001164

to all our friends for their assistance in completing the work, and to A. B. Ronov for his review of the work and for a number of valuable comments." Orig. art. has: 1 figure, 2 formulas, and 5 tables.

ASSOCIATION: Institut geokhimi i analiticheskoy khimii im. V. I. Vernadskogo AN SSSR, Moscow (Institute of Geochemistry and Analytical Chemistry, AN SSSR)

SUBMITTED: 09Jun62

DATE ACQ: 05Jun63

ENCL: 00

SUB CODE: 00

NO REF SOV: 015

OTHER: 014

Card 2/2

BANDURKIN, G.A.

Relationship between the structural and catalytic properties  
of rare-earth compounds. Izv. AN SSSR. Neorg. mat. 1 no.9:  
1569-1572 S '65. (MIRA 18:11)

1. Institut obshchey i neorganicheskoy khimii imeni Kurnakova  
AN SSSR.

BANDURKO, Grigoriy Yaremyevich [Bandurko, H.E.], kand. ekonom. nauk;  
DEMIDYUK, V.F., red.; LEVCHENKO, O.K., tekhn. red.

[Reduction of the workday is the great achievement of  
socialism] Skorochnnia robochoho dnia - velyke zavoiuvan-  
nia sotsializmu. Kyiv, Derzhpolitvydav URSR, 1962. 41 p.  
(MIRA 15:11)

1. Zaveduyushchiy kafedroy politicheskoy ekonomii Zaporozhskogo  
mashinostroitel'nogo instituta (for Bandurko).  
(Ukraine--Hours of labor)



DULEVICH, Vladimir Yevgen'yevich; KOROSTELEV, A.A.; MEL'NIK, Yu.A.;  
BURENIN, N.I.; PETROV, A.V.; VERETYAGIN, A.A.; BANDURKO,  
N.G.; IVANUSHKO, N.D., red.

[Theoretical principles of radar] Teoreticheskie osnovy radiolokatsii. [By] V.E.Dulevich i dr. Moskva, "Sovetskoe radio," 1964. 731 p.  
(MIRA 17:8)

L 51052-65 EEO-2/EWT(1)/EEC(t)/EED-2 Pa-4/Pn-4/Pac-4/Pi-4/Pj-4/Pk-4/ 2  
 P1-4 WB BOOK EXPLOITATION S/ 60  
 ACCESSION NR AM5001148 B+

Dulevich, Vladimir Yevgen'yevich; Korostelev, A. A.; Mel'nik, YR. A.; Burenin, N. I.; Petrov, A. V.; Veretyagin, A. A.; Bandurko, N. G.

2/ Theoretical principles of radar (Teoreticheskiye osnovy radiolokatsii), Moscow, Izd-vo "Sovetskoye radio", 1964, 731 p. illus., biblio., index. Errata slip inserted. 12,600 copies printed.

TOPIC TAGS: radar

PURPOSE AND COVERAGE: This book is intended for students in the radio engineering faculties of higher technical educational institutions and can serve as an aid to engineers and graduate students specializing in radar. The book examines the principles of radar, methods of coordinate measurement and scanning and circuits for radar stations of three types: with an operator, a continuous computer installation and a digital computer. It presents the characteristics of radar signals with a consideration of the statistical regularities that occur in the reflection of radio waves, their propagation, and the presence of noise on the signal. The book describes methods of building optimal and near optimal receivers considering statistical, spatial and frequency time characteristics of the signal and interference. The book estimates the maximum capacities

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ACCESSION NR AN5001448

of radar in detecting and measuring target coordinates. It gives a statistical evaluation of target position or trajectory on the basis of radar measurement data. In conclusion, the book describes methods of combating various types of interference and the operating principles of passive radar systems. All of the factual and numerical material is taken from the open domestic and foreign press.

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- Ch. X. Determining target trajectory using radar -- 534
- Ch. XI. Active interference and methods of combating it -- 574
- Ch. XII. Methods of protecting radar stations from passive interference -- 606
- Ch. XIII. Passive radar -- 676
- Bibliography -- 706
- Index -- 727

SUBMITTED: 25 May 64

SUB CODE: DC

NO REF SOV: 250

OTHER: 041

Card *me* 3/3

S/125/61/000/001/011/016  
A161/A133

AUTHORS: Fil'chakov, A.A., Bandurko, N.M.

TITLE: Melting the AH-A1 (AN-A1) flux in electric arc furnaces

PERIODICAL: Avtomaticheskaya svarka, no. 1, 1961, 67-68

TEXT: The Zhdanov Heavy Machine Building Plant produces aluminum railroad tank cars that are welded automatically by a half-open arc on flux. The welding technology was devised with the assistance of the Institut elektro-svarki im.Ye.O.Patona (Electric Welding Institute im.Ye.O.Paton). The preparation of the AH-A1 (AN-A1) flux is simple, but the powder was not homogeneous in large quantities, and losses with dust were too high during transportation and utilization. Fused flux eliminated losses and in general improved the welded joints. An especially designed furnace is used now for melting the AN-A1 flux (Figure). Casing (1) is detachable and lined with sheet asbestos on the inside. Two graphite crucibles (2) are joined together. The space between the crucibles and the casing is filled with carbonous self-

Card 1/3<sub>2</sub>

Melting the AH-A1 (AN-A1) flux...

S/125/61/000/001/011/016  
A161/A135

sintering lining mass (3). Graphite electrodes (6) 75 mm in diameter are supported on brackets (4) welded to the casing, and fed with a screw mechanism (7) through inlet holes. The current is supplied by flexible cable to electrode holders (9). The furnace rests on trunnions in frame (11) and is tilted by turning handwheel (12). Tilting is facilitated by counterweight (13). The molten flux is poured out through a hole in the upper furnace part onto a stainless steel plate laying in an aluminum tray. The furnace operates on two TCA-1000-3 (TSD-1000-3) welding transformers connected in parallel. It is placed under an exhaust hood with asbestos curtains suspended on the edges and attended by one man. The 20-kg charge is filled, melted and poured out within 20-25 min. The working current is 900-1,100 amp, the arc voltage 28-32 volt. The graphite particles are skimmed from the surface of the ready flux in the furnace with a special grid scraper made of stainless steel. The furnace has proved dependable in operation. The preparation of the flux components is the same as recommended by the Institute of Electric Welding and used at other plants. There is 1 figure.

ASSOCIATION: Zhdanovskiy zavod tyazhelogo mashinostroyeniya (Zhdanov Heavy Machine Building Plant)

Card 2/3 9-

BANDUR-MENDELSON, Bojana, Dr.; GAJIC, Slobodan, Dr.

Typing of *Corynebacterium diphtheriae* during 1951-52 at the bacteriological section of the Institute of Hygiene of the People's Republic of Serbia. *Bibl.Hig.inst.Srbije* no.5:163-169 '54.

1. Bakteriološko odeljenje Higijenskog instituta NR Srbije.  
(*CORYNEBACTERIUM, DIPHThERIAE,*  
typing)

DJURISIC, M.; BANDUR-MENDELSON, B.

Effect of various tuberculostatic drugs on the development of experimental tuberculosis caused by streptomycin-resistant strain in guinea pigs. Srpski arh. celok. lek. 84 no.1:14-19 Jan 56.

1. Mikrobioloski institut Medicinskog fakulteta u Beogradu.  
Upravnik: prof. dr. Milutin Djurisic.

(TUBERCULOSIS, exper.

eff. of various drugs on streptomycin-resistant M.  
tuberc. strain in guinea pigs (Ser))

(STREPTOMYCIN, eff.

on M. tuberc., resist., eff. of various drugs in guinea  
pigs (Ser))

(MYCOBACTERIUM TUBERCULOSIS, eff. of drugs on

streptomycin, resist., eff. of various drugs in  
guinea pigs (Ser))



NATANSON, A.M. [deceased], prof., BANDUROVSKAYA, A.M., starshiy laborant

Regional leukocytosis as a symptom of chronic tonsillitis [with  
summary in English]. Vest.oto. -rin. 20 no.3:22-25 My-Je '58  
(MIRA 11:6)

1. Iz Kliniki bolezney ukha, gorla i nosa (zav. - prof. A.M.  
Natanson [deceased] Khar'kovskogo meditsinskogo instituta.  
(TONSILLITIS, Blood in  
regional leukocytosis (Rus))  
(LEUKOCYTE COUNT,  
regional leukocytosis in chronic tonsillitis (Rus))

BANDUROVSKAYA, N.F., kand. med. nauk

Scientific Session of the Odessa Scientific Research Institute of Tuberculosis. Probl. tub. 40 no.6:117-119 '62

(MIRA16:12)

BANDUROVSKAYA, N.F. i BRUK, B.F., i TERLO, P.B..

22046 Bandurovskaya, N.F., Bruk, B.F., Terlo, P.B. . Znachenie issledovaniya promyvy-  
nykh vod zhelucka (p.v.zh.) na BK v rannem vyavlenii tuberleza u detey. Uchen.  
Zapiski Nauch-issled. in-ta tuberkuleza v Odesse, Ch. 1, 1948, s. 23-25.

SO: Letopis' Zhurnal'nykh Statey, No. 29, Moskva, 1949.

BANDUROVSKAYA, N.F.

22044 Bandurovskaya, N. F. O potrebnosti vitamina cc(77 u detey, bol'nykh tuberkulezom legkikh, Uchen. Zapiski Nauch-issled. in-ta tuberkuleza v Gdesse, Ch 2, 1948, s. 89-84

SC: Ietopis' Zhurnal'nykh Statey, No. 29, Moskva, 1949.

BANDUROVSKAYA, N. F.:

BANDUROVSKAYA, N. F.: "The significance of investigating the wash waters of the stomach for tuberculosis bacteria in the clinical treatment of tuberculosis in children." Odessa State Medical Institute N. I. Pirogov. Odessa, 1956. (Dissertation for the Degree of Candidate in Medical Sciences).

SO: Knizhnaya Letopis' No. 22, 1956

~~BANDURSKI~~ EXCERPTA MEDICA Sec 9 Vol. 9/8 Surgery Aug 55

169. BANDURSKI A. Chir. Oddziału Szpit. Wojewódzkiego, Zielonej, Górze.  
\*Zastąpienie wyciętej części wpustowej żołądka przeszczepem jelita czczego.  
Jejunal segment as a substitute for the excised upper  
part of the stomach and the lower part of the oesophagus  
POL. PRZEGL. CHIR. 1954, 26/2 (127-132) Illus. 7

The method is based on preservation of a small, healthy, aboral part of the stomach. The excised oral part of the stomach and the lower part of the oesophagus, which is also excised, are replaced by a segment of the jejunum. The advantages of the method are (1) Preservation of a part of the stomach, although a small one, the pyloric region. The operation does not seem to be less radical on account of this. The preserved part of the stomach can fulfil its function as a food container, only partly. (2) Restoration of the physiological continuity of the digestive tract. The duodenum and a considerable part of the small intestine are not excluded from the digestive function. (3) The operation is limited to the abdominal cavity. Four cases are described. In the last 2 pyloric myotomy was added. Author

BANDURSKI, Albin

BANDURSKI, Albin (adres autora: Zielona Gora, Szpital Wojewodski).

Replacement of the resected cardial portion of the stomach by jejunal graft. Polski przegl. chir. 26 no.2:127-132 F '54.

1. Z chirurgicznego oddzialu Szpitala Wojewodskiego w Zielonej Gorze. (Praca wplynela do redakcji dnia 19.II.1953)

(JEJUNUM, transplantation,

\*replacement of resected cardial portion of stomach)  
(TRANSPLANTATION,

\*jejunum, replacemtn of resected cardial portion of stomach)  
(STOMACH, surgery,

\*resection of cardial portion with replacement with jejunal  
transplant)

BANDURSKI, Albin; CHWIROT, Roman

Unusual case of post-traumatic arteriovenous fistula of the neck.  
Klin.oczna 25 no.1:49-58 1955.

1. Z Oddziału Chirurgicznego Szpitala Wojewódzkiego w Zielonej  
Górze Ordynator: dr. med. A. Bandurski i z Oddziału Ocznego.  
Ordynator: dr med. R. Chwirot.

(ARTERIES, CAROTID, fistula  
arteriovenous, jugulocarotid, traum.)

(VEINS, JUGULAR, fistula,  
arteriovenous, jugulocarotid, traum)

(FISTULA, ARTERIOVENOUS,  
jugulocarotid, traum.)



BANDURSKI, Albin; BUKOWSKA, Irena

Gastric resection with intestinal transplantation. Polski przegl.  
chir. 28 no.1:13-16 Jan 56.

1. Z Chirurgicznego Oddziału Szpitala Wojewódzkiego w Zielonej  
Górze Zielona Góra, Wojewódzki Szpital.

(STOMACH, surg.

gastroenterostomy, Henley's technic (Pol))

POLAND

BANDURSKI, Albin and NAVARRA, Ireniusz, Surgical Division (Oddzial Chirurgiczny), First Wojewodztwo Hospital (I Szpital Wojewodzki) in Zielona Gora (Director: Lek med Zbyslaw KOPYSC)

"Intestinal Insertion into the Constricted Ductus cheledochus. Case Report."

Warsaw, Polski Tygodnik Lekarski, Vol 18, No 30, 22 Jul 63, pp 1101.

Abstract: [Authors' English summary] Authors report a case of a patient with obstructive jaundice due to cicatrization of the whole ductus choledochus after operation. They achieved reconstruction of the continuity of the biliary tract by implantation of a 8-cm loop isolated from the jejunum between the rest of the duct and the duodenum. [The work won third prize of competition of Polish Medical Association (Polskie Towarzystwo Lekarskie)] There are three (3) illustrations and six (6) references: two (2) each Polish, German, and Western.

1/1

BANDURSKI, Albin; BUKOWSKA, Irena; TALKOWSKA, Irmna

Hour-glass abscess of the thoracic wall. Wiad. lek. 18 no.19:  
1543-1545 1 0 '65.

1. Z Oddziału Chir. Dziecięcej Szpitala Wojskowego w Zielonej  
Gorze (Ordynator: dr. med. I. Bukowska).

BANDURSKI, Albin; SULICKI, Tadeusz; KOCOT, Eugeniusz

Traumatic hemorrhage from the biliary tract. Pol. przegl. chir.  
37 no.9:896-898 S '65.

1. Z Oddziału Chirurgicznego Szpitala Powiatowego w Głogowie  
(Ordynator: lek. T. Sulicki) i z Oddziału Chirurgicznego  
Szpitala Wojewodzkiego w Zielonej Gorze (Ordynator: dr. A.  
Bandurski).

KARGIN, V.A., akademik; AZORI, M.; PLATE, N.A.; BANDURYAN, S.I.

Direct electron microscope observation of polymerization processes  
in crystal monomers. Dokl. AN SSSR 154 no.5:1157-1159 F'64.

(MIRA 17:2)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.

BAGLYUK, A.D.; BANDYLOV, A.P.; MARISHCHENKO, V.V.; ANUCHIN, P.F.;  
KRASNOSLOBODTSEV, N.N.; SAKUN, A.N.; KOZLOV, Ye.A.; KHOMENKO,  
V.S.; MAKSIMUK, P.S.

Survey of letters and articles. Sakh. prom. 33 no.2:58-60  
F '59. (MIRA 12:3)

- 1.Kamenskiy sakharnyy zavod (for Baglyuk).
  - 2.Sokolovskiy sakharnyy zavod (for Bandylov).
  - 3.Yagotinskiy sakharnyy zavod imeni Il'icha (for Marishchenko).
  - 4.Uzinskiy sakharnyy zavod (for Anuchin).
  - 5.Novo-Troitskiy sakharnyy zavod (for Krasnoslobodtsev).
  - 6.Ukrgiproved (for Sakun).
  - 7.Khutor-Mikhaylovskiy rafinadnyy zavod (for Kozlov).
  - 8.Shpolyanskiy sakharnyy zavod (for Khomenko).
  - 9.Kupyanskiy sakharnyy zavod (for Maksimuk).
- (Sugar industry) (Sugar beets)

41764

S/194/62/000/008/031/100  
D201/D308

26.290

AUTHORS: Bandyš, Jaňoslav, and Rytich, Eduard

TITLE: An attachment for maintaining a constant pressure in an automatic control system with pneumatic regulator

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 8, 1962, abstract 8-2-171 shch (Czech. pat., cl. 47 g, 48/02; 47 g, 49/01, no. 97417, Nov. 15, 1960) f

TEXT: The attachment is designed in the form of a pneumatic relay and intended for maintaining a constant pressure required for faultless operation of automatic control systems. The attachment is built in in the path of the signal between the regulator 3 and valve 1 and is connected by a pipe with the pressure reduction stage 4 connected to the compressed air source by a pipe 6 through a filter 5. The cross-section of the relay is shown in the figure. The body consists of 3 independent parts 1, 6, and 8 assembled by screws. The parts are separated by diaphragms 4 and 7, connected by the screw 12. The screw has a ring 17 and a rubber cushion 16 supporting the collar 15 of part 6. The diaphragm 4 is compressed by spring  
Card 1/2 2

An attachment for maintaining ...

S/194/62/000/008/031/100  
D201/D308

3 whose other end presses against the bush 2. The pressure of spring 3 is regulated by screw 19. The diaphragms 4, 7 and the collar 15 divide the internal cavity of the body into 4 chambers 10, 11, 14 and 18. The pressure in chamber 10, connected through the branch pipe 9 with the reduction chamber, is constant; the pressure in the chamber 18 is atmospheric. As long as the pressure of air passing from the regulator through the branch pipe 9 is sufficiently high, the diaphragm 4 is pressed downwards enabling the air to pass to the outlet branch pipe 5. A change in the air pressure in the network results in a change of the gap between collar 15 and the rubber cushion 16. In case of a sharp drop of pressure the spring 3 closes the gap, preventing the drop of pressure in the network. [Abstracter's note: Complete translation.]

Card 2/5



BANDYSHEV, B. A.

Doc 48

USSR/Physics  
Material Test Techniques

"Distribution of Cold Working Around A Conical Impression," F. S. Savitskiy, B. A. Bandyshev, M. V. Yakutovich, Sverdlovsk Affiliate, All-Union Sci Res Inst of Metrol, 34 pp

"Zavod Lab" Vol XIV, No 12

Conical Indentation was produced by pressure on a specimen of hardened and tempered steel having a fine-grained and homogeneous structure. Diameter of the base of the indentation was 4 mm, and hardness of the area around this was determined with a Vickers hardness tester after mechanical and electrolytic polishing. Indentations were distributed radially around the edge of the hole at intervals of one mm, and results are presented in the form of lines of equal hardness. Similar tests were carried out on compressed specimens, and results of these are presented in the same way and in relation to deformation.

PA 49/49T103

BANDYSHEV, B.A.

24(0); 5(4); 6(2) PHASE I BOOK EXPLOITATION SOV/2215

Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii imeni D.I. Mendeleeva

Referaty nauchno-issledovatel'skikh rabot; sbornik No.2 (Scientific Research Abstracts; Collection of Articles, Nr 2) Moscow, Standartgiz, 1958. 139 p. 1,000 copies printed.

Additional Sponsoring Agency: USSR, Komitet standartov, ser 1 izmeritel'nykh priborov.

Ed.: S. V. Reshetina; Tech. Ed.: M. A. Kondrat'yeva.

PURPOSE: These reports are intended for scientists, researchers, and engineers engaged in developing standards, measures, and gauges for the various industries.

COVERAGE: The volume contains 128 reports on standards of measurement and control. The reports were prepared by scientists of Institutes of the Komitet standartov, ser 1 izmeritel'nykh priborov pri Sovete Ministrov SSSR (Commission on Standards, Measures, and Measuring Instruments under the USSR Council of Ministers). The participating institutes are: VNIIM - Vsesoyuznyy nauchno-issledovatel'skiy metrologii imeni D.I. Mendeleeva (All-Union Scientific Research Institute of Metrology); VNIIM - Vsesoyuznyy nauchno-issledovatel'skiy metrologii imeni D.I. Mendeleeva (Leningrad); Sverdlovsk branch of this institute; VNIIM - Vsesoyuznyy nauchno-issledovatel'skiy institut komiteta standartov, ser 1 izmeritel'nykh priborov (All-Union Scientific Research Institute of the Commission on Standards, Measures, and Measuring Instruments), created from MOIMIP - Moskovskiy gosudarstvennyy institut mer i izmeritel'nykh priborov (Moscow State Institute of Measures and Measuring Instruments) October 1, 1955; VNIITMI - Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radioelektronnykh izmereniy (All-Union Scientific Research Institute of Physico-technical and Radio-engineering Measurements); Khar'kovskiy gosudarstvennyy institut mer i izmeritel'nykh priborov (Kharkov State Institute of Measures and Measuring Instruments); and MOIMIP (Moskovskiy gosudarstvennyy institut mer i izmeritel'nykh priborov (Novosibirsk State Institute of Measures and Measuring Instruments)). No personalities are mentioned. There are no references.

Chinuray, A.I., and G.A. Goldshtrayn (MOIMIP); G.A. Cherkasov, V.V. Gorodetskiy, and A.S. Shus'derman (NIIvespro). Studying the Reasons for Variations of Readings of Car Scales

Zhukhovskiy, M.K. and V.K. Orzanskiy (MOIMIP). Standard Hydraulic Stationary Dynamometers of the Second Class for the 5 and 50 ton Ranges

Boyl', S. Ya. (VNIIM) Assembly and Alignment of Stationary Dynamometers for Tension and Compression Tests to 10,000 and 100,000 kgf

Savitelskiy, P.S., B.A. Bandyshchev, and V.V. Skobelin (Sverdlovsk Branch of VNIIM). Effect of Rigidity of the Dynamometer of Testing Machines on the Falling Portion of the Extension Diagram

USSR / Cultivated Plants. Medicinal Plants. Essential- M  
Oil Plants. Poisonous Plants.

Abs Jour : Ref Zhur - Biologiya, No 6, 1959, No. 25113

Author : Bandyukova, V. A.  
Inst : Pyatigorskiy Pharmaceutical Institute  
Title : The Pagoda Tree as a Raw Material for  
Obtaining Rutin

Orig Pub : Uch. zap. Pyatigorskiy pharmatzeft. in-t,  
1957, 2, 93-96

Abstract : Investigations of the pagoda tree's flowers  
indicated the presence of 13.8-21.5% of  
rutin in them (buckwheat has 6%). 9.5-  
19.3% of rutin was found in the fallen-off  
flowers. It is pointed out that the flowers  
of this tree may be a source of industrial  
rutin production. The pagoda tree, in the

Card 1/2

USSR / Cultivated Plants. Medicinal Plants. Essential- M  
Oil Plants. Poisonous Plants.

Abs Jour : Ref Zhur - Biologiya, No 6, 1959, No. 25113

Caucasian Mineral Waters, is widespread as a decorative tree plant. It is recommended to introduce it into cultivation, because, beside the described properties, it has valuable wood, is a good honey-bearer and possesses phytoncidal properties. -- L. I. Lipayeva

Card 2/2

191

BANDYUKOVA, V.A., assistant

Photocolorimetric determination of rutin of Sophora japonica and in Forsythia intermedia and Forsythia suspensa. Apt. delo 9 no.6:24-26 N-D '60. (MIRA 13:12)

1. Kafedra organicheskoy i biologicheskoy khimii (zav. - prof. A.L. Shinkarenko) Pyatigorskogo farmatsevticheskogo instituta.  
(COLORIMETRY) (RUTIN) (FORSYTHIA)  
(SOPHORA)

BANDYUKOVA, V.A.

Protistocidal characteristics of *Sophora japonica*. Nauch.dokl.  
vys.shkoly; biol.nauki no.2:154-156 '63. (MIRA 16:4)

1. Rekomendovana kafedroy organicheskoy i biologicheskoy khimii  
Pyatigorskogo farmatsevticheskogo instituta.  
(CAUCASUS, NORTHERN—JAPANESE PAGODA TREE)

BANDYUKOVA, V.A.; BONDARENKO, N.V.

Helenien from the African marigold cultivated in the Northern  
Caucasus. Nauch. dokl. vys. shkoly; biol. nauki no.1:168-170  
'65. (MIRA 18:2)

1. Rekomendovana kafedroy organicheskoy i biologicheskoy khimii  
Pyatigorskogo farmatsevticheskogo instituta.

BANDYUKOVA, V.A.

Use of color reactions for determining flavonoids by means  
of paper chromatography. Rast. res. 1 no. 4:591-596 '65  
(MIRA 19:1)

1. Pyatigorskiy farmatsevticheskiy institut. Submitted  
February 11, 1965.



BANDYUKOVA, V.A.; SHINKARENKO, A.L. [Shynkarenko, A.L.]

Results of studying high-mountain plants of Teberda Preserve  
on the content of flavonoid substances by the paper chromatography  
method. Farmatsev.zhur. 20 no.6:37-41 '65.

(MIRA 19:1)

1. Pyatigorskiy farmatsevticheskiy institut, kafedra organicheskoy  
i biologicheskoy khimii. Submitted April 19, 1965.

L 27823-65 EWT(1) IJP(c)

ACCESSION NR: AT4049929

5/2910/54 004/001/0035/0043

AUTHOR: Bandzaitis, A. A. (Bandzaitis, A.); Znukauskas, K. P. (Zukauskas, K.); Matulis, A. Yu. (Matulis, A.); Yutsis, A. P. (Yutsys, A.)

TITLE: The calculation of 6j-coefficients

8  
B+1

SOURCE: AN LISSR. Litovskiy fizicheskiy sbornik, v. 4, no. 1, 1964, 35-43

TOPIC TAGS: mathematical physics, special function, approximation, numerical analysis, Wigner matrix, Kronecker product, computer programming

ABSTRACT: The authors derive two new expressions for the 6j-coefficients involved in Wigner's matrices for reducing the Kronecker products of simply reducible groups. These new expressions are:

$$\left\{ \begin{matrix} a & b & c \\ d & e & f \end{matrix} \right\} = (-1)^{a+b+c+d} \Delta(acb) \Delta(acf) \Delta(bdf) \Delta(cde) \times$$

$$\times \frac{(a+c+f+1)!(b+d+f+1)!}{(a+b-s)!(c+s-b)!(c+f-a)!(b+f-d)!(d+a-e)!(d+s-e)!} \times \quad (1)$$

$$\times \sum_{s} \frac{(-1)^s (c+f-a+s)!(b+f-d+s)!(a+f+e-f-s)!}{s!(s+1)!(s+c-f-s)!(b-d-f-s)!(s+f-a-s+1)!}$$

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ACCESSION NR: AT4049929

$$\left\{ \begin{matrix} a & b & e \\ d & c & f \end{matrix} \right\} = (-1)^{b+c+e+f} \Delta(abe) \Delta(acf) \Delta(bdf) \Delta(cde) \times$$

$$\times \frac{(a+b+e+1)(b+d+f+1)}{(a+b-e)(a+f-e)(c+f-a)(d+a-c)(b+d-f)(c+e-d)} \times$$

$$\times \sum_x \frac{(-1)^x (2b-z)(b+e+f-c-x)(b+e+c+f+1-x)}{x!(b+e-a-x)!(b+f-d-x)!(c+b+e+1-x)!(b+e+f+1-x)!} \quad (2)$$

These formulas were derived by the method proposed by Wigner. Both formulas are transformed in the same way as the Racah formula has been transformed by Sato. The authors propose to represent the 6j-coefficients by means of seven parameters (perimeters of four triangles and of 3 quadrilaterals). A program for the calculation of 6j-coefficients on the BESM-2M computer is described. Orig. art. has. 31 formulas.

ASSOCIATION: Institut fiziki i matematiki Akademii nauk Litovskoy SSR (Institute of Physics and Mathematics, Academy of Sciences of the Lithuanian SSR), Vilnius, Lithuania.

Card 2/3

L 27823-65

ACCESSION NR: AT4049929

SUBMITTED: 04MAR68

ENCL: 00

SUB CODE: MA, DP

NO REF SOV: 003

OTHER: 008

L 10072-65 EMP(1) IJP(c)  
ACCESSION NR. ATSD 2009

S/2910/64/004/002/0197/0212

24

AUTHOR: Yutsis, A. P.; Jucys, A.; Vizbarayte, Ya. A.; Karaziya, I. A.  
A. Yu.; (Vizbaraitė, J.); (Karaziya, R.); (Savukynas, A.); Randzaitis, A.

TITLE: Calculation of matrix elements of the electrostatic interaction  
for complex atoms

SOURCE: AN LitSSR. Litovskiy fizicheskiy sbornik, v. 4, no. 2, 1964, 197-212

TOPIC TAGS: quantum mechanics, matrix, electron shell, electrostatic interaction,  
energy operator, quantum theory, wave function, Racah operator

ABSTRACT: In recent years, the tabulation of the submatrix elements of operators has been carried out to an extent which permits operations with the shells of s-, p- and d-electrons. This has stimulated the consideration of a method for calculation of the matrix elements of the operators. The present work is devoted to the consideration of the expressions for the matrix elements of the operators of the action operators for the case of complex configurations. For the case of two either partially filled or almost completely filled shells. First, a method is developed for calculations in the case of any number of

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L 30077-65  
ACCESSION NR: AT5002009

unfilled shells. The article first reviews the information on the unitary operators...  
In the case of three or four unfilled shells more general formulae permit easy calculation of the explicit formulae. In the case of almost filled shells, the relationships between the submatrix elements of the additional... are utilized. The formulae for the matrix elements contain the 3nj-coefficients for which the number of parameters does not exceed 5 (n = 2). This is very simple since the tables are available for 6j coefficients. Orig. art. has 57 equations.

ASSOCIATION: Vil'nyusskiy Gosudarstvennyy universitet im. V. Kapsukasa (Vilnius state university), Institut fiziki i matematiki Akademii nauk Litovskoy SSR (Physics and mathematics institute, Academy of sciences, Lithuanian SSR)

SUBMITTED: 18Jul63 ENCL: 00 SUB CODE: GP, NP  
NO REF BOV: 012 OTHER: 007

Card 2/2

L 46302-66 EWP(m)/EWP(k)/EWP(d)/EWP(l)/EWP(m)/EWP(w)/EWP(v) IJP(c) EM/WW

ACC NR: AT6023216

SOURCE CODE: UR/2910/65/005/003/0289/0298

AUTHOR: Matulis, A. Yu. -- Matulis, A.; Nashlenas, E. P. -- Naslenas, E.; Bandzaytis, A. A. -- Bandzaitis, A. 20  
19

ORG: Institute of Physics and Mathematics, Academy of Sciences Lithuanian SSR (Institut fiziki i matematiki Akademii nauk Litovskoy SSR); Vil'nyus State University im. V. Kapsukas (Vil'nyusskiy Gosudarstvennyy universitet) BT1

TITLE: On the perturbation theory of the energy of atoms with open shells 26

SOURCE: AN LitSSR. Litovskiy fizicheskiy sbornik. v. 5, no. 3. 1965, 289-298

TOPIC TAGS: atomic theory, perturbation theory, nuclear shell model

ABSTRACT: The energy of a degenerate atomic level as the pole of Green's function of open electron shells is studied. The perturbation theory of the energy of degenerate atomic levels leads to solving the secular equation in the space of unperturbed atomic states. This secular equation is solved by employing the theory of angular momentum of the case of electrostatic interaction between electrons. The contributions of the Feynman diagram are expressed in terms of radial integrals and the transformation matrices. The specific definition of the series for atomic energy in the field form of the perturbation theory for the energy of an atomic system

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ACC NR: AT6023216

with open electron shells and the representation of each order of this series as an average with respect to the eigenstate of the total orbital and spin angular momenta are the main results of the study. This representation of the series permits restoring the physical sense of each Feynman diagram as the representation of a certain process during the course of which the total orbital and spin angular momenta are retained. In the proposed method there was no requirement to separate the total Hamiltonian into a zero Hamiltonian and interaction Hamiltonian. The only demand made was the retention of the single-particle character of the zero Hamiltonian which is necessary for shifting to the representation of second quantization. Thus, in each specific calculation of the energy of the atomic system it was possible to add to the zero Hamiltonian a certain single-particle operator, subtraction of which from the interaction Hamiltonian improved the convergence of the series of the perturbation theory. The author thanks Prof. A. P. Yutsis for his attention to the work and valuable advice. Orig. art. has: 9 figures and 21 formulas.

SUB CODE: 20/ SUBM DATE: 23Jan65/ ORIG REF: 003/ OTH REF: 005

*ma*  
Card 2/2



35805  
S/051/62/012/002/001/020  
E032/E514

24.3400

AUTHORS: Yutsis, A.P., Vizbarayte, Ya. I., Strotskite, T.D.  
and Bandzaytis, A.A.

TITLE: On the multi-configurational approximation and its  
convergence .

PERIODICAL: Optika i spektroskopiya, v.12, no.2, 1962, 157-162

TEXT: The mathematical basis of the multi-configurational approximation is the generalised Ritz method in which both the coefficients of the basic functions and the functions themselves are varied at the same time. The basic functions determined in this way ensure the rapid convergence of the method. Any departure from such functions reduces the degree of convergence. The present authors show that the sum of the energy corrections obtained by separate 2-configurational approximations in the case of helium-type atoms is equal to the total correction, provided the equivalent electron configurations are used as the correction configurations. In the case of beryllium-type atoms the sum of the corrections for separate shells gives the correction for the entire atom on the multi-configurational  
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42658

S/236/62/000/002/001/004  
E140/E135

LS400

AUTHORS: Yutsis, A.P., Bandzaytis, A.A., and Vizbarayte, Ya.I.

TITLE: A graphical method for investigating tensor-set coupling-mode transformation matrices

SOURCE: Trudy Akademii nauk Litovskoy SSR, Series B, no.2(29), 1962, 3-18.

TEXT: The authors present a method for representing a tensor-set coupling-mode transformation matrix graphically. This is in contrast to previous methods in which only the  $j$ -coefficients were so represented. If the number of coupled sets is  $n$ , the graphical representation of the coupling-mode transformation matrix has  $3(n-1)$  lines and  $2(n-1)$  nodes. Two of the three branches emerging from each node are drawn in fine line, one in heavy line. Cutting the graph along  $n$  fine lines and one heavy line leads to the representation of the two generalised Clebsch-Gordan coefficients. Fig.1 shows the diagrams of the two possible forms for the simplest case. The first,  $A_1$ , is the trivial case of the identity matrix; the other,  $B_1$ , inverts the order of coupling of two tensor sets. Graphs for up to 6th order transformations are

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A graphical method for investigating.. S/236/62/000/002/001/004  
E140/E135

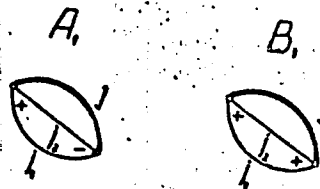
considered, and the 15  $j$ -coefficients of the fifth kind are given graphically.  
There are 12 figures.

ASSOCIATION: Institut fiziki i matematiki Akademii nauk  
Litovskoy SSR  
(Institute of Physics and Mathematics, AS Lith SSR)  
Vil'nyuskiy gosudarstvennyy universitet im.  
V. Kapsukasa  
(Vil'nyus State University imeni V. Kapsukas)

SUBMITTED: December 30, 1961.

Fig.1.

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S/236/62/000/003/001/004  
D234/D308

24.440

AUTHORS: ~~Bandzartis, A.A.~~ Vizbarayte, Ya.I.  
and ~~Yutsis, A.P.~~

TITLE: Standard transformation matrices of the  
method of connecting seven tensor sets

SOURCE: Akademiya nauk Litovskoy SSR. Trudy,  
Seriya B, no. 3, 1962, 3 - 18

TEXT: The authors refer to their previous papers  
where a method of graphical representation of sums of products  
of Clebsch-Gordan coefficients was proposed. In the present  
paper they give diagrams of the standard matrices and their  
expressions in terms of  $3(n-1)$  j-coefficients of the first and  
second kind, for any number of tensor sets. For the case of 7  
sets they give diagrams and expressions of matrices in terms  
of 18 j-coefficients of types C,D,E,F,G,H,I,K,L,M,N,P,R,S,T,V.  
In order to express any transformation matrix in terms of the  
18 j-coefficient one must reduce it to the standard form: this

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Standard transformation ... S/236/62/000/003/001/004  
 D234/D308

process can be simplified in practice by taking into account the phase factor only, adding other factors later to the final matrix: full reduction is also unnecessary. A new definition of the 18 j-coefficient is given:

$$\left\{ \begin{matrix} j_1 & j_2 & j_3 & j_4 & j_5 & j_6 \\ l_1 & l_2 & l_3 & l_4 & l_5 & l_6 \\ k_1 & k_2 & k_3 & k_4 & k_5 & k_6 \end{matrix} \right\} = (-1)^{l_1+l_2+l_3+l_4} \left\{ \begin{matrix} l_1 & j_2 & k_3 & k_4 & l_5 & l_6 \\ l_2 & k_3 & j_4 & l_5 & k_6 & l_6 \\ l_3 & k_4 & l_5 & j_6 & k_6 & l_6 \end{matrix} \right\}. \quad (5.1)$$

There are 20 figures.

ASSOCIATION: Institut fiziki i matematiki AN Litovskoy SSR  
 (Institute of Physics and Mathematics, AS  
 Lithuanian SSR), Vil'nyusskiy gosudarstvennyy

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Standard transformation ...

S/236/62/000/003/001/004  
D234/D308

universitet im. V. Kapsukasa (Vilnyus  
University im. V. Kapsukas)

SUBMITTED: January 25, 1962

Card 3/3

S/236/62/000/004/001/009  
D234/D308

**AUTHORS:** Rudzikas, Z. B., Vizbarayte, Ya. I, Bandzaytis, A. A.  
and Yutsis, A. P.

**TITLE:** Matrix elements of operators consisting of unit tensor operators

**SOURCE:** Akademiya nauk Litovskoy SSR. Trudy. Seriya B. no. 4, 1962, 3-22

**TEXT:** The authors review the expressions for unit tensor operators given in previous papers by themselves and by other authors, and give an extensive table of sub-matrix elements of the operators  $U^3$ ,  $U^4$ ,  $V^3$ ,  $V^4$  for 2, 3, 4, 5d electrons. There is 1 table.

**ASSOCIATION:** Vil'nyuskiy gosudarstvennyy universitet im. V. Kapsukasa (Vil'nyus State University imeni V. Kapsukas); Institut fiziki i matematiki AN Litovskoy SSR (Institute of Physics and Mathematics AS Lithuanian SSR)

**SUBMITTED:** March 20, 1962  
Card 1/1

S/236/63/000/001/001/015  
D251/D308

AUTHORS: Bandzaytis, A. A. and Savukinas, A. Yu.

TITLE: A new method of studying  $3nj$  coefficients

SOURCE: Akademiya nauk Litovskoy SSR. Trudy. Seriya B. no. 1,  
1963, 3-10

TEXT: The authors propose a new method of studying  $3nj$  coefficients which is less cumbersome than the existing methods. By using graphical representations, the sum of the products of  $6j$  coefficients are studied. Schemes are worked out corresponding to  $3nj$  coefficients of the first kind with odd or even numbers of  $6j$  coefficients in the cycle, and for  $3nj$  coefficients of the second kind. In contradistinction to the earlier methods, the number of different schemes of distribution of the  $6j$  coefficients only slightly exceeds the number of different  $3nj$  coefficients. The method is applied for  $15j$ ,  $18j$  and  $21j$  coefficients. In all cases, except that of  $15j$  coefficients of the 5th kind, the  $3nj$  coefficients studied may be represented in the form of a polygon with  $2n$

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A new method of ...

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D251/D308

sides. Hence it is to be expected that, as  $n$  is increased, there will not appear any  $3nj$  coefficients for which a Hamilton line does not exist. However, not all coefficients can be expressed as a sum of the products of two generalized Vigner coefficients each with an  $A_0$  scheme. In the case of the  $21j$  coefficients there are 79

such coefficients, which may be represented by a  $3n$ -point star, in a manner similar to that demonstrated by A. P. Tutsis, A. A. Bandzaytis and Ya. I. Vizbarayte (Trudy AN Litovskoy SSR, B., v. 2 (29), no. 3, 1962). Coefficient 52 may be expressed as a sum of the products of generalized Vigner coefficients, and the remaining coefficients may be presented in the form of certain tetradecagons. There are 12 figures.

ASSOCIATION: Institut fiziki i matematiki Akademii nauk Litovskoy SSR (Institute of Physics and Mathematics of the AS Lithuanian SSR)

SUBMITTED: July 13, 1962

Card 2/2

ACCESSION NR: AP4042414

S/0056/64/047/001/0385/0387

AUTHORS: Bandzaytis, A. A.; Savukina, A. Yu.; Yutsis, A. P.

TITLE: Reflection symmetry in quantum mechanics

SOURCE: Zh. eksper. i teor. fiz., v. 47, no. 1, 1964, 385-387

TOPIC TAGS: group theory, quantum theory, shell theory, electron shell

ABSTRACT: It is shown that the substitution of the type  $j \rightarrow \bar{j} = -j - 1$ , discussed by the authors elsewhere (DAN SSSR v. 154, 812, 1964) can be regarded as a reflection of the coordinate system. A procedure is given for finding the symmetry properties of the  $3nj$  coefficients under such a reflection. A method is also presented for applying this symmetry to matrix elements of operators of physical quantities. The matrix element of the electrostatic interaction between an  $l$ -electron and the  $l_0^N$  shell, in the  $l_0^N l$  configura-

ACCESSION NR: AP4042414

tion for  $J_0 l$  coupling, is considered as an example, and it is shown that half of the expressions for the coefficients in terms of  $l$  can be obtained from the other half by the substitution  $l \rightarrow \bar{l} \rightarrow -l - 1$ . This indicates that the reflection symmetry properties make it possible to shorten the computation of expressions of this type and to reduce the sizes of tables of matrix elements for arbitrary operators of any quantum system. Orig. art. has: 4 formulas and 1 figure.

ASSOCIATION: Institut fiziki i matematiki Akademii nauk Litovskoy SSSR (Institute of Physics and Mathematics, Academy of Sciences Lithuanian SSR); Vil'nyusskiy gosudarstvennyy universitet im. V. Kapsukasa (Vilnius State University)

SUBMITTED: 16Mar64

ENCL: 00

SUB CODE: NP

NR REF SOV: 005

OTHER: 002

2/2

RUDZIKAS, Z.B.; VIZBARAYTE, Ya.I. [Vizbaraite, J.]; BANDZAYTIS, A.A.  
[BANDZAITIS, A.]; YUTSIS, A.P. [Jucys, A.]

Matrix elements of operators composed of single tensor operators.  
Trudy AN Lit. SSR Ser. B no.4:3-22 '62. (MIRA 18:3)

1. Vil'nyusskiy gosudarstvennyy universitet im. V. Kapsukasa i  
Institut fiziki i matematiki AN Litovskoy SSR.

ACCESSION NR: AP4012963

S/0020/64/154/004/0812/0814

AUTHORS: Bandzaytis, A.A.; Karosene, A.V.; Savukinas, A.Yu.;  
Yutsis, A.P. (Academician)

TITLE: Magnitudes of angular momentum with negative parameters representing the angular momentum quantum numbers.

SOURCE: AN SSSR. Doklady\*, v.154, no.4, 1964, 812-814

TOPIC TAGS: angular momentum, negative parameter, quantum number,  
quantum mechanics, mathematical physics, Klebsch-Gordan  
coefficient, tensorial set

ABSTRACT: The eigenvalue equation

$$j^2 \psi(jm) = j(j+1) \psi(jm), \quad (1)$$

where  $j^2$  is the operator for the square of the angular momentum will not change if the quantum number  $j$  can be changed as follows:

$$j \rightarrow \bar{j} = -j - 1. \quad (2)$$

The Klebsch-Gordan coefficients which play an especially vital role in

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ACCESSION NR: AP4012963

mathematical devices for the vector addition of angular momentum are expressed by the ordinary sums of values consisting of the factorials of the linear combinations of the parameters of these coefficients. Since the permutation of (2) has the consequence that some of these linear parameter combinations become negative. The formulas for the Klebsch-Gordan coefficients have the interesting result that during the substitution of (2), the number of factorials from the negative values is identical in both the numerator and denominator. Hence, the following ratio can be effectively employed:

$$\frac{(-a)!}{(-b)!} = \frac{(-1)^{b-1}(b-1)!}{(-1)^{a-1}(a-1)!} = (-1)^{b-a} \frac{(b-1)!}{(a-1)!}.$$

This ratio is obtained by estimating the ratio limit between two Gaussian II functions when they approach their poles. The indexes  $a - 1$  and  $b - 1$  denote the number of negative factors. When substituting (2) for discrete parameters representing the angular momentum quantum numbers, the equations for the Klebsch-Gordan coefficients pass into each other or into themselves to within the phase factor. In addition to this, other forms of equations are obtained which have not been utilized up to the present. In such a case, an indeterminate

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ACCESSION NR: AP4012963

factor #1 appears, which makes these formulas awkward for the problem in question. From a practical point of view, the important case is when substitution of (2) is not carried out by all three parameters. The most important parameters are the Klebsch-Gordan coefficients with two negative parameters representing the angular momentum quantum number. The ratio

$$\begin{bmatrix} \bar{l} & l & \bar{l} \\ m_1 & m_2 & m \end{bmatrix} = (-1)^{l+m} \begin{bmatrix} l & l & l \\ m_1 & m_2 & m \end{bmatrix}$$

can be used for calculating the Klebsch-Gordan coefficients for a given value of  $j_2$ . Then

$$\begin{bmatrix} l & l & l+k \\ m_1 & m_2 & m_1+m_2 \end{bmatrix} = (-1)^{l+m} \begin{bmatrix} \bar{l} & l & \bar{l}-k \\ m_1 & m_2 & m_1+m_2 \end{bmatrix}$$

where  $j_2 \geq k \geq -j_2$ . Equation (5) shows that the event  $j = j_1 + k$  can be obtained from the event  $j = j_1 - k$  by the permutation  $j_1 \rightarrow \bar{j}_1$ , which enables the formula tables for the Klebsch-Gordan coefficients to be reduced by almost one-half. Orig. art. has: 18 formulas.

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ACCESSION NR: AP4012963

ASSOCIATION: Institut fiziki i matematiki, Akademii nauk LitSSR (Institute of Physics and Mathematics, Academy of Sciences, LitSSR); Vil'nyusskiy gosudarstvennyy universitet im. V. Kapsukasa (Vilno State University)

SUBMITTED: 30Sep63

ATD PRESS: 3046

ENCL: 00

SUB CODE: MA, GP

NO REF SOV: 002

OTHER: 003

Card 44



BANDZAYTIS, A.A. [Bandzaitis, A.]; VIZBARAYTE, Ya.I. [Vizbaraite, J.];  
YUTSIS, A.P. [Jucys, A.]

Standard transformation matrices in the method of bonding seven  
sets of tensors. Trudy AN Lit. SSR Ser. B no.3:3-18 '62.

(MIRA 18:3)

1. Institut fiziki i matematiki AN Litovskoy SSR i Vil'nyusskiy  
gosudarstvennyy universitet im. V. Kapsukasa.

ACC NR: AR6005181

SOURCE CODE: UR/0058/65/000/009/3004/3004

SOURCE: Ref. zh. Fizika, Abs. 9B45

AUTHORS: Savukinas, A. Yu.; Karosene, A. V.; Bandzaytis, A. A.; Yutsis, A. P.

TITLE: Symmetry of mirror reflection in the theory of angular momentum

REF SOURCE: Lit. fiz. sb., v. 4, no. 4, 1964, 467-478

TOPIC TAGS: quantum theory, quantum number, mathematic operator, eigenvalue

TRANSLATION: The authors discuss the behavior of the quantities which are involved in the theory of the angular momentum under the transformation of the type  $j \rightarrow -j - 1$  (1). It is shown that this transformation is equivalent to a transition to a new system of coordinates, obtained by mirror reflection in the plane of the indeterminate components of the angular momentum. If  $\psi(jm)$  is the eigenfunction of the operators of the square of the angular momentum and of the projection of the momentum on the z axis, then the transformation corresponding to the substitution (1) is  $x' = x, y' = y, z' = -z$ . Phase relations are presented connecting pairs of 9j symbols, such that the substitution (1) is realized for all the momenta in one of the 9j symbols of the pair. These relations, with allowance for the symmetry properties of the 9j symbols, encompass all possible cases. Rules for graphically obtaining the corresponding phase relations, suitable for any 3nj symbol, are presented.

SUB CODE: 20

Card 1/1 net

L 28000-66 EWT(1) IJP(c) GG

ACC NR: AT6012879

SOURCE CODE: UR/2910/65/005/002/0171/0184

AUTHOR: Yutsis, A. P.--Jucys, A.; Savukinas, A. Yu.--Savukynas, A.;  
Bandzaytis, A. A.--Bandzaitis, A.

45  
B+1

ORG: Vilnius State University im. V. Kapsukas (Vil'nyusskiy gosudarstvennyy universitet); Institute of Physics and Mathematics, AN Lithuanian SSR (Institut fiziki i matematiki AN Litovskoy SSR)

TITLE: Comments on the mirror reflection symmetry in the quantum mechanical angular momentum theory

SOURCE: AN LitSSR. Litovskiy fizicheskiy sbornik, v. 5, no. 2, 1965, 171-184

TOPIC TAGS: quantum number, light reflection, function, coordinate system, quantum mechanics matrix

ABSTRACT: The mirror reflection symmetry in the quantum mechanical angular momentum theory has been investigated. The reflection of the coordinate system and of the space in the plane of undefined components of the angular momentum was examined. It was determined that when in the normal (right-hand) coordinate system, the angular momentum quantum number  $j$  is used, the quantum number  $j = -j-1$  must be used in the reflected (left-hand) coordinate system. The simultaneous reflection of the coordinate system and space is equivalent to the time reversal, in the case of proper functions of the angular momentum operator, and to the transformation of the standard

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ACC NR: AT6012879

irreducible tensorial set to the contrastandard one in the more general case. It is <sup>0</sup> concluded that in the case of Wigner coefficients and of transformation matrices of coupled angular momentum operator-proper functions, the space reflection is of no use. However, the reflection of the coordinate system is very useful. Orig. art. has: 6 figures and 6 formulas. [Based on authors' conclusion] [NT]

SUB CODE: 20/

SUBM DATE: 08Sep64/

ORIG REF: 008/

OTH REF: 004/

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