

KULAYEV, I.S.; OSTROVSKIY, D.N.; BELOZERSKIY, A.N.

First products of orthophosphate assimilation from the culture
medium by the mycelium of *Penicillium chrysogenum* Q-176.
Dokl. AN SSSR 135 no.2:467-470 N '60. (MIRA 13:11)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonsova i
Institut biokhimi i im. A.N.Bakha AN SSSR. 2. Chlen-korrespondent
AN SSSR (for Belozerskiy).
(*Penicillium*) (Phosphorus metabolism)

~~BELOZERKIJ, A. N.~~
~~BELOZERKIJ, A. N. (USSR)~~

"Species Specificity of Nucleic Acids."

Report presented at the 5th International Biochemistry Congress,
Moscow, 10-16 August 1961

BELOZERSKIY, Andrey Nikolayevich; STAROSTENKOVA, M.M., red.; SAVCHENKO, Ye.V., tekhn. red.

[Nucleic acids and their biological importance] Nukleïnovye kisloty i ikh biologicheskoe znachenie. Moskva, Izd-vo "Znanie," 1961. 46 p. (Vsesoiuznoe obshchestvo po rasprostraneniuiu politicheskikh i nauchnykh znaniï. Ser. 7, Biologiya i meditsina, no.11) (MIRA 14:7)

1. Chlen-korrespondent AN SSSR (for Belozerskiy)
(Nucleic acids)

BELOZERSKIY, A.N.

M.V.Lomonosov and some problems of modern biochemistry, Vest. Mosk.
un. Ser. 6: Biol. pochv. 16 no.5:7-15 S-0 '61. (MIRA 14:10)
(LONONOSOV, MIKHAIL VASIL'EVICH, 1711-1765)
(BIOCHEMISTRY)

KULAYEV, I.S.; BELOZERSKIY, A.N.; OSTROVSKIY, D.N.

Studying acid-soluble phosphorus compounds of penicillium
chrysogenum Q-176 under different conditions of cultivation.
Biokhimiia 26 no. 1:188-199 Ja-F '61. (MIRA 14:2)

1. Institute of biochemistry, Academy of Sciences of the U.S.S.R.,
and Faculty of Biology and Soil Sciences, State University,
Moscow.

(PENICILLIUM) (PHOSPHORUS METABOLISM)

ZAYTSEVA, G.N.; AGATOVA, A.I.; BELOZERSKIY, A.N.

Some data on the relationship of nitrogen fixation with respiration
and oxidative phosphorylation in *Azotobacter vinelandii*. *Biokhimiia*
26 no.2:338-339 Mr-Apr '61. (MIRA 14:5)

1. The Faculty of Biology and Soil Science, State University, Moscow.
(AZOTOBACTER) (NITROGEN-FIXATION)
(OXIDATION, PHYSIOLOGICAL)

KOKURINA, N.A.; KULAYEV, I.S.; BELOZERSKIY, A.N.

Study of phosphorus compounds in some strains of actinomycetes.
Mikrobiologiya 30 no.1:15-20 Ja-F '61. (MIRA 14:5)

1. Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo
universiteta imeni M.V.Lomonosova.
(ACTINOMYCES) (PHOSPHORUS IN THE BODY)

ANTONOV, A.S.; BELOZERSKIY, A.N.

Comparative study of the nucleotide composition of desoxyribomucleic acids in some vertebrates and invertebrates. Dokl. AN SSSR 138 no.5:1216-1219 Je '61. (MIRA 14:6)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
2. Chlen-korrespondent AN SSSR (for Belozerskiy).
(Desoxyribomucleic acid)

S/020/61/141/003/019/021
B103/B101

AUTHORS: Zaytseva, G. N., Khmel', I. A., and Belozerskiy, A. N.,
Corresponding Member AS USSR

TITLE: Biochemical changes in a synchronous culture of *Azotobacter vinelandii*

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 141, no. 3, 1961, 740 - 743

TEXT: The developmental cycle of a cell was studied in an *Azotobacter vinelandii* culture with synchronous cell division (Refs. 4 and 5, see below). This culture is most suitable for studies on biochemical changes of important macromolecular substances and their preliminary stages of synthesis in the vital process of every cell. Synchronization (two cycles) was caused by the action of low temperatures on a culture contained in a reaction vessel of 45 liters (Refs. 4 and 5, see below). As soon as $\sim 2 \cdot 10^7$ cells per milliliter of nutrient medium were reached, the culture was cooled down to 5 - 7°C within 20 - 25 min by flowing water. For 1 hr it was kept at this temperature. Vapor was passed through to elevate the temperature rapidly to 30°C. The cells were counted in a Goryayev chamber [Abstracter's note: Chamber not stated.], and the biomass was nephelometrically measured. Samples of Card 1/4

Biochemical changes in a...

S/020/61/141/003/019/021
B103/B101

3.0 - 3.5 liters each were taken out for analytical studies. (0) Initial sample; (I) after cooling; (II) before first division; (III) after first division; (IV) during second lag phase; (V) before second division; (VI) in the middle of second division; (VII) at the end of second division, and (VIII) before third division. Nitrogen and phosphorus compounds were fractionated and quantitatively determined by methods described earlier (A. N. Belozerskiy et al., *Mikrobiologiya*, 26, 409 (1957); G. N. Zaytseva et al., *Mikrobiologiya*, 28, 675 (1959); A. N. Belozerskiy et al., *Biokhimiya*, 24, 1054 (1959)). After fractionation, mononucleotides, RNA, and DNA, were spectrophotometrically measured by CФ-4(SF-4). The DNA amount was chemically determined according to K. Burton (Ref. 3, see below). The accumulation of the total nitrogen per 100 milliliters of nutrient medium, and biomass increase were found to take place almost simultaneously. Since the total nitrogen of the culture increases exponentially, the nitrogen fixation is also assumed to proceed exponentially. Calculated for the first division cycle of the whole culture, protein nitrogen shows a slight tendency to increase by steps. Calculated for one cell, this tendency becomes evident: The protein-N amount increases at the end of each lag phase and decreases noticeably immediately after division. The amount of

Card 2/4

Biochemical changes in a...

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NH₂ nitrogen of amino acids, however, considerably decreases before cell division. This is probably due to an intense consumption of free amino acids in the protein synthesis. The considerable increase of amino acids during cell division is probably due to a slow protein synthesis at this stage. It was also found that DNA synthesis during synchronization took place periodically, i. e., largest amounts of DNA were accumulated before cell division. After division, it is reduced during two cycles in exact harmony with the rhythm of cell division. With RNA, these fluctuations are less evident and only noticeable during the first cycle. Calculated per cell, this periodicity is very clear and indicates the participation of RNA in cell mass synthesis, especially that of proteins. During cell division, DNA is not synthesized, and as far as there is an RNA synthesis during that period it proceeds very slowly. DNA synthesis in Azobacter cells is assumed to take place shortly before cell division. The amount of acid-soluble mononucleotides increases rapidly before each cell division, then a sudden drop follows. This holds especially for diphosphates and triphosphates of nucleotides which increase and decrease together with nucleic acids. Other phosphorus compounds also have cyclic fluctuations. During cell division, polyphosphates insoluble in acids decrease, whereas acid-
Card 3/4

Biochemical changes in a...

