of flow viscosity, surface tension. ... art. has 1 figure and 1 formula.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S. M. Kirova, Sverdlovsk
(Ural Polytechnic Institute)

Card 1/3

A

SUBMITTED: 03Jun64
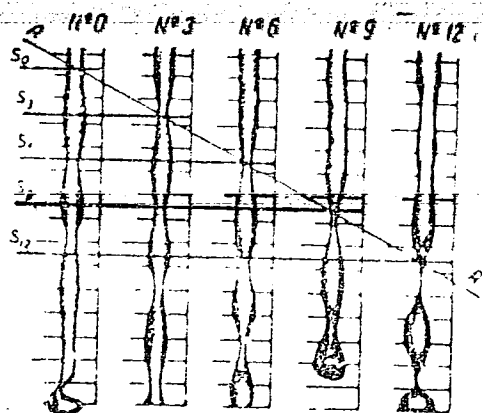
NO REF SOV: 001

OTHER: 002

Card

Fig. 1.   Sequential displacement of the same jet cross section

Card 3/3

VIVENTSOV, S.; GLUKHOV, V., master radiosvyazi

Transistorized converter for the power supply of radio transmitter-receivers of diesel locomotives. Avtom., telem. sviaz 9 no.9:33-34 S '65. (MIRA 18:9)

1. Nachal'nik sluzhby signalizatsii, tsentralizatsii, blokirovki i svyazi zheleznodorozhnogo tsekha Karagandinskogo metallurgicheskogo zavoda (for Viventsov).

Vivitskiy, G.N.

551.582.1(52)

7.4-8
1"Vivitskii, G. N., Klimat Iaponii. [The climate of Japan.] Moscow, Gos. Izdat. Geogr.
Lit., 1954. 175 p. 44 figs., map, numerous tables in text+22 numbered tables, bibliog.
p. 172-174. DLC—The climatology of Japan presents an excellent account of the climate
based upon the most recent climatological and meteorological studies. With the aid of
extensive climatological data and numerous synoptic charts and maps with isolines of the
various meteorological variables it describes the general circulation over Japan, the resulting
climate by season and the climatic regions of Japan, namely the monsoon region of the tem-
perate and subtropical zones. A special section is devoted to detailed climatic data which are
presented in tables. Subject Headings: 1. Climate of Japan 2. Japan.—I. L. D.

VIVODA, Mar'yan [Marjan Viveda].

The trade unions of Yugoslavia and international cooperation. Vsem.pref.
dvizh. no.7:18   Jl '56.   (MLRA 9:10)

1.Chlen sekretariata TSentral'nogo soveta Soyuza profesoyuzov Yugoslavii.
(Yugoslavia--Trade unions)

VIVODA, M.

Order for engineering protection. p. 57.   VOJNI GLASNIK.
(Jugoslavenska narodna armija) Beograd

Vol. 9, No. 6, June 1955

SOURCE: East European Accessions List, (EEAL), Library of
Congress, Vol. 4, No. 12, December 1955

M. VIVODA

"The arguments they use; relating to a report on Yugoslavia submitted by J. H. Oldenbroek to the Executive Committee of the International Confederation." p. 21, (YUGOSLAV TRADE UNIONS, No. 3, 1953, Belgrade, Yugoslavia)

SO: Monthly List of East European Accessions , L. C., Vol. 2, No. 7, July 1953, Uncl.

VIVODA, M.

Establishment and early period of the medical faculty of Komensky University in Bratislava. Bratisl. lek. no.9:554-564 15 N '64

1. Katedra zakladov marxizmu-leninizmu lek. fakulty University Komenskeho v Bratislave, (veduci - doc. JUDr. J. Hleva).

L 21748-66   EWT(m)/EWP(v)/T/EWP(t)/EWP(k)   JD/HW

ACC NR: AP6005890   SOURCE CODE: UR/0096/65/000/011/0063/0066

AUTHOR: Gel'man, A. S. (Professor, Doctor of technical sciences); Mel'bard, S. N.
Slepak, E. S. (Candidate of technical sciences); Vivsi, S. N. (Engineer)
(Candidate of technical sciences)

ORG: TSIITMASH, ZIO

TITLE: Present state and future prospects for the development of butt
welding of the tubes of a heating surface

SOURCE: Teploenergetika, no. 11, 1965, 63-66

TOPIC TAGS: welding technology, heating engineering, flash welding,
high frequency

ABSTRACT: At the present time, the main industrial process used for
joining the tubes of heating surfaces is flash butt welding. This
welding method, which produces joints of sufficiently high quality,
is accompanied by the formation of a large bur which is difficult to
get rid of. The present article is a review of recent work in the
Soviet Union aimed at improving the quality of heating surfaces by
better control of the heating process during flash and contact welding
and by the development of techniques for tube butt welding using high

UDC: 621.643.411.4

Card 1/2

L 21748-66

ACC NR: AP6005890

frequency currents. Results obtained in various of the experiments are illustrated graphically and with oscillograms. Orig. art. has: 7 figures and 2 tables.

SUB CODE: 13/   SUBM DATE: none

Card 2/2

VIVSIK, L.P.

Amateur fish keeping in Czechoslovakia.   Priroda 46 no.6:113-114
Je '57.   (MLRA 10:7)

1. Chlen sektsii lyugiteley akvariuma (Leningrad).
                    (Czechoslovakia--Tropical fish)

BOGUSHEVSKIY, S.F., inzh.; VIVSIK, S,N., inzh.; LAZAR', Ye.S., inzh.

Weldability of a composite connection of coil pipes from 12Kh1MF steel with a collector from 15GS steel. Energomashinostroenie 10 no.1:30-33 Ja '64.   (MIRA 17:4)

L 21139-65   EWT(m)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b)   Pf-4   WJW/JD/HM

ACCESSION NR: AP4015457   S/0125/64/000/009/0028/0035

AUTHOR: Bogushevskiy, S. F.; Vivsik, S. N.; Lazar', Ye. S.

TITLE: Welding of "EI756" steel steam pipes

SOURCE: Avtomaticheskaya svarka, no. 9, 1964, 28-35

TOPIC TAGS: welded pipe, weldability mechanical property, hot crack

ABSTRACT: The investigated steel possesses good oxidation and corrosion-resistant properties at a maximum temperature of 620C. It is commonly used for steam and gas turbine vanes. In view of the introduction of experimental pipes made of EI756 steel at the im. S. Ordzhonikidse Plant, extensive weldability tests of 273 x 36 mm normalized and tempered specimens were carried out. The chemical composition of the pipes was: 0.13 C; 0.75 Mn; 0.24 Si; 11.0 Cr, 0.69 Mo; 0.20 V; 1.92 W; 0.018 S; 0.021 P. The zone affected by the temperature of the base metal displayed a negligeable softening at a distance of 3 to 4 mm from the fusion line. The steam metal and the weld joints possessed satisfactory short-

Card 1/2   * (E 1756 designation should be EI 756)
)

L 21139-65
ACCESSION NR: AP4045457

time mechanical properties after a 750C temper and a five hour holding period.
Precipitation hardening at 600 C for 4000 hrs. negligeably lowers seam metal
and weld joint strength and plasticity while sharply decreasing impact toughness
at room temperature. At service temperatures, the impact toughness of the
seam is satisfactory. At 600 C the weld joints were found to possess an adequate
stress-rupture strength. A tendency towards hot cracking in craters was observ-
ed in the metal seam and, therefore, reliable service of welded pipes is only pro-
vided by a thorough removal of all craters during the welding process. Orig.
art. has: 8 figures and 7 tables

ASSOCIATION: Podol'skiy zavod im. S. Ordzhonikidze (Podol'sk Plant)

SUBMITTED: 30Dec63   ENCL: 00   SUB CODE: MM

NR REF SOV: 001   OTHER: 000

Card 2/2

L 38487-66   EWT(m)/EWP(w)/EWP(v)/T/EWP(t)/ETI/EWP(k)   IJP(c)   JD/HM/HW

ACC NR: AP6019430   SOURCE CODE: UR/0135/66/000/006/0028/0031

AUTHOR: Vivsik, S. N. (Engineer); Nikolayenko, M. R.; (Engineer);
Kharin, V. P. (Engineer)

ORG: Podol'sk Plant im. S. Ordzhonikidze (Podol'skiy zavod)

TITLE: Automatic welding of tubes made of Kh5M-U steel

SOURCE: Svarochnoye proizvodstvo, no. 6, 1966, 28-31

TOPIC TAGS: automatic welding, low alloy steel, metal tube, arc welding/
Kh5M-U low alloy steel

ABSTRACT: Steel Kh5M-U is a moderately alloyed steel of the martensite
class. The article describes experiments on the argon arc welding of
Kh5M steel under a low silicon manganese flux Z10-F-2 (type AN-22)
instead of the recommended flux AN-15. The samples were preheated in a
special burner operating on natural gas. The shielding gas was pure
argon. The welding rod was type V1-10, with a diameter of 3 mm. The
samples were tubes of Kh5M-U steel 219 x 18 mm, normalized at a
temperature of 990-1020°C with subsequent annealing at 700-730°C. The
welding was done with a type Sv-10Kh5M rod, with both Z10-F-2 and AN-15
fluxes. The chemical composition of the basic and the melted metal is
given in one table, and its mechanical properties in another table.

Card 1/2   UDC: 621.791.75-52:62-462:669.15-194

L 38487-66

.ACC NR: AP6019430   /

Heat treatment of the welded joints was carried out under the following
conditions: heating to 710-730°C, holding for 2 hours, cooling in the
furnace to 300°C, then in air. Results are presented in a series of
figures. Orig. art. has: 5 figures and 2 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 004

Card 2/2   pb

L 41262-66   EWT(m)/EWP(w)/EWP(v)/T/EWP(t)/ETI/EWP(k)   IJP(c)   JD/HM

SOURCE CODE: UR/0125/66/000/006/0050/0054

ACC NR: AP6021007 (N)

AUTHOR: Kakhovskiy, N. I.; Ponizovtsev, A. M.; Vivsik, S. N.; Nikolayenko, M. R.

ORG: [Kakhovskiy, Ponizovtsev] Institute of Electric Welding im. Ye. O. Paton, AN UkrSSR (Institut elektrosvarki im. Ye. O. Patona AN UkrSSR); [Vivsik, Nikolayenko] Podol'sk Plant im. Ordzhonikidze (Podol'skiy zavod im. Ordzhonikidze)

TITLE: Welding of EI756 high-temperature chromium steel

SOURCE: Avtomaticheskaya svarka, no. 6, 1966, 50-54

TOPIC TAGS: high temperature chromium steel, welding flux, welding electrode, steam auxiliary equipment/EI756 (1Khl2V2MF) high-temperature chromium steel, AN-17 welding flux, EP-249 welding electrode, EP-390 welding electrode

ABSTRACT: EI756 (1Khl2V2MF) high-temperature chromium steel belongs in the martensitic-ferritic class and is used to manufacture the blades of steam and gas turbines as well as superheater tubes and steam lines. The article deals with the problem of selecting a flux which, in a combination with the use of specially developed EP-249 and EP-390 wire electrodes, would assure optimizing the chemical composition of the weld metal. Experiments

UDC: 621.791.7:669.15-194:669.26

Card 1/2

L   41269-66

ACC NR: AP6021007

with the butt welding of 36 mm thick joints of EI756 steel showed that the AN-17 low-silicon oxidizing flux is the most suitable for this purpose and facilitates best the separation of the slag crust, and that EP-390 electrode wire (Nb-free) is superior to EP-249 electrode wire, since Nb-free welds display a stress-rupture stength of 10 kg/mm^2 after 100,000 hr at 600°C and, moreover, during long-time tests, they display higher plasticity and impact strength. The optimal parameters of the butt welding of tubes measuring 273x36 mm in diameter were found to be: welding current 200-220 a, voltage 28-30 v, welding rate 10-12 m/hr (such a moderate of automatic welding regime is a prerequisite for obtaining a weld metal that is free of hot cracks), with slow subsequent cooling (by not more than 150°C/hr). The cooling is followed by tempering at 740-760°C for 5 hr. The metal of the resulting weld displays satisfactory short- and long-time mechanical properties. Orig. art. has: 6 figures and 4 tables.

SUB CODE: 13,11/   SUBM DATE: 25June65/   ORIG REF: 004

Card 2/2 XC

KURGANOV, V.M.; GONSALES, A.; VIV'YER, A.S.

Remodeling the catalyst circulation system in a catalytic cracking
unit. Nefteper. i neftekhim. no.3:5-10 '65.   (MIRA 18:5)

1. Salavatskiy neftekhimicheskiy kombinat i Vsesoyuznyy nauchno-
issledovatel'skiy institut po pereabotke nefti i gaza i polucheniyu
iskusstvennogo zhidkogo topliva.

STEKOL'NIKOV, I.S., professor; KADER, Ya. M., redaktor; VIVTER, A.V.,
akademik, redaktor; KAZAKOVA, V.Ye., tekhnicheskiy redaktor

[Thunder and lightning] Molniia i grom. 3-e, perer. izd. Pod red.
A.V.Vintera. Moskva, Voen. izd-vo Ministerstva oborony Soiuza SSR.
1954. 91 p. [Microfilm]   (MLRA 8:2)
        (Lightning)   (Thunderstorms)

VIV'YER, A.S.; POLETAYEV, V.B.; RUDOVICH, M.A.

Small K-18 proportioning devices. Mash. i neft. obor. no.9:
20-21 '63.   (MIRA 17:2)

1. Kombinat No.18, g. Salavat.

GONSALES, A.A.; KURGANOV, V.M.; AGAFONOV, A.V.; ABAYEVA, B.T.;
POLETAYEV, V.B.; VIV'YER, A.S.; RUDOVICH, M.A.; BELYAYEVA, Z.G.;
RUTMAN, G.I.

Results of redesigning an industrial catalytic-cracking device.
Nefteper. i neftekhim. no.9:6-10 '63.   (MIRA 17:8)

1. Salavatskiy kombinat i Vsesoyuznyy nauchno-issledovatel'skiy
institut po pererabotke nefti.

VIYAYASASTKA, K.

VIJAYASASTRA, Ruslan, zamestitel' general'nogo sekretarya.

Development of the trade-union movement in colonial and semi-colonial countries. Sov.profsoiusy 1 no.3:16-24 N '53.   (MLRA 6:12)

1. Vseindoneziyskiy tsentr professional'nykh soyuzov.
          (Trade-unions)

VIYDALEPP, R. Ya.

"Ispolneniye narodnykh skazok kak proizvodstvenno-magicheskiy obryad."

report submitted for 7th Intl Cong, Anthropological & Ethnological Sciences, Moscow, 3-10 Aug 64.

RAUKAS, Anto, kand. geol.-miner. nauk; ORVIK, K.K., akademik,
        red.; KAL'O, D.L.[Kalju, D.], kand. geol.-miner. nauk,
        red.; VIYDING, Kh.A.[Viiding, H.], kand. geol.-miner.
        nauk, red.; NURM. E., kand. filolog. nauk, red.;
        KINDLAM, M., red.

[Granulometric classification of detrital rocks] Purd-
kivimite terasuuruse klassifikatsioon. Klassifikatsiia
oblomochnykh porod po granulometricheskomu sostavu.
Tallinn, Eesti NSV Teaduste Akadeemia, 1964. 4 p.
9 tables.   (MIRA 18:5)

1. Akademiya nauk Estonskoy SSR (for Orvik).

SHPARBER, L.Ya.; VIYER, V.I.; VOLKOV, Yu.P.; RYABTSEV, L.Yu.; REIZOV, N.S.

Improving the operating conditions of a charging device. Metallurg
9 no.12:8-12 D '64.   (MIRA 18:2)

1. Magnitogorskiy metallurgicheskiy kombinat.

VIYERTYESHCHAK, F.

"Cleaning and washing of parts during remounting," Automobile, 1951.

VOLKOV, Yu.P.; KRYUKOV, N.M.; VAYER, V.I.; OSTROUKHOV, M.Ya.; RYABTSEV, L.Yu.; TKACHENKO, F.T.; CHATILIN, A.I.; SHPERBER, L.Ya.

Blowing-in a large capacity blast furnace. Metallurg 10 no.1:4-8 Ja '65.

(MIRA 18:4)

RYABTSEV, L.Yu., starshiy master; VIYER, V.I., inzh.-konstruktor

    Work practices of foreman in the production of iron with
    a low sulfur content. Metallurg 10 no.8:5-7 Ag '64.
                                           (MIRA 17:11)

    1. Magnitogorskiy metallurgicheskiy kombinat.

BEKER, M. Ye. [Bekers, M.]; BARTOSHEVICH, G.I.; VIYESTUR, U.E. [Viesturs, U.];
    LAZHE, Ya.Ya. [Laze, J.]

Growing and drying of fodder yeast in the Milgravis Distillery.
Ferm. i spirt. prom. 30 no.7:29-33 '64   (MIRA 18:2)

1. Institut mikrobiologii AN Latviyskoy SSR (for Beker). 2. Mil-
gravskiy spirtovoy zavod (for Bartoshevich). 3. Sovet narodnogo
khozyaystva Latviyskoy SSR (for Viyestur, Lazhe).

BEKER, M.Ye., kand. tekhn. nauK, red.; VIYESTURS, U.R. [Viesturs, U.]
red.; DAMBERGA, B.A., kand. biol. nauk, red.; KUKAYN, R.A.,
[Kukains, R.], doktor med. nauk, red.; KARKLIN'SH, R.Ya.
[Karklins, R.], kand. tekhn. nauk, red.; STURIS, T.E., red.;
YAKOBSON , Yu.O.[Jakobsons, J.], kand. biol. nauk, red.

[Microbiological processes and production] Mikrobiologiche-
skie protsessy i proizvodstvo. Riga, Izd-vo AN Latv.SSR,
1964. 153 p.   (MIRA 17:8)

1. Latvijas Padomju Socialistiskas Republikas Zinatnu Akademija.
Mikrobiologijas instituts.

VIYEVSKIY, N.A. (Vinnitsa)

Significance of central nervous system function in changes in
respiration and electrical activity of the cerebral cortex during
anaphylactic shock. Pat. fiziol. i eksp. terap. 5 no.4:65-67 Jl-Ag
'61.
(MIRA 14:9)

1. Iz kafedra patologicheskoy fiziologii (zav. - prof. Ya.M.
Brivan) Vinnitskogo meditsinskogo instituta.
(ALLERGY)   (ELECTROENCEPHALOGRAPHY)
(NERVOUS SYSTEM)   (RESPIRATION)

BEKER, M. [Bekeris, M.]; VIYESTURS, U. [Viesturs, U.]

Study of the conditions for maximum accumulation of yeast
biomass on sugar-beet substrate. Izv. AN Latv. SSR no.5:
95-102 '63.   (MIRA 17:1)

1. Institut mikrobiologii AN Latviyskoy SSR.

85-58-1-10/28

AUTHOR: Viyk, E., Chief, Republic Aviation Sports Club, Tallin

TITLE: The First Republic-wide Glider Competitions in the
             Estonian Republic (Pervyye respublikanskiye sorevnovaniya
             planeristov Estonii)

PERIODICAL: Kryl'ya rodiny, 1958, Nr 1, p 11 (USSR)

ABSTRACT: The first glider competitions in the Estonian Republic
             were held in 1957. Teams from the Aeroclub and ship
             repair plant of Tallin and Tartu took part in the
             competitions. Personalities who participated include:
             A. Rayda, Yu. Keedus, A. Kyunnapuu, B. Rozhkov, Ye.
             Ivanov, A. Rodik, V. Kummer, O. Maydla and
             A. Silluste; I. Ambre, K. Lepimaan, and E. Pyarna.

ASSOCIATION: Republic Aviation Sports Club, Tallin

AVAILABLE: Library of Congress

Card 1/1

VIYL', Yu.A..[Viil, J.]; VOSKRESENSKAYA, N.P.

Pffect of light on the biosynthesis of tryptophan in the green
seedlings of barley. Fiziol.rast. 12 no.6:990-997 N-D '65.
(MIRA 1?:12)

1. Institut eksperimental'noy biologii AN Estonskoy SSR i
Institut fiziologii rasteniy imeni K.A.Timiryazeva AN SSSR,
Moskva. Submitted February 8, 1965.

VIYLEBERG,K.Kh.,Cand Agr Sci—(diss) " On the effect of the conditions of cultivating upon the potato seed qualities in the Estonian SSR." Tallin, 1958. 25 pp with graphs (Acad Sci Estonian SSR. Dept of Bio and Med Sci), 160 copies (KL,49-58, 125)

-70-

VIYLEBERG, L. I.

Cand Biol Sci - (diss) "Effect of change in growing conditions
on the physiologo-biochemical processes and reproductive capa-
city of the potato." Tallin, 1961. 34 pp with diagrams;
(Academy of Sciences Estonian SSR, Division of Biological and
Medical Sciences); 300 copies; free; (KL, 6-61 sup, 206)

VIYLUP, V.A. [Viilup, V.]; SEMENOV, A.P., kand.tekhn.nauk

Experiment in using the chamber mining method in the mines
of Estonslanets Trust. Ugol' 37 no.1:13-18 Ja '62.
                                              (MIRA 15:2)
1. Upravlyayushchiy trestom Estonslanets (for Viylup).
2. Institut gornogo dela imeni A.A.Skochinskogo (for Semenov).
              (Estonia—Slate)
              (Mining engineering)

KHIMUNIN, S.D., kand. tekhn. nauk; SHARLYGINA, K.A., ml. nauchn. sotr.; VOLCHKOVA, A.T., st. inzh.; Prinimali uchastiye: POPOVA, N.V., inzh.; BYCHKOVA, A.A., inzh.; SKARBOVICHUK, T.G., inzh.; VIYRA, I.I., arkhitektor; SHEYNA, T.M., st. tekhnik

[Recommendations on redesigning and improving the living conditions of apartment houses of old towns] Rekomendatsii po pereplanirovke i povysheniiu blagoustroistva zhilykh do-mov staroi zastroiki gorodov. Leningrad, Stroiizdat, 1965. 131 p.   (MIRA 18:8)

1. Akademiya kommunal'nogo khozyaystva. Leningradskiy nauchno-issledovatel'skiy institut. 2. Rukovoditel' la-boratorii kapital'nogo remonta zhilykh domov Leningradskogo nauchno-issledovatel'skogo instituta Akademii kommunal'nogo khozyaystva im. K.D.Pamfilcva (for Khimunin).

VIYRES, A. O.

"Traditsionnyy sel'skokhozyaystvennyy transport narodov Pribaltiki (k voprosu ob istoriko-kul'turnykh vzanmosvyazyakh)."

report submitted for 7th Intl Cong, Anthropological & Ethnological Sciences, Moscow, 3-10 Aug 64.

SOV/19-58-6-623/685

AUTHORS: Khubayev, G.V., Klyavin'sh, Ya.Ya., Viyuma, D.Kh. and Lugis, A.A.

TITLE: A Method of Applying a Decorative Finish to the Wooden Surfaces of Articles (Sposob dekorativncy otdelki derevyannykh poverkhnostey izdeliy)

PERIODICAL: Byullten' izobreteniy, 1958, Nr 6, pp 137-138 (USSR)

ABSTRACT: Class 75c, 5_{01}. Nr 113442 (574157 of 1 June 1957). Submitted to the Committee for Inventions and Discoveries at the Ministers Council of USSR. Dependent on Author's Certificate Nr 106267. A method of applying a decorative finish on wooden surfaces as described in Author's Certificate Nr 106267; differing from the original by improved quality of finish and reduced consumption of materials; this is achieved by the use of a mixture of 60-70% (weight) styrene monomer and 30-40% methylether of methacrylic acid, placing it into a glycerine or

Card 1/2

SOV/19-58-6-623/685

A Method of Applying a Decorative Finish to the Wooden Surfaces
of Articles

steam-heated reactor and mixing it at $110 \pm 5^{C}C$
until a working viscosity is reached, then cooling
and adding benzoyl superoxide, hydrogen peroxide
of cumole and dioctyl phthalate, each in a quantity
of 1%, before use.

Card 2/2

SUKHAREV, Yu.S.; VIZANTIYSKIY, Yu.A.; SAZONOV, V.V., red.; SAYTANIDI, L.D., tekhn. red.

[Average daily weight gains of 1100 grams] 1100 grammov sredne-sutochnogo privesa. Moskva, Izd-vo M-va sel'.khoz. RSFSR, 1960. 31 p.
(MIRA 14:10)

(Stock and stockbreeding)

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.

L 29611-66   EWT(1)/EWT(m)/EWP(t)/ETI   IJP(c)   JD

ACC NR: AT6012817   SOURCE CODE: UR/2910/65/005/001/0063/0069

AUTHOR: Rudzikas, Z. B.; Rudzikas. Z.; Vizbarayte, Ya. I.; Yutsis, A. P.;
Vizbaraite, J.; Jucys, A.

ORG: Vilnius State University im. V. Kapsukas (Vil'nyusskiy Gosudarstvennyy
universitet)

TITLE: Calculation of line strength in the spectrum of the neon atom

SOURCE: AN LitSSR. Litovskiy fizicheskiy sbornik, v. 5, no. 1, 1965, 63-69

TOPIC TAGS: line intensity, atomic spectrum, neon, electron transition, excited
state

ABSTRACT: Line strength is theoretically calculated for the case of transitions be-
tween excited states of the neutral neon atom. The calculations are based on the
$J_0 l$-bond in $2p^5 nl$ configurations with the exception of the case where $nl=3s$ where
the LS-bond is used in conjunction with the $J_0 l$-bond. The LS-bond coincides with
the LS_0-bond in the given case. Satisfactory agreement is observed between theoret-
ical values of the total line strength for the $3d-4f$ transition and the experimental

Card 1/2

L 29611-66

ACC NR: AT6012817

relative intensities of the corresponding lines. Orig. art. has: 2 tables, 6 formulas.

SUB CODE: 20/ SUBM DATE: 04Apr64/ ORIG REF: 005/ OTH REF: 003

Card 2/2 CC

AUTHORS: Yutsis, A., Vizbarayte, Ya.

TITLE: On specifying the calculation of forbidden spectral lines

PERIODICAL: Referativnyy zhurnal, Astronomiya, no. 3, 1963, 29 - 30, abstract
              3.51.237 ("Byul. Astron. observ. Vil'nyussk. un-ta", 1960, no. 2,
              3 - 6, Lithuanian and English summaries)

TEXT: The authors consider the question on specifying the calculations
of transition probabilities for forbidden lines, conducted on assumption of LS-
coupling. Attention is drawn to the fact that, in a number of cases, the ini-
tial and final states of the atom or the ion are characterized by different
types of coupling. Then new selection rules appear for the electric quadrupole
transition. By means of selecting a suitable coupling type in the initial and
final states, more precise results can be achieved than by means of using the
multi-configuration approximation.

A. Kolosov

[Abstracter's note: Complete translation]

Card 1/1

VIZBARAYTE,Ya. [Vizbaraite, J.]; RUDZIKAS, Z.B.; YUTSIS, A.P. [Jucis, A.],
akademik

Theory of nebular forbidden lines corresponding to magnetic multipole
transitions. Dokl. AN SSSR 150 no.1:62-63· My '63.   (MIRA 16:6)

1. Institut fiziki i matematiki AN Litovskoy SSR i Vil'nyusskiy
gosudarstvennyy universitet im. V.Kapsukasa. 2. AN Litovskoy SSR
(for Yutsis).

(Nebulae--Spectra)

V/ZBARAYTE, YA I.

Category : USSR/Atomic and Molecular Physics - Physics of the Atom   D-1

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3358

Author   : Vizbarayte, Ya.I., Kavetskis, V.I., Yutsis, A.P.
Title   : Multi-Configuration Approximation in the Case of Atoms of the Helium
           Type.

Orig Pub : Optika i spektroskopiya, 1956, 1, No 3, 282-284

Abstract : The multi-configuration approximation was applied to the fundamental con-
           figuration of atoms of the helium type from H^- to C^{4+} using a method, by
           which the results of the self-consistent field are used for the funda-
           mental configuration, and the corrections to the energy for the multi-
           configuration approximation are determined with the aid of hydrogen-like
           analytic wave functions. The values obtained for the total energy were
           compared with the results of the method of incomplete separation of
           variables and with the experimental data.

Card   : 1/1

VIZBARAYTE, Ya. L.

Category : USSR/Atomic and Molecular Physics - Physics of the Atom   D-1

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3360

Author   : Vizbarayte, Ya, I., Shironas, V.I., Kavetskis, V.I., Yutsis, A.P.
Title   : The Fok Self-Consistent Field in the Multi-Condiguration Approximation
           for the Helium Atom

Orig Pub : Optika i spektroskopiya, 1956, 1, No 3, 277-281

Abstract : Solutions to the Fok equations are given in the two-configuration ap-
           proximation for the configurations $2p^2$, $2s^2$, $3d^2$, and $3p^2$, considered
           as accountable configurations with respect to the ground configuration
           of the helium atom. With the aid of these solutions, the authors de-
           termined the values of the correction to the energy of the ground con-
           figuration at various multi-configuration approximations. Also given
           are the values of the correction to the energy, obtained with the aid
           of the self-consistent Fok field in the six-configuration approximation
           $1s^2$ -- $2p^2$ -- $2s^2$ -- $3d^2$ -- $3p^2$ -- $2p3p$, and were compared with the ex-
           perimental values of the energy.

Card   : 1/1

AUTHORS: Yutsis, A. P., Vizbarayte, Ya. I., Kavetskis, V. I., Batarunas, I. V.

TITLE: The Approximation of the Models of Two-Electron States and the So-Called Anomaly in the Spectra of Carbon, Nitrogen, and Oxygen (Priblizheniye modeli dvukhelektronnykh sostoyaniy i tak nazyvayemaya anomaliya v spektrakh ugleroda, azota i kisloroda)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958, Vol. 22, Nr 6, pp. 665-667 (USSR)

ABSTRACT: For quantum-technical calculations of the atom the method of the incomplete separation of variables (Ref 1) and that of multiconfiguration approximation (Ref 2) are employed, which are both difficult from a mathematical point of view. Simplification may be attained by using these methods for two-electron systems. It is therefore assumed in this paper that also other calculations can be carried out on the basis of the two-electron systems by means of approximation methods. The second and more simple method is here given preference.
The chapter entitled: "The Case of Three-Electron Systems" deals with the ground state and the first excitation state for atoms

Card 1/3

The Approximation of the Models of Two-Electron States   SOV/48-22-6-6/28
and the So-Called Anomaly in the Spectra of Carbon,
Nitrogen, and Oxygen

of the lithium type. With respect to the two internal electrons a 5-configuration approximation: $1s^2-2p'^2-2s'^2-3d'^2-3p'^2$ is used (Ref 4) and external electrons are dealt with by the approximation method for electron states. The chapter: "The Problem of Anomaly in the Spectra of Carbon, Nitrogen, and Oxygen" deals with the values of $q = 2, 3, 4$, where, in the intervals between the energies of individual terms, the anomaly occurs; for carbon or oxygen the experimental value of

$$\frac{^1S - ^1D}{^1D - ^3P} = 1.13$$ and the theoretical value is 1.5.   In the case of nitrogen the experimental value obtained is 0.5, the theoretical value is 0.67. If the problem is solved according to the two-electron state, the values 1.1 and 0.5 respectively are obtained, which are near the experimental values. In the chapter: "Evaluation of Results" the conclusion is arrived at that in multi-configuration approximations carried out on the basis of two-electron states the conception of the shell structure of

Card 2/3

The Approximation of the Models of Two-Electron States   SOV/48-22-6-6/28
and the So-Called Anomaly in the Spectra of Carbon,
Nitrogen, and Oxygen

electrons in atoms is maintained. There are 12 references, 7 of
which are Soviet.

ASSOCIATION: Institut fiziki i matematiki Akademii nauk Litovskoy SSR,
Vil'nyusskiy gos. pedagogicheskiy institut i Vil'nyusskiy gos.
universitet im. V. Kapsukas (Institute of Physics and
Mathematics, AS Lithuanian SSR, Institute of Pedagogics and State
University imeni V. Kapsukas in Vil'nyus)

1. Atoms--Mathematical analysis   2. Carbone-Spectra   3. Nitrogen
--Spectra   4. Oxygen--Spectra

Card 3/3

S/081/61/000/021/005/094
B102/B138

AUTHORS: Zhvironayte, S. A., Vizbarayte, Ya. I., Yutsis, A. P.

TITLE: Two-electron matrix elements of the energy operator in the
              case of Ls-coupling

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 21, 1961, 12, abstract
              21B85 (Tr. AN LitSSR, B, v. 1(24), 1961, 49 - 64)

TEXT: A mathematical procedure is shown, for the calculation of two-elec-
tron systems in the case of Ls-coupling. The coefficients of the radial
integrals in the expressions of the matrix elements of the energy operator
are given numerically for spin-orbital as well as for electrostatic inter-
actions for sl, pp, pd, pf, pg, dd, df and dg configurations. [Abstracter's
note: Complete translation.]

Card 1/1

S/081/61/000/021/003/094
B102/B138

AUTHORS: Vizbarayte, Ya. I., Vosilyus, I. I., Savukinas, A. Yu.,
            Yutsis, A. P.

TITLE: Application of jl-coupling in the case of an excited oxygen
            ion

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 21, 1961, 12, abstract
            21B83 (Tr. AN LitSSR, B, v. 1(24), 1961, 43 - 48)

TEXT: The energy spectrum of a $1s^2 2s^2 2pnl$ configuration is examined using
jl-coupling. In the case nl = 4f,5g, theoretical values for the positive
oxygen ion energy were found and compared with experimental data. [Abstrac-
ter's note: Complete translation.]

Card 1/1

AUTHORS: Vizbarayte, Ya. I., Vosilyus, I. I., Savukinas, A. Yu.,
             Yutsis, A. P.

TITLE: Two-electron matrix elements of the energy operator in the
             case of jl-coupling

TEXT: The matrix elements were determined for the matrices of jl-coupling
transformations to LS and jj-coupling, expressed by 6j-coefficients, and
also expressions for the electrostatic and spin-orbit interaction energy.
The coefficients at the radial integrals in the expressions of these
energies are tabulated for the configurations sl, pp, pd, pf, pg, dd, df and
dg. [Abstracter's note: Complete translation.]

Card 1/1

Category : USSR/Atomic and Moleuclar Physics - Physics of the atom.   D-1

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 733

Author   : Vizbarayte, Ya.I., Kantserevichyus, A.I., Yutsis, A.P.
Inst   : Vil'nyus University
Title   : The Fok Self-Consistent Field for the Excited Helium Atom

Orig Pub : Optika i spektroskopiya, 1956, 1, No 1, 9-16

Abstract : Solutions for the equations of the Fok self-consistent field are given for
           the 1s2s, 1s2p, 1s3p, and 1s4p configurations of the helium atom. A possible
           simplification of the Fok equations is considered. The simplified Fok
           equations are solved for the 1s5p, 1s6p, 1s3d, 1s4d, 1s5d and 1s6d con-
           figurations of the helium atom. These solutions are used to determine the
           values of the total energy. The values of the total dipole strength are
           given for the transitions between the ground configuration of the helium
           atom and the excited configurations, and also between the excited con-
           figurations themselves.

Card   : 1/1

YUTSIS, A.P.; VIZBARAYTE, Ya. I.; KAVETSKIS, V.I.; BATARUNAS, I.V.

Approximate models of dielectron state and so-called anomaly in carbon, nitrogen and oxygen spectra. Izv. AN S.S.S.R. Ser. fiz. 22, no. 6:665-667 Je '58.   (MIRA 11:7)

1. Institut fiziki i matematiki Akademii nauk Litovskoy SSR, Vil'nyusskiy gos. pedagogicheskiy institut i Vil'nyusskiy gos. universitet im. V. Kapsukas.
                    (Quantum theory)

S/2910/63/003/01-/0155/0158

ACCESSION NR: AT4041507

AUTHOR: Zhvironayte, S. A., Vizbarayte, Ya. I., Karosene, A. V., Savukinas, A. Yu.

TITLE: The problem of the classification of the energy spectrum of atoms in the 2p sup N nl configuration

SOURCE: AN LitSSR. Litovskiy fizicheskiy sbornik, v. 3, no. 1-2, 1963, 155-158

TOPIC TAGS: energy spectrum, energy spectrum classification, electron shell

ABSTRACT: The structure of the energy spectrum of the $2p^N nl$ configuration for various degrees of shell filling and various levels of excitation of the outer electron is fully explored in the existing literature. In the present paper, the authors review some of the results of these theoretical investigations of the energy spectrum of N, O, F and Ne. When the excitation of the outer electron is increased, the LS-bond becomes invalid and the LS_0-bond and J_0l-bond appear instead (sequential structure bonds). These bonds appear at lower excitation levels when the number of electrons in the closed shell is large. For atoms with the same ionization level, the sequential structure bonds appear at lower excitation levels of the outer electron in the atom with lower N (or Z). When two atoms have

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ACCESSION NR: AT4041507

the same Z, the sequential structure bonds appear at low levels of outer electron excitation when N is large (ionization level small). When two atoms have the same number of electrons in the partially filled shell, the sequential structure bonds appear at low levels of outer electron excitation when the nucleus charge is small. Orig. art. has: 1 table.

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

SUBMITTED: 00   ENCL: 00

SUB CODE: NP   NO REF SOV: 008   OTHER: 003

2/2

Card

S/2910/63/003/01--/0159/0166

ACCESSION NR: AT4041508

AUTHOR: Dagis, R. S., Rudzikas, Z. B., Vizbarayte, Ya. I., Yutsis, A. P.

TITLE: Effect of orbit-orbit interaction in the case of equivalent electrons

SOURCE: AN LitSSR. Litovskiy fizicheskiy sbornik, v. 3, no. 1-2, 1963. 159-166

TOPIC TAGS: orbit-orbit interaction, equivalent electron, electron configuration, electron shell, radial integral, iron, electron energy

ABSTRACT: The orbit-orbit interaction affects the center of gravity of various terms of any given electron configuration and can be significant when the terms are close to each other. The popular correction schemes based on empirical data tend to give results which are too high. In the present article the exact expressions for the matrix elements of the orbit-orbit interaction energy operator for equivalent electrons are computed. Supple-mentary shell properties are used for partially filled shells. The method is based on evaluation of appropriate radial integrals, M^K, which appear in the orbit-orbit interaction operator. A table of coefficients for the radial integrals M^0 and M^2 in the diagonal matrix elements of the orbit-orbit energy interaction operator is generated for partially filled shells of p- and d-equivalent electrons. The table covers the values $\frac{1}{6}S$ to $\frac{1}{4}D$ for p^2,

Card 1/3

ACCESSION NR: AT4041508

^4_3S to ^2_1P for p^3, ^1_0S to ^1_2G for d^2, ^2_3P to ^2_3H for d^3, ^1_0S to ^4_1I for d^4 and ^2_5S to ^2_5I for d^5.

It is shown that the orbit-orbit interaction effect does not disappear when the shell is completely filled or when only one electron is missing. The radial integrals M^0(3d, 3d) and M^2 (3d, 3d) for Ti, V, Cr, Mn, Fe, Co, Ni and Cu are computed. This data is used to show that in a positive Mn ion the difference in levels a^3P_1 and a^3H_5 in cm^{-1} is one order of magnitude smaller than the orbit-orbit interaction. The example of the double Cu ion in $3d^8$ configuration shows that neglecting the orbit-orbit interaction can result in a term ration which is 30% too high. It is concluded that orbit-orbit interaction must be accounted for in accurate theoretical computations of energy levels. This is especially important when the absorption or emission of radiation is due to a transition between two closely spaced levels. "The authors express their gratitude to R. Petrushkyavichyus for his assistance in the computation of radial integrals." Orig. art. has: 18 equations and 2 tables.

ASSOCIATION: Vil'nyusskiy gosudarstvenny*y pedagogicheskiy institut (Vilnius State Pedagogical Institute); Vil'nyusskiy gosudarstvenny*y universitet im. V. Kapsukasa (Vilnius State University); Institut fiziki i matematiki Akademii nauk Litovskoy SSR (Institute of Physics and Mathematics, Academy of Sciences of the Lithuanian SSR)

Card   2/3

ACCESSION NR: AT4041506

SUBMITTED: 00

SUB CODE: NP

NO REF SOV: 005

ENCL: 00

OTHER: 010

Card 3/3

L 6904-65   EWT(l)   IJP(c) SSD AFWL ASD(a)-5/ESD(gs)/ESD(t)
ACCESSION NR: AP4030903   S/0058/64/000/004/D003/D003

SOURCE: Ref. zh. Fiz., Abs. 4D11

AUTHORS: Zhvironayte, S. A. ;Vizbarayte, Ya.I.; Karosene, A /.:

Title: Concerning the classification of the energy spectrum of
atoms in the 2p and N nl configuration

CITED SOURCE: Lit. fiz. sb., v. 3, no. 1-2, 1963, 155-158

TOPIC TAGS: energy spectrum, atomic spectrum, shell theory, ion
spectrum

TRANSLATION: Results are presented of a theoretical study of the
structure of the energy spectra of atoms and ions having additional

                          SUB CODE: NP   ENCL: 00

Card 1/2

33654
3/058/61/000/012/007/083
A058/A101

24.4400

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

TITLE: Concerning the use of coupling-independent Fok equations

PERIODICAL: Referativnyy zhurnal, Fizika, no. 12, 1961, 27, abstract 12A339
             (LietTSR Mokslu Akad. darbai, Tr. AN LitSSR, 1961, B i (24), 65-73,
             Lith. summary)

TEXT: It is noted that attempts to replace the exchange terms in the Fok
equations of the self-consistent field by simpler expressions have failed because
they yield a revaluation of the exchange effect that is difficult to check. It
is suggested that the Fok equations be simplified by neglecting the terms that
yield a dependence on the type of coupling of momenta. Such Fok equations yield
results a little inferior to those obtained with the aid of the complete Fok
equations, but it is much simpler to solve them and use the solutions in prac-
tice. Neglecting exchange terms in coupling-independent Fok equations leads to
more accurate equations than the Hartree equations. It is pointed out how ex-

X

Card 1/2

Concerning the use ...

33654
S/058/61/000/012/007/083
A058/A101

pedient it is to use such refined Hartree equations in those cases where one can confine oneself to one-electron wave functions less rigorous than the solutions of the Fok equations.

[Abstracter's note: Complete translation]

Card 2/2

S/058/62/000/005/036/119
A001/A101

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

TITLE: On devising the generalized Hartree method'

PERIODICAL: Referativnyy zhurnal, Fizika, no. 5, 1962, 2, abstract 5V9 ("Tr.
              AN LitSSR", 1961, v. B3(26), 19-26, Lithuan. summary)

TEXT: It is shown that single-electron wave functions of individual con-
figurations in a multi-configuration approximation depend slightly on terms of a
given configuration and also on the coupling type. The generalized Hartree
method is compared with the generalized method of self-consistent field by Fok,
which consists in its generalization to the multi-configuration approximation.
The generalized Hartree method consists in the following procedure: In deter-
mining single-electron wave functions, a linear combination of products of radial
single-electron wave functions is used as variation wave function, and all other
calculations are carried out according to Fok's generalized method. The employ-
ment of the proposed method for the case of He atom yielded practically the same
results as the complete generalized Fok method.
[Abstracter's note: Complete translation]

Card 1/1

ZHVIRONAYTE, S.A. [Zvironaite, S.]; VIZBARAYTE, Ya.I. [Vizbaraite,J.]
    YUTSIS, A.P. [Jucys, A,], akademik

    Calculation of matrix elements of the energy operator in the
    case of one electron outside the quasi-closed shell. Trudy
    AN Lit. SSR. Ser. B no.1:3-15 '62   (MIRA 17:8)

    1. Institut fiziki i matematiki AN Litovskoy SSR i Vil'nyusskiy
    gosudarstvennyy universitet im. V.Kapsukasa. 2. Zamestitel'
    glavnogo redaktora zhurnala "Trudy AN Litovskoy SSR; serija "B"
    (for Yatsis).

L 27824-65   EWT(m)/EPF(c)/EPR/EWP(t)/EWP'b)   Pr-4/Ps-4   IJP(c)   D

ACCESSION NR: AT4049930

S/2910/64/004/001/0051/0058

AUTHOR: Rudzikas, Z. B. (Rudzikas, Z.); Vizbarayte, Ya.I. (Vizbaraite, J.);
Yatsis, A. P. (Jucys, A.)

TITLE: A theoretical investigation of some transitions in the spectrum of the nitrogen
atom

SOURCE:

ABSTRACT: The paper considers transitions of the form

$$2p^2\,(^3P)\,3d\,LSJ - 2p^2\,(^3P)\,4f\,T_1 T_1 J'$$

for LS, LS_c and $J\,l$ vector coupling schemes for a neutral atom of nitrogen, where, in the
above formula, $T_1 T_c$ are the mean quantum numbers of the coupling schemes. The total
above formula, $T_1 T_c$ are the mean quantum numbers of the coupling schemes. The total
transition, assuming LS_c and $J_c l$ coupling, are

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ACCESSION NR: AT4049930

$$S(2p^2 \, 3d \, LSJ, \, 2p^4 4f \, J_0' K' J') =$$

$$= \left| [(L)(L')S_0 \kappa (J)(J')] \right|^{\frac{1}{2}} \left\{ \begin{matrix} S & L & J'' \\ K' & \frac{1}{2} & S_0 \end{matrix} \right\} \left\{ \begin{matrix} L & J & S \\ J'' & L' & 1 \end{matrix} \right\} \left\{ \begin{matrix} 2 & L & L_0 \\ L' & 3 & 1 \end{matrix} \right\}^2 \cdot 3N^2(r3d, \, 4f),$$

$$S(2p^4 3d \, LSJ, \, 2p^4 4f \, J_0' K' J') =$$

$$= \left| [(L) \, S)(J_0')(K')(J)(J')] \right|^{\frac{1}{2}} \left| \begin{matrix} L & 1 & S_0 & K' \\ S & L_0 & J'' & 3 \\ J & \frac{1}{2} & 2 & J_0' \end{matrix} \right|^2 \cdot 3N^2(r3d, \, 4f).$$

These equations are used to derive numerical values for the line strengths and these are
compared with experiment in a table in the original paper.

Card   2 3

L 27824-65

ACCESSION NR: AT4049930

ASSOCIATION: Institut fiziki i matematiki, Akademiya nauk Litovskoy SSR (Institute of Physics and Mathematics. Academy of Sciences of the Lithuanian SSR); Vil'nyusskiy Gosudarstvennyy universitet im. V. Kapsukasa (Vilna State University)

L 30084-65   EWT(1)   IJP(c)

ACCESSION NR: AT5002015   S/2910/64/004/003/0311/0330

AUTHOR: Vizbaraite, Yu. I. (Vizbaraite, J.); Savukinas, A. Yu.; Yutsis, A P.;
(Savukynas, A.; Iucys, A.)

TITLE: Calculation of the energy spectrum of atoms in dl and d super 9 l configu-
rations

SOURCE: AN LitSSR. Litovskiy fizicheskiy sbornik, v. 4, no. 3, 1964, 311-330

TOPIC TAGS: electron energy level, quantum mechanics, copper ion, energy spectrum,
matrix, electron shell

ABSTRACT: The next in complexity to the $p^5 l$ configuration which was considered in
Liet. fiz. rinkinya 2, 213 (1962) is the $d^9 l$ configuration. This configuration is
considered in this article. Expressions are obtained for the coefficients of the
radial integrals in the formulae for the matrix elements of the energy operator for
the dl and $d^9 l$ electron configurations in terms of the quantum number l. In this
work, l is not used as an independent quantum number. The article
LS_0 and $J_0 l$ couplings including the spin-orbital interaction.
of the results ... small ...

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L 30084-65

ACCESSION NR: AT5002015

$1 + a_L$ type expression for L. A specific example is given by calculating the energy spectrum for the positive Cu ion in the $1s^2 2s^2 2p^6 3d^9$ nl (nl = 4f, 5g) configuration. Experimental data are available for this case. The absence of sufficient experimental data for ... ... of the energy spectrum ... ... type of coupling is positive. ... ... figure.

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: 28Jan64   ...   ...

NO REF SOV: 006   OTHER: 004

Card   2/2

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

Method for calculating the matrix elements of operators of atomic values in the case of complex configurations. Liet ak darbai B no.4:45-57 '61.

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

YUTSIS, A.P. [Jucys, A.]; VIZBARAYTE, Ya.I. [Vizbaraite, J.];
ZHVIRONAYTE, S.A. [Zvironaite, S.]

Calculation of matrix elements of the energy operator in
the case when one electron is outside the unfilled shell.
Liet ak darbai B no.4:59-72 '61.

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

S/058/62/000/005/038/119
A001/A101

AUTHORS: Eringis, K. K., Vizbarayte, Ya. I., Yutsis, A. P.

TITLE: A study of the problem of using the wave function of a whole atom, consisting of radial single-electron wave functions

TEXT: The problem of symmetrization of a product of radial wave functions is studied. A method is proposed of using various radial wave functions in one and the same electron shell. The corresponding method of calculations constitutes the Fok generalized method. This method is compared with the Hartree generalized method. It is proposed to determine radial wave functions by the Hartree generalized method and all the other calculations to carry out according to requirements of the theory of Fok's generalized method. This permits avoiding complicated calculations on determining single-electron functions and makes the method practicable. Calculations are carried out for the $1s^2 2p^2$ configuration of Be atom by means of analytical single-electron wave functions. The results

Card 1/2

A study of the problem of using the wave ...   S/058/62/000/C05/038/119
                                                     A001/A101

obtained show that the proposed method yields the value of energy which is closer to experiments by ~0.01 atomic units than the solutions of conventional equations of Fok's self-consistent field.

[Abstracter's note: Complete translation]

.Card 2/2

AUTHORS: Eringis, K. K., Vizbarayte, Ya. I., Yutsis, A. P.

TITLE: On refining the calculation of fine structure of terms in atoms with two 2p electrons

TEXT: The authors determine a correction to the fine structure of iso-electronic rows of atoms in configurations $2p^2$ and $1s^2p^2$, as well as to the ground configuration of the C atom. The results obtained show that the generaliz-ed calculation method increases magnitude of splitting of the ^3P term and thus brings it nearer to experimental data.

[Abstracter's note: Complete translation]

Card 1/1

S/058/62/000/005/037/119
A001/A101

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

TITLE: Transitions between different levels of one and the same configuration at different coupling types

PERIODICAL: Referativnyy zhurnal, Fizika, no. 5, 1962, 2, abstract 5V11 ("Tr. AN LitSSR", 1961, v. B3(26), 125-131, Lithuan. summary)

TEXT: Expressions are presented for the total strength of a magnetic dipole for the case of two optical electrons. A method is indicated to obtain corresponding formulae for an electric quadrupole transition without changing single-electron orbital quantum numbers. Using these formulae, selection rules are established for transitions between individual levels of one and the same configuration. Results show that forbidden lines at one coupling may be allowed ones at another one. Examples of such cases are cited. It is pointed out that theoretically determined intensities of allowed transitions strongly depend on the type of coupling.

[Abstracter's note: Complete translation]

Card 1/1

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

Mathematical problem of multiconfigurational approximation. Liet ak darbai no.3:3-10 '61.

1. Institut fiziki i matematiki Akademii nauk Litovskoy SSR.

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

Forms of equations of a self-consistent field. Liet ak darbai no.3: 11-17 '61.

1. Institut fiziki i matematiki Akademii nauk Litovskoy SSR.

VIZBARAYTE, Ya. I.[Vizbaraite, J.]; STROTSKITE, T. D.[Strockyte, T.]; YUTSIS, A. P.[Jucys, A.], akademik

Concerning the construction of the generalized Hartree method. Liet ak darbai no.3:19-26 '61.

1. Institut fiziki i matematiki Akademii nauk Litovskoy SSR.

STEPONAVICHYUTE, A. V.[Steponaviciute, A.]; VIZBARAYTE, Ya. I.[Vizbaraite, J.];
    YUTSIS, A. P.[Jucys, A.], akademik

Transformation matrix of a three-electron wave function between LS
and J1 couplings. Liet ak darbai no.3:41-52 '61.

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

ERINGIS, K. K.[Eringis, K.]; VIZBARAYTE, Ya, I.[Vizbaraite, J.]; YUTSIS, A.P.
[Jucys, A.], akademik

Investigation of the problem of using the whole-atom wave function
composed of radial single-electron wave functions. Liet ak darbai no.3:
67-80 '61.

1. Institut fiziki i matematiki Akademii nauk Litovskoy SSR.

YUTSIS, A. P.[Jucys, A.], akademik; SHUGUROV, V. K.[Sugurovas, V.];
VIZBARAYTE, Ya. I.[Vizbaraite, J.]; ERINGIS, K. K.[Eringis, K.]

Calculation of matrix elements of operators by the extended calcula-
tion method. Liet ak darbai no.3:81-92 '61.

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

AUTHOR: Rudzikas, Z. B.; Rudzikas. Z.; Vizbarayte, Ya. I.; Yutsis, A. P.;   4 9
Vizbaraite, J.; Jucys, A.   B+ 1

ORG: Vilnius State University im. V. Kapsukas (Vil'nyusskiy Gosudarstvennyy
universitet)

TITLE: Calculation of line strength in the spectrum of the neon atom

TOPIC TAGS: line intensity, atomic spectrum, neon, electron transition, excited
state

ABSTRACT: Line strength is theoretically calculated for the case of transitions be-
tween excited states of the neutral neon atom. The calculations are based on the
$J_0 l$-bond in $2p^5 nl$ configurations with the exception of the case where $nl=3s$ where
the LS-bond is used in conjunction with the $J_0 l$-bond. The LS-bond coincides with
the LS_0-bond in the given case. Satisfactory agreement is observed between theoret-
ical values of the total line strength for the $3d$-$4f$ transition and the experimental

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L 29611-66
ACC NR: AT6012817

relative intensities of the corresponding lines. Orig. art. has: 2 tables, 6 formulas.

SUB CODE: 20/ SUBM DATE: 04Apr64/ ORIG REF: 005/ OTH REF: 003

Card 2/2 CC

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

Graphic method for studying matrices of transformation of
the method of linking tensorial sets. Trudy AN Lit. SSR.
Ser. B no.2:3-18 '62.   (MIRA 18:3)

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

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.

ERINGIS, K. K.[Eringis, K.]; VIZBARAYTE, Ya. I.[Vizbaraite, J.]; YUTSIS, A.P.
[Jucys, A.], akademik

Refinement of the calculation of fine structure terms for atoms with
two 2p-electrons. K. K. Eringis, IA. I. Vizbaraite, A. P. IUtsis.
Liet ak darbai no.3:93-98 '61.

1. Institut fiziki i matematiki Akademii nauk Litovskoy SSR.

YUTSIS, A. P.[Jucys, A.], akademik: VIZBARAYTE, Ya. I.[Vizbaraite, J.];
ERINGIS, K. K.[Eringis, K.]

Application of the extended calculation method for determining the
intensity of spectral lines. Liet ak darbai no.3:99-105 '61.

1. Vil'nyusskiy gosudarstvennyy universitet im. V. Kapsukasa i Insti-
tut fiziki i matematiki Akademii nauk Litovskoy SSR.

VIZBARAYTE, Ya. I.[Vizbaraite, J.]; YUTSIS, A. P.[Jucy· A.], akademik

Transitions between different levels of the same configuration for various types of couplings. IA. I. Vizbaraite, A. P. IUtsis. Liet ak darbai no.3:125-131 '61.

1. Institut fiziki i matematiki Akademii nauk Litovskoy SSR.

VIZBARAYTE, YA. I.

VIZBARAYTE, YA. I. --"Theoretical Investigation of Bielectron Systems."
Vil'nyus State U imeni V. Kapsukas, Physicomathematical Faculty, Vil'-
nyus, 1955 (Dissertation For the Degree of Candidate in Physicomatnematical
Sciences)

SO: Knizhnaya letopis' No. 37, 10 September 1955

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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...., the second line
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... experimental results. There

...., 1961

YUTSIS, A.P.; VIZBARAYTE, Ya.I.; STROTSKITE, T.D.; BANDZAYTIS, A.A.

Multiconfigurational approximation and its convergence. Opt.
i spektr. 12 no.2:157-162 F '62.   (MIRA 15:2)
(Approximate computation)
(Quantum theory)

42658

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

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 graphi-
cal 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, A1, is the trivial case of the
identity matrix; the other, B1, 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'nyusskiy gosudarstvennyy universitet im.
              V. Kapsukasa
              (Vil'nyus State University imeni V. Kapsukas)

SUBMITTED: December 30, 1961.

Fig.1.

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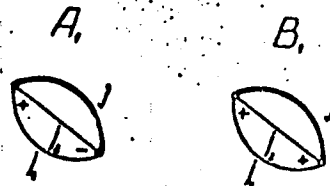
S/236/62/000/004/001/009
D234/D308

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^{31}, V^{41} for 2, 3, 4, 5d electrons. There is 1 table.

ASSOCIATION: Vil'nyusskiy 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

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44924

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D234/D308

24.4400

AUTHORS: Bandzaytis, 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:

$$
\left\{
\begin{array}{cccccc}
j_1 & j_2 & j_3 & j_4 & j_5 & j_6 \\
l_1 & l_2 & l_3 & l_4 & l_5 & l_6 \\
k_1 & k_2 & k_3 & k_4 & k_5 & k_6
\end{array}
\right\} =
$$

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

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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