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B103/B101

soluble ones increase. High-molecular polyphosphates are assumed to be reduced to low-molecular fragments and orthophosphate to provide phosphorus and energy for cell division. Phosphoric esters of sugar show no periodic synthesis. Polysaccharide increases exponentially. Phospholipids are cyclically synthesized. N. D. Iyerusalimskiy, Corresponding Member AS USSR, is thanked for his interest in the work. There are 4 figures and 12 references: 4 Soviet and 8 non-Soviet. The three most important references to English-language publications read as follows: Ref. 4: A. Campbell, *Bacteriol. Rev.*, 21, 261 (1957); Ref. 5: O. H. Scherbaum, *Ann. N. Y. Acad. Sci.*, 90, 565 (1960). *Ann. Rev. Microbiol.*, 14, 283 (1960); Ref. 6: K. Burton, *Biochem. J.* 62, 315 (1956).

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: July 4, 1961

Card 4/4

KULAYEV, I.S.; BELOZERSKIY, A.N.

Condensed inorganic phosphates in the metabolism of living organisms (to be continued). Izv. AN SSSR. Ser. biol. no.3:354-369 My-Je '62.

(MIRA 15:6)

(PHOSPHORUS METABOLISM)

BELOZERSKIY, A.N., prof.

Innermost secrets of life. Zdorov'e 8 no.5:9-10 My '62.

(MIRA 15:5)

1. Chlen-korrespondent AN SSSR, prof.
(NUCLEIC ACIDS)

BELOZERSKIY, A.N. (Moskva).

Problem of the specificity of nucleic acids. Vest. AMN S.S.S.R.
17 no.12:13-19 '62. (MIRA 16:4)

(NUCLEIC ACIDS)

KULAYEV, I.S. ; BELOZERSKIY, A.N.

Condensed inorganic phosphates in the metabolism of live organisms.
Izv.AN SSSR.Ser.biol.27 no.4:502-522 J1-Ag '62. (MIRA 15:9)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R.
and Faculty of Biology and Soil Sciences, State University, Moscow.
(PHOSPHORUS METABOLISM)

39209

S/220/62/031/002/002/004

1018/1218

21.12.20

also 2906

AUTHOR: Zaitseva, G. N. and Belozerskiy, A. N.

TITLE: The effect of X-radiation on the metabolism of free nucleotides and on the enzymes of nucleic acid metabolism of *Azotobacter agilis*

PERIODICAL: Mikrobiologiya, v. 31, no. 2, 1962, 209-215

TEXT: X-radiation caused an accumulation of free mononucleotides (in *A. agilis* 22D (22D)) mainly of nucleoside-monophosphates. The content of nucleoside-di, and particularly triphosphates greatly diminished. X-radiation inhibited oxidative phosphorylation and greatly suppressed the activity of nucleoside phosphokinase which catalyzes transphosphorylation of mononucleotides. X-radiation reduced the activity of polynucleotide phosphorylase, and activated ribonuclease and an appreciable drop in RNA content of irradiated *A. agilis* cells was noted. X-radiation also stimulated the activity of DNase which brought about a decrease in DNA content in the irradiated cells. Since X-radiation brought about an inhibition of nucleoside phosphokinase and other enzymes involved in nucleic acid synthesis and stimulates the activity of hydrolysing enzymes, the nucleases, the de novo synthesis of nucleic acids was retarded or altogether arrested. Nucleic acids present in the cells prior to irradiation undergo decomposition. It has also been shown that X-radiation directly affects high-molecular polynucleotides.

Card 1/2

X

The effect of...

S/220/52/031/002/002/004
1018/1218

ASSOCIATION: Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosova (Department of Soil Biology, Moscow State University im. M. V. Lomonosov)

SUBMITTED: July 10, 1961

Card 2/2

BELOZERSKIY, A.N., akademik

Nucleic acids and the problem of protein biosynthesis. Vest. AN
SSSR 32 no:10:26-35 0 '62. (MIRA 15:10)
(Nucleic acids) (Proteins) (Biosynthesis)

ANTONOV, A.S.; BELOZERSKIY, A.N.

Comparative study of the composition of ribonucleic acids
in some vertebrates and invertebrates. Dokl. AN SSSR 142
no.5:1184-1187 F '62. (MIRA 15:2)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
2. Chlen-korrespondent AN SSSR (for Belozerskiy)

NAUMOVA, I.B.; BELOZERSKIY, A.N.; SHAFIKOVA, F.A.

Isolation and some properties of teichoic acid from *Actinomyces streptomycini* Krass. Dokl. AN SSSR 143 no.3:730-733 Mr '62.

(MIRA 15:3)

1. Chlen-korrespondent AN SSSR (for Belozerskiy).
(ACTINOMYCES) (TEICHOIC ACIDS)

CHZHAO BAN-TIN [Chao Pang-t'ing]; SYUY CHAN-FA [Hsü Ch'ang-fa];
BELOZERSKIY, A.N., akademik; ZAYTSEVA, G.N.

Study of some nucleotide-peptides in the process of development
of *Azotobacter vinelandii*. Dokl. AN SSSR 146 no.4:937-940
0 '62. (MIRA 15:11)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Azotobacter) (Peptides)

VANYUSHIN, B. F.; MASHARINA, L. V.; BELOZERSKIY, A. N., akademik

Pyrimidine distribution in deoxyribonucleic acids. Dokl.
AN SSSR 147 no.4:958-961 N '62. (MIRA 16:1)

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

(Nucleic acids) (Pyrimidines)

ZAYTSEVA, G.N.; DMITRIYEVA, T.M.; SYUY CHAN-FA [Hsü Ch'ang-fa];
BELOZERSKIY, A.N., akademik

Comparative study of the nucleotide composition of soluble ribo-
nucleic acids in certain species of bacteria and animals. Dokl.
AN SSSR 147 no.5:1211-1214 D '62. (MIRA 16:2)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(NUCLEIC ACIDS)

ANTONOV, A. S.; FAVOROVA, O. O.; BELOZERSKIY, A. N., akademik

Some characteristics of the nucleotide composition of deoxy-
ribonucleic acids in animals and higher plants. Dokl. AN SSSR
147 no.6:1480-1483 B '62. (MIRA 16:1)

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

(Nucleic acids)

BELOZERSKIY, Andrey Nikolayevich, akademik; KOZHEMYAKOV, S.I.,
otv. za vypusk; NOVOCHADOVA, L.A., red.; RAKITIN, I.T.,
tekhn. red.

[Nucleic acids and their biological significance] Nukleinovy
kisloty i ikh biologicheskoe znachenie; rasshirennaia steno-
gramma leksii pročitannoi v Tsentral'nom lektorii Vsesoyuz-
nogo obshchestva "Znanie," Moskva, Izd-vo "Znanie," 1963.
62 p. (Novoe v zhizni, nauke, tekhnike VIII Seriya: Biologiya
i meditsina, no.15/16) (MIRA 16:11)

1. Referent Pravleniya Vsesoyuznogo obshchestva "Znaniye"
(for Kozhemyakov).

(Nucleic acids)

BELOZERSKIY, A.N., akademik

For the present and the future. Zdorev'e 9 no.5:1-2 My'63.

(PROTEINS) (AMINO ACIDS)

(MIRA 16:9)

YERMOKHINA, T.M.; ZAYTSEVA, G.N.; BELOZERSKIY, A.N., akademik

Specificity of methionine activating enzymes and ribonucleic acids
accepting methionine in various species of microorganisms. Dokl.
AN SSSR 149 no.6:1438-1442 Ap '63. (MIRA 16:7)

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1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Methionine) (Nucleic acids) (Enzymes)

NAUMOVA, I.B.; SHABAROVA, Z.A.; BELOZERSKIY, A.N., akademik

Structure of ribiteichoic acid from *Actinomyces streptomycini*.
Dokl. AN SSSR 152 no.6:1471-1474 O '63. (MIRA 16:11)

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

*

ANTONOV, A.S.; GIRGOR'YEVA, S.P.; IVANOVA, P.V.; BELOZERSKIY, A.N., akademik

Nucleotide composition of rapidly labeled RNA of the silk
gland of the silkworm *Bombyx mori* L. Dokl. AN SSSR 154 no.1:
216-219 Ja'64. (MIRA 17:2)

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

ANTONOV, A.S.; LYUTSKANOV, N.; BELOZERSKIY, A.N., akademik

Change in the amino acid composition of total protein in *Bacillus subtilis* T- grown on a medium with 5-bromouracyl, an analogue of thymine. Dokl. AN SSR 155 no. 4:944-946 Ap '64. (MIRA 17:5)

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

ANTONOV, A.S.; LAYKOVA, N.F.; IVANOVA, P.V.; GRIGOR'YEVA, S.P.;
BELOZERSKIY, A.N., akademik

Changes in the amino acid composition of fibroin of the silkworm
Bombyx mori L. induced by the analogs of the nitrogen bases of
DNA and RNA. Dokl. AN SSSR 155 no. 5:1201-1204 Ap '64.
(MIRA 17:5)

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

L 16393-65 EWT(m)/EWA(b) Pa-4 AFGC(c)/AMD: RM
ACCESSSION NR: AP5002050 S/0020/64/158/003/0722/0725

AUTHOR: Vanyushin, B. F.; Kokurina, N. A.; Belozerskiy, A. N. (Academician) B

TITLE: Composition of DNA and certain questions of the evolution of photosynthesizing bacteria

SOURCE: AN SSSR. Doklady, v. 158, no. 3, 1964, 722-725

TOPIC TAGS: bacteria, plant metabolism

Abstract: The species composition of DNA was studied in five species of bacteria of the order Pseudomonadales -- in the autotrophic green sulfur photosynthesizing bacterium *Chloropseudomonas ethylicum* (family Chlorobacteriaceae); in the purple sulfur photosynthesizing bacterium *Rhodopseudomonas* sp., capable of autotrophic growth; in the purple nonsulfur photoheterotrophic bacterium *Rhodospirillum rubrum* (family Athiorhodaceae), and in two species of colorless sulfur bacteria -- *Thiobacillus thioparvus* and *Thiobacillus ferrooxidans* (both from the family Thiobacteriaceae). In all the organisms studied, the purine-pyrimidine and guanine + thymine/adenine + cytosine ratios were close to unity. The DNA of the investigated bacteria was of the GC-type. The nucleotide composition of the DNA of cells of green photosynthesizing

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L 16393-65

ACCESSION NR: AP5002050

2
bacteria, grown on mineral medium with or without the addition of ethanol, was practically the same. Essentially no differences in DNA composition were detected in the investigated purple sulfur and nonsulfur photosynthesizing bacteria, although certain interspecies variations existed. The purple bacteria were very close in DNA composition to the typical heterotrophic bacteria of the genus *Pseudomonas*. The phylogenetic relationships of the purple and green bacteria are discussed, in the light of the reflection of their evolution in the structure of their nucleic acids. Evolution is correlated with a decrease in the GC-base pairs and a decrease in the content of AT-base pairs in the DNA composition. The authors thank Ye. N. Kondrat'yeva for her aid in obtaining the results. Orig. art. has 1 table.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University)

SUBMITTED: 09Jun64

ENCL: 00

SUB CODE: LS

NO REF SOV: 009

OTHER: 012

JPRS

Card 2/2

L 55943-65

ACCESSION NR: AP5018499

UR/0020/6/159/003/0668/0671

AUTHOR: Kulayev, I. S.; Valikhanov, M. N.; Belozerskiy, A. N. (Academician) 4
B.

TITLE: Conversion of phytin in higher plants

SOURCE: AN SSSR. Doklady, v. 159, no. 3, 1964, 668-671

TOPIC TAGS: plant chemistry, plant reproduction

Abstract: The manner in which phytin is utilized during the germination of cotton seeds was studied by determining changes in the content of this substance and of other P compounds. It was established that 3-phosphoglyceric acid formed from phytin, apparently as a product of enzymatic cleavage. The enzyme could be separated in the form of an extract. Formation of 3-phosphoglyceric acid from phytin was stimulated by the action of light on the germinating seeds. Formation of this substance from phytin was also found to take place in an extract of wheat bran. Orig. art. has 1 figure and 2 graphs.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. N. V. Lomonosova (Moscow State University)

Card 1/2

L 55943-65
ACCESSION NR: AP5018499

SUBMITTED: 20Jul64

NO REF SOV: 012

ENCL: 00

OTHER: 006

SUB CODE: LS

JPES

Card 2/2 MB.

YERMOKHINA, T.M.; ZAYTSEVA, G.N. ; ZERNOVA, L.I.; BELOZERSKIY, A.N.,
akademik

Some data on the "species" of sRNA and aminoacyl-sRNA-synthetases
in micro-organisms. Dokl. AN SSSR 159 no.5:1165-1168 D '64
(MIRA 18:1)

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

ZAYTSEVA, G.N.; BAN TIN-CHZHAO [Pang T'ing-chao]; KALYUZHNYAYA, A.P.;
BELOZERSKIY, A.N.

Species specificity of soluble ribonucleic acids and aminoacyl-
RNA-synthetases. Biokhimiia 29 no.6:1150-1157 N-D '64.

(MIRA 18:12)

1. Biologo-pochvennyy fakul'tet Gosudarstvennogo universiteta
imeni M.V.Lomonosova, Moskva. Submitted June 15, 1964.

ZAYTSEVA, Galina Nikolayevna; BELOZERSKIY, A.N., akademik,
otv. red.; UMRIKHINA, A.V., red.

[Biochemistry of Azototacter] Biokhimiia azotobaktera.
Moskva, Nauka, 1965. 302 p. (MIRA 18:6)

KRITSKIY, M.S.; KULAYEV, I.S.; MAYOROVA, I.P.; FAYS, D.A.; BELOZERSKIY, A.N.

Translocation of phosphates in the sporophores of meadow mushrooms. Biokhimiia 30 no.4:778-789 J1-Ag '65.

(MIRA 18:8)

1. Institut biokhimii imeni A.N. Bakha AN SSSR i biologo-pochvennyy fakul'tet Gosudarstvennogo universiteta imeni M.V. Lomonosova, Moskva.

KRITSKIY, M.S.; KULAYEV, I.S.; KLEBANOVA, L.M.; BELOZERSKIY, A.N., akademik

Two ways of phosphate transport in the fruiting bodies of *Agaricus bisporus*. Dokl. AN SSSR 160 no.4:949-952 F '65.

(MIRA 18:2)

1. Institut biokhimii im. A.N. Bakha AN SSSR i Moskovskiy gosudarstvennyy universitet.

VANYUSHIN, B.F.; KOKURINA, N.A.; NELOZERSKIY, A.N., akademik

6-methylaminopurine in deoxyribonucleic acid of some micro-organisms. Dokl. AN SSSR 161 no.6:1451-1454 Ap '65. (MIAR 18:5)

1. Moskovskiy gosudarstvennyy universitet.

YERMOKHINA, T.M.; STAMBOLOVA, M.A.; ZAYTSEVA, G.N.; BELOZERSKIY, A.N.,
akademik

Species specificity of "soluble" RNA and aminoacyl-RNA-synthetases
in some plants. Dokl. AN SSSR 164 no.3:688-691 S '65.
(MIRA 18:9)

1. Moskovskiy gosudarstvennyy universitet.

MIROSHNICHENKO, B.P.; ZAYSEVA, G.N.; BERNBAUM, D.; BRODZHERSKY, A.M., akademik

Effect of X rays on the activity of aminoacyl-tRNA synthetases
(pH 5 enzymes) in *Escherichia coli*. Dokl. AN SSSR 214 no. 8:1821-1824
0 '65. (MIRA 18:10)

1. Moskovskiy gosudarstvennyy universitet.

GLEBOV, R.N.; ZAYTSEVA, G.N.; BELOZERSKIY, A.N.

Species specificity of soluble ribonucleic acids and aminoacyl-
s-RNA synthetases in chordates. *Biokhimiia* 30 no. 3:586-596
My-Je '65 (MIRA 19:1)

1. Biologo-pochvennyy fakul'tet Gosudarstvennogo universiteta imeni
Lomonosova, Moskva.

MEDNIKOV, B.M.; ANTONOV, A.S.; BELOZERSKIY, A.N., akademik

Molecular mechanism of the Crozier principle in its application to
the development of poikilothermal animals. Dokl. AN SSSR 165
no.1:227-229 N 165.

(MIRA 18:10)

1. Moskovskiy gosudarstvennyy universitet.

BELOZERSKIY, A.N.; ZAYTSEVA, G.N.

Study of soluble RNA and aminoacyl-RNA-synthetases in a comparative specificity aspect. Ukr.biokhim.zhur. 37 no.5:650-664 '65.

(MIRA 18:10)

1. Kafedra biokhimii rasteniy Moskovskogo gosudarstvennogo universiteta im. Lomonosova.

ACC NR: AP6033277

SOURCE CODE: UR/0020/66/170/004/0974/0977

AUTHOR: Yermokhina, T. M.; Mekhanik, M. L.; Zaytseva, G. N.; Belozerskiy, A. N. (Academician)

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Investigation of phenylalanyl-RNA-synthetase and phenylalanine sRNA in yeasts and insects

SOURCE: AN SSSR. Doklady, v. 170, no. 4, 1966, 974-977

TOPIC TAGS: enzymology, RNA, RNA synthesis, ~~enzyme~~, cell physiology, ~~microbiology~~, biochemistry, *insect, enzyme, yeast*

ABSTRACT: The possible heterogeneity of phenylalanyl-RNA synthetases and their corresponding sRNA's was investigated using insect and microbial materials as sources of biochemicals. Cellular extracts of very high purity were obtained using standard methods. The enzymes from insect larvae and yeasts were separated into two components on a DEAE cellulose column and their physical properties and enzyme action determined using radioactive tracer methods. Two corresponding sRNA fractions were also separated, enzyme E₁ aminoacylates phenylalanine with RNA_{II} and enzyme E₂—RNA_I. In the protein fraction a third enzyme E₃

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UDC: 547.963.3

ACC NR: AP6033277

appeared, but two corresponding C^{14} -phenylalanyl RNA's were discovered, a case of one enzyme governing the formation of two slightly different sRNA's. E_1 was species specific being found only in extracts from flies. The existence of other sets of general heterogeneous and species specific enzymes are postulated for other organisms. Orig. art. has: 3 figures. [W.A. 50]

SUB CODE: 06/ SUBM DATE: 29Jun66/ ORIG REF: 004/ OTH REF: 015

Card 2/2

L 04743-67 EWT(1) JK

ACC NR: AP6021610

SOURCE CODE: UR/0020/66/168/005/1189/1191

AUTHOR: Bekker, M. L.; Belozerskiy, A. N. (Academician)

34
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ORG: Stavropol Division of the All-Union Scientific Research Institute
for Plague, "Microbe" (Stavropol'skiy filial Vsesoyuznogo nauchno-
issledovatel'skogo protivochumnogo instituta "Mikrob")

B

TITLE: Quantitative ratios of proteins and DNA in
desoxyribonucleoproteins of the plague microbe

SOURCE: AN SSSR. Doklady, V. 168, no. 5, 1966, 1189-1191

TOPIC TAGS: microbiology, bacterial disease, DNA, protein,
electrophoresis, UV, nucleic acid

ABSTRACT: These ratios were determined in the vaccinal strain EB. Proteins and nucleic acids were extracted from the homogenate, followed by electrophoresis in gel agar, and were then studied under UV light at 260 and 280 m μ . The protein was determined according to Lowry, DNA by reaction with diphenylamine. Distribution of the substances which absorb UV light after electrophoresis (acetate buffer pH 5.5, ionic force 0.05) showed two peaks in every case, one mobile and the other immobile. The ratio for the former was 12.5-17, for the latter 4-6.

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UDC: 547.963.3

L 04743-67

ACC NR: AP6021610

2

The mass of proteins was thus immobile in the electric field. To determine DNA on the electrophoregram, the bacterial extract was treated with ribonuclease; after removal of products of RNA hydrolysis, the contents were 0.36 mg DNA and 0.05 mg RNA per 1 milliliter as against a prior 0.50 and 0.87 mg. Electrophoresis revealed disappearance of the immobile peak and decrease of the mobile. This means that DNA moved towards the anode in the mobile peak. The protein of the mobile fraction gave no precipitation reaction with anti-plague serum. Results were checked by tests according to the method of electrophoresis in the density gradient of heavy water and gave satisfactory agreement. It was concluded that the composition of bacterial DNP from the plague microbe contains no more than 20-25% proteins in contrast to DNP of animal cells and those of higher plants. These differences may be related both to features of genetic apparatus structure and those of regulatory processes in microorganisms. These assumptions would gain probability if it could be shown that proteins assume the regulatory function of the genetic cell apparatus. "The test was conducted in the biopolymer laboratory of the Institute of High Molecular Compounds with the aid of E. M. Saminskiy. for which we wish to express our gratitude." Orig. art. has: 2 tables and 4 figures.

SUB CODE: 06, 07/ SUBM DATE: 30Mar65/ ORIG REF: 012/ OTH REF: 006

Card 2/2 *gd*

ACC NR: AP6033277

SOURCE CODE: UR/0020/66/170/004/0974/0977

AUTHOR: Yermokhina, T. M.; Mekhanik, M. L.; Zaytseva, G. N.; Belozerskiy, A. N. (Academician)

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Investigation of phenylalanyl-RNA^u synthetase and phenylalanine sRNA in yeasts and insects *lp*

SOURCE: AN BSSR. Doklady, v. 170, no. 4, 1966, 974-977

TOPIC TAGS: enzymology, RNA, RNA synthesis, ~~enzyme~~, cell physiology, ~~microbiology~~, biochemistry, *insect, enzyme, yeast*

ABSTRACT: The possible heterogeneity of phenylalanyl-RNA synthetases and their corresponding sRNA's was investigated using insect and microbial materials as sources of biochemicals. Cellular extracts of very high purity were obtained using standard methods. The enzymes from insect larvae and yeasts were separated into two components on a DEAE cellulose column and their physical properties and enzyme action determined using radioactive tracer methods. Two corresponding sRNA fractions were also separated, enzyme E₁ aminoacylates phenylalanine with RNA_{II} and enzyme E₂—RNA_I. In the protein fraction a third enzyme E₃

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UDC: 547.963.3

ACC NR: AP6033277

appeared, but two corresponding C^{14} -phenylalanyl RNA's were discovered, a case of one enzyme governing the formation of two slightly different sRNA's. E_I was species specific being found only in extracts from flies. The existence of other sets of general heterogeneous and species specific enzymes are postulated for other organisms. Orig. art. has: 3 figures. [W.A. 50]

SUB CODE: 06/ SUBM DATE: 29Jun66/ ORIG REF: 004/ OTH REF: 015

Card 2/2

85348

S/120/60/000/005/018/051
E032/E514

9,4130 (2301, 2801, 3001)
26,2421

AUTHORS: Nemilov, Yu.A., Belozerskiy, G.N. and Soshin, L.D.

TITLE: On the Stability of Photomultipliers

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No.5, pp.81-85

TEXT: A study is reported of the stability of photomultipliers with Cs-Sb and composite dynodes under various conditions. The overall sensitivity of the photomultipliers was measured both under constant and pulsed illumination of the photocathode. In the case of the pulsed illumination the measurements were carried out under conditions analogous to those employed with the scintillation spectrometer, or by measuring the average current at the output of the photomultiplier. Both methods are adequate provided the mean current is much greater than the dark current. When this is not true, average-current measurements can lead to false conclusions. The multi-channel kicksorter AMA-3c (AMA-3s) (Ref.4) was employed in the case of the pulsed measurements. Special steps were taken to keep the temperature at a constant and known value. Experiments showed that the role of the photocathode in introducing the observed changes in the overall sensitivity is quite negligible. It follows

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S/120/60/000/005/018/051
E032/E514

On the Stability of Photomultipliers

that the observed variations are associated with the dynode system.

No explanation is offered for these variations. Apparently they are associated with the removal of cesium from the Cs-Sb surfaces and a variation in the coefficient of secondary emission under the action of electron bombardment. All the photomultipliers are of Soviet manufacture and recommendations are given for the optimum conditions under which they should be used. There are 8 figures and 11 references: 6 Soviet and 5 English. ✓

ASSOCIATION: Radiyevyy institut AN SSSR (Radium Institute, AS USSR)

SUBMITTED: July 15, 1959

Card 2/2

69277

S/051/60/008/04/022/032
E201/E691AUTHORS: Nemilov, Yu.A., Belozerskiy, G.N. and Pisarevskiy, A.N.

24.3500

TITLE: On the α/β Ratio of a Liquid Scintillator

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 4, pp 554-555 (USSR)

ABSTRACT: The α/β ratio is the ratio of the scintillation yields of α - and β -particles. The present paper deals with the effect of an additional solvent on the α/β ratio of 2,5-diphenyloxazole¹ (PPO) in toluene. The additional solvent was naphthalene and the α - and β -sources were Pu²³⁹ and Cs¹³⁷ respectively. The scintillations were recorded and analysed by means of a photoelectric multiplier FEU-13 and an analyser AMA-35.² Figs 1-3 show that on addition of a second solvent both the α - and β -particle light yields rise, the ratio α/β becomes greater and the region of the activator (PPO) concentration in which variations of α/β can be observed is extended to 5 g/litre. The authors investigated also the properties of scintillators consisting of PPO and POPOP (4-di-[2-(5-phenyloxazolyl)]-benzene) in toluene, PPO and POPOP in polystyrene gels, and the properties of stilbene crystals. In PPO + POPOP + toluene systems the ratio α/β was 10% smaller (at all concentrations of PPO) than in solutions without POPOP. The same was true of the scintillation yield of PPO + POPOP + toluene: the fall of

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69277

S/051/60/008/04/022/032
E201/E691

On the α/β Ratio of a Liquid Scintillator

the scintillation yield on addition of POPOP is either due to large losses on transfer of energy from PPO to POPOP or due to mutual exchange of energy between them. The results obtained in polystyrene gels were identical with those obtained in solutions, i.e. the scintillator viscosity does not affect the ratio α/β , at least up to 10^3 stokes. In the case of stilbene crystals the ratio α/β was equal to the "saturation" value (0.06) of PPO dissolved in toluene. There are 3 figures and 5 references, 3 of which are Soviet and 2 English.

SUBMITTED: July 13, 1959

Card 2/2

86264

S/053/60/072/003/001/004
B019/B056

24.7200 (1043, 1144, 1385)

AUTHORS: Belozerskiy, G. N. and Nemilov, Yu. A.

TITLE: Resonance Scattering of Gamma Rays in Crystals

PERIODICAL: Uspekhi fizicheskikh nauk, 1960, Vol. 72, No. 3,
pp. 433 - 466

TEXT: In the introduction, the authors discuss the part played by the study of the resonance scattering of γ -rays for the investigation of nuclear properties. The study of the scattering of low-energy γ -quanta by nuclei built into crystal lattices was only begun in 1958. The theory of the capture of slow neutrons by lattice atoms, which was developed by Lamb, is given, and the resonance scattering of γ -quanta in crystals is studied by applying this theory. The resonance absorption cross section of low-energy γ -rays is described. An experimental arrangement used to observe the resonance absorption of γ -rays through a crystal (without recoil) is described. In this arrangement the temperature change of the source and a mechanical motion of the source relative to the absorber are used. Experimental results obtained from Ir¹⁹¹ showed that above 100°K

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86264

Resonance Scattering of Gamma Rays in Crystals S/053/60/072/003/001/004
B019/B056

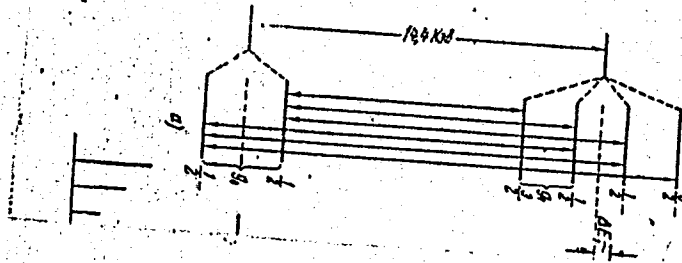
this absorber may be looked upon as "thin" for 129-keV resonance radiation, whereas below 30°K it is considered to be "thick". This result agrees well with theoretical calculations. Furthermore, a level width of $(3.94 \pm 0.58) \cdot 10^{-6}$ eV and a lifetime of $1.65 \cdot 10^{-10}$ sec were found for the 129-keV level of Ir^{191} . Hyperfine splitting and the polarization of lines in the resonance scattering of γ -rays without recoil are described in detail. Fig. 13 shows a splitting diagram of the ground state and of the first excited state of Fe^{57} (Fig. 13 a) contained in ordinary iron, and of Fe^{57} (Fig. 13 b) contained in Fe_2O_3 . Fig. 13 c shows the ratio between the intensities of the components of the 14.4 keV lines for arbitrarily orientated emitting nuclei. The further chapters deal with the use of the resonance absorption of γ -rays for the study of solids, in which case the authors base upon Mössbauer. Further, the verification of Einstein's principle of mass-energy equivalence with the aid of resonance absorption is discussed. In the experimental system used for this purpose, source and absorber rotated round circles of different radii. The last

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86264

Resonance Scattering of Gamma Rays in Crystals S/053/60/072/003/001/004
B019/B056

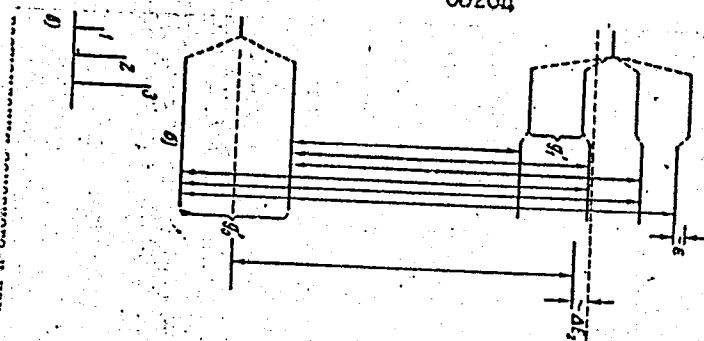
two chapters deal with the prospects and the range of application of resonance absorbers of γ -rays. Among other things, an experimental scheme for studying the Rayleigh scattering of γ -rays using the Mössbauer effect is discussed. V. R. Regel¹, A. A. Urusovskaya, V. N. Kolomiychuk, and V. G. Alekseyeva are mentioned. There are 19 figures, 4 tables, and 95 references: 17 Soviet, 64 US, 5 German, 1 Swiss, 1 Canadian, 1 British, 1 Swedish, 1 Italian, and 3 French.



Card 3/4

S/053/60/072/003/001/004
B019/B056

86264



Card 4/4

S/120/61/000/001/021/062
EO32/E114

AUTHORS: Belozerskiy, G.N., Gridnev, K.A., and Pisarevskiy, A.N.
TITLE: On the Form of the Scintillations from CsI (Tl) Crystals

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No.1, p. 73

TEXT: The form of CsI (Tl) scintillations has been investigated by R.S. Storey et al. (Ref.1) and R.B. Owen (Ref.3). The present authors have studied the form of scintillations of CsI (Tl) crystals (molecular concentration of Tl = 0.1-0.15%) irradiated with α -particles from Pu^{239} and electrons (produced in the phosphor by Cs^{137} and Co^{60} γ -rays). The scintillations were examined using the $YC-1M$ (UO-1m) oscillograph and the $FEU-1$ (FEU-I) photomultiplier (Ref.4). The results obtained are given in the following table. ✓

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On the Form of the Scintillations.. S/120/61/000/001/021/062
 EO32/E114



Parameters of the scintillations, μ sec	5 MeV α -particles			Electrons *		
	Ref.5	Ref.1	Present work	Ref.3	Ref.1	Present work
Rise-time of the current pulse	0.05	-	0.04	0.2	-	0.2
Time constant of the principal component of luminescence (from trailing edge of current pulse	0.5	-	0.45	0.5	-	0.7
Time constant of the principal component of the luminescence (from rise time of the voltage pulse)	-	0.43	0.48	-	0.7	0.7

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S/120/61/000/001/021/062
E032/E114

On the Form of the Scintillations from CsI (Tl) Crystals

* Footnote to table. Results in Refs.1-3 are for 660 KeV electrons. The present results are for 100-1330 KeV.

The crystals employed in the present work were manufactured by Kharkovskiy zavod khimicheskikh reaktivov (Khar'kov Chemical Reagents Factory). It is concluded that the crystals produced by this factory can be successfully used in distinguishing between particles with different scintillation time constants. There are 1 table and 4 references: 1 Soviet and 3 English.

ASSOCIATION: Radiyevyy institut AN SSSR
(Radium Institute, AS USSR)

SUBMITTED: February 25, 1960

Card 3/3

- BELOZERSKIY, O.N.

Improving the circuit for proportional transmission. Prib. i tekhn.
eksp. 6 no.2:179 Mr-Ap '61. (MIRA 14:9)

1. Radiyevyy institut AN SSSR.
(Electronic circuits)

ABLOV, A.V., akademik; BELOZERSKIY, G.N.; GOL'DANSKIY, V.I.; MAKAROV, Ye.F.;
TRUKHTANOV, V.A.; KHRAPOV, V.V.

Mössbauer's spectra of complex compounds of iron with
diacetylthiosemicarbazone oxime. Dokl. AN SSSR 151 no.6:1352-1355
Ag '63. (MIRA 16:10)

1. Institut khimicheskoy fiziki AN SSSR i Institut khimii AN
Moldavskoy SSR. 2. AN Moldavskoy SSR (for Ablov). 3. Chlen-
korrespondent AN SSSR (for Gol'danskiy).

BELOZERSKIY, G.N.; NEMILOV, Yu.A.

Change in the intensity of the Mössbauer effect due to plastic deformation. Fiz. tver. tela 5 no.11:3350-3352 N '63.

(MIRA 16:12)

L 52777-65 EWT(1)/EWT(m)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c) LJP(c)

ACCESSION NR: AP5010752

UR/0181/65/007/004/1254/1256

AUTHOR: Belozerskiy, G. N.; Gusev, I. A.; Murin, A. N.; Kekelov, Yu. A.

41
40
B

TITLE: Mossbauer effect in indium antimonide

SOURCE: Fizika tverdogo tela, v. 7, no. 4, 1965, 1254-1256

TOPIC TAGS: Mossbauer effect, indium antimonide, iron impurity, absorption spectrum, iron valence

ABSTRACT: The purpose of the investigation was to study the Mossbauer effect and to investigate the states of impurity atoms of iron in indium antimonide. The attempt was made to observe the absorption spectrum in spite of the fact that the amount of iron that can be introduced in InSb samples of ordinary dimensions is at the limit of sensitivity of the Mossbauer method. The procedure of preparing the sample was described elsewhere (FTT v. 6, 2859, 1964). The source was Co⁵⁷, thoroughly purified, introduced into the lattice of indium antimonide. The Mossbauer apparatus consisted of a motor with reduction gear producing a uniform reciprocating motion of the absorber (stainless steel Kh23M18T) relative to the source. The detector was a proportional counter. The effect obtained at room temperature

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ACCESSION NR: AP5010752

was approximately 31%, which was much higher than observed in the same geometry and with the same absorber with sources of stainless steel, chromium, and tungsten. The chemical shift, 0.4 mm/sec, is characteristic of iron in trivalent state. It is pointed out that the Mossbauer spectrum of indium antimonide differs from that of indium arsenide, in spite of the fact that both have the same crystal structure. The temperature dependence of the Mossbauer effect and of the chemical shift was also investigated. Both the effect and the chemical shift increased with decrease in temperature (~20% on going from room temperature to that of liquid nitrogen) and decreased by the same amount on going to 200C. An abrupt change in the Mossbauer spectrum takes place when the sample is heated to 400C, due to the change in the stoichiometric composition of the sample. It is concluded on the basis of the data that iron in indium antimonide has a configuration $3d^5$ and is trivalent. The rather weak dependence of the effect on the temperature indicates that the iron atoms vibrate in the optical nodes. A study of the dynamic dependence of the Mossbauer effect on the stoichiometry of the crystal is now under way. "The authors thank S. B. Tomilov for help in preparing the sources." Orig. art. has: 1 figure and 1 table.

ASSOCIATION: None

Card 2/3

L 52777-65

ACCESSION NR: AP5010792

SUBMITTED: 17Nov64

ENCL: 00

SUB CODE: 88, IC

NR REF SOV: 003

OTHER: 005

LL
Card 3/3

L 8918-66 EWT(I)/EWT(m)/T/EWP(h)/EWA(c) IJP(c) JD/JG
 ACC NR: AF6000862 SOURCE CODE: UR/0181/65/007/012/3607/3611

AUTHOR: ^{41.5}Belozerskiy, G. N.; ^{41.5}Nemilov, Yu. A.; ^{41.5}Tomilov, S. B.; ^{41.5}Shvedchikov, A. V.

ORG: none

TITLE: ^{21.44.55}Mossbauer effect in InP and GaAs 58

SOURCE: Fizika tverdogo tela, v. 7, no. 12, 1965, 3607-3611

TOPIC TAGS: Mossbauer effect, ⁷gallium ⁷arsenide, ⁷indium ⁷compound, line width

ABSTRACT: This is a continuation of earlier work (FTT v. 7, 1264, 1965) where the Mossbauer effect was observed in indium antimonide. The present investigation was undertaken for the purpose of obtaining more data on semiconductors of the type ¹⁰AIII¹⁰BV. The InP investigated was polycrystalline and the GaAs was a single crystal cut perpendicular to the (111) axis. The sources were prepared by a standard technique and the spectrum was measured with apparatus described earlier (FTT v. 5, 3350, 1963). The Mossbauer effect was observed at room temperature and at temperature of liquid nitrogen. The chemical shift at room temperature was 0.3-0.37 mm/sec at a line width of 0.59 mm/sec. The probability of recoilless quantum emission was calculated. The absolute measurements were made with an InSb source and a stainless steel absorber, for which $f_{\text{InSb}} = 0.84 \pm 0.065$. For GaAs and InP the value of f was obtained by means of relative measurements at room temperature and found to be 0.84 ± 0.065 and 0.89 ± 0.07 , respectively. The absorbers used were stainless steel foils of thickness 6.7, 7.1, 13.1, 14.2, 20.7, and 27.6 mg/cm². It is concluded from the

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ACC NR: AF6000862

obtained data that the iron in the GaAs and InP is in the form of a trivalent impurity, and that the large magnitude of the effect indicates that the optical branches in the impurity-atom vibrations play an important role. Orig. art. has: 1 figure, 5 formulas, and 1 table. [02]

SUB CODE: 20/ SURM DATE: 24Apr65/ ORIG REF: 004/ OTH REF: 006

ATD PRESS: 4166



Card 2/2

L 20200-66 EWT(m)/T/EMF(t) LJP(c) JD
ACC NR: AP6006829

SOURCE CODE: UR/0181/66/008/002/0451/0456

AUTHOR: Belozerskiy, G. N.; Nemilov, Yu. A.; Tolkachev, S. S. (Deceased)

53
49
B

ORG: none

TITLE: Using the Mössbauer effect and x-ray structural analysis to investigate oxidation in InSb

SOURCE: Fizika tverdogo tela, v. 8, no. 2, 1966, 451-456

TOPIC TAGS: Mossbauer effect, Mossbauer spectrum, x ray diffraction analysis, indium compound, antimonide, spectrum analysis, oxidation

ABSTRACT: The authors use the Mössbauer effect to study the result of various external processes with respect to changes in the structure of surface layers in a crystal. An indium antimonide crystal was selected and a Co⁵⁷ source was used. It was learned in previous studies that the Fe⁵⁷ Mössbauer spectrum in an annealed InSb specimen at room temperature differs sharply from the spectra of specimens without annealing. This phenomenon is studied in detail in this paper. It is found that heating of specimens at 200°C for 25 hours results in no noticeable change in the form of the Mössbauer spectrum for specimens with or without annealing. Data

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2

L 20200-66

ACC NR: AP6006829

4

from x-ray analysis of specially annealed specimens of InSb are used for interpreting the results of the Mössbauer spectral analysis. It was found that two phases formed in the surface layer of indium antimonide during heating. These phases are the result of oxidation of indium and antimony atoms in In_2O_3 and Sb_2O_4 . There is an initially rapid increase in the In_2O_3 phase with subsequent predominance of the Sb_2O_4 phase. It is found that the Mössbauer spectra may be divided into three lines and that the temperature relationships for the first and third lines are anomalous. A theoretical explanation is given for the temperature behavior of these two states. In conclusion we thank A. N. Murin for interest in the work and I. A. Gusev, A. V. Shvedchikov and I. N. Chugunov for assistance with the work. Orig. art. has: 4 figures, 1 table, 2 formulas.

SUB CODE: 20/

SUBM DATE: 15Jul65/

ORIG REF: 003/

OTH REF: 001

Card 2/2

MJS

L 23112-66 EWT(m)/EWP(t) LJP(c) JD

ACC NR: AF6006867

SOURCE CODE: UR/0181/66/008/002/0604/0606

AUTHOR: Belozerskiy, G. N.; Nemilov, Yu. A.; Tomilov, S. B.; Shvedchikov, A. V.

ORG: none

TITLE: Mossbauer effect in ZnS and Ge

SOURCE: Fizika tverdogo tela, v. 8, no. 2, 1966, 604-606

TOPIC TAGS: Mossbauer effect, germanium, zinc sulfide, iron, line shift, line width, impurity level, *crystal lattice*

ABSTRACT: The purpose of the investigation was to study the behavior of impurity atoms Fe⁵⁷ in the diatomic crystal lattice of ZnS and to compare this behavior with that of the same atoms introduced in germanium, where the spectra are similar at room temperature. The sources were ZnS single crystals on which several drops of Co⁵⁷Cl₂ solution were placed and allowed to evaporate. The detector was a proportional counter filled with a mixture of argon and methane. The elimination of the background is briefly discussed. The values obtained for the chemical shift, the width, and the effect probability of ZnS at room temperature were $\delta = (0.76 \pm 0.02)$ mm/sec, $\Gamma = (0.710 \pm 0.025)$ mm/sec, and $f = 0.6$ to 0 ± 0.055 . The results are compared with earlier measurements made on germanium with Co⁵⁷ (FTT v. 7, 3617,

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L 23112-66

ACC NR: AF6006867

1965). The results obtained for ZnS point to a strong change in the width of the Mossbauer spectrum when the source is cooled to 78K. This is attributed to the fact that the impurity atoms are situated at different levels, and that the difference between levels disappears with increasing temperature. To observe the temperature dependence of the effect, it is necessary to assume an effective temperature which is much higher than the Debye temperature. The authors thank K. A. Dubenskiy for supplying the ZnS and ZnSe samples. Orig. art. has: 2 figures, 1 formula, and 1 table.

SUB CODE: 20/ SUBM DATE: 15Jul65/ ORIG REF: 001/ OTH REF: 002

Card 2/2 *AW*

L 04801-67 EWT(l)/EWT(m)/EWP(t)/ETI LJP(o) GG/JD
ACC NR: AP6024475 SOURCE CODE: UR/0181/66/008/007/2112/2116

AUTHOR: Belozerskiy, G. N.; Gusev, I. A.; Nemilov, Yu. A.; Shvedchikov, A. V. 61
ORG: none 59
B

TITLE: Investigation of the behavior of impurity atoms in the diatomic InSb and GaSb crystal lattices 4

SOURCE: Fizika tverdogo tela, v. 8, no. 7, 1966, 2112-2116 27 27 27

TOPIC TAGS: indium compound, gallium compound, antimonide, crystal impurity, gamma spectroscopy, line shift, line width, Mossbauer spectrum 4

ABSTRACT: The authors introduced Fe⁵⁷ in single-crystal InSb and GaSb and investigated the behavior of the Fe⁵⁷ atoms in these crystals with the aid of nuclear gamma resonance, making use of data of earlier measurements (FTT v. 8, 604, 1966 and v. 7, 3607, 1965). The quantities measured were the absolute values of $f = \exp[-2W(T)]$, where $W(T)$ is the Debye-Waller factor, the chemical shifts, and the line widths at different temperatures. The measurements of f were by comparing the areas under the obtained Mossbauer spectra. The results show that for Fe⁵⁷ in the InSb lattice the interaction forces are harmonic in the entire temperature range. The observed values of f for Fe⁵⁷ in InSb were so large, that they could not be explained even under the assumption that the Fe⁵⁷ oscillate only in the optical branches. It is therefore proposed that the Fe⁵⁷ atoms oscillate at discrete frequencies lying above the optical branches of the ideal lattice. It is shown that, accurate to 6%, the Mossbauer effect for Fe⁵⁷ 14

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L 04801-67

ACC NR: AP6024475

in the InSb spectrum has no anisotropy. The Mossbauer spectrum of GaAs was found to be very similar to that of InSb. Possible applications of the results for further study are discussed. The authors thank Yu. M. Kagan and Ye. Broverman for valuable discussions. Orig. art. has: 1 figure, 2 formulas, and 1 table. 2

SUB CODE: 20/ SUBM DATE: 15Dec65/ ORIG REF: 008/ OTH REF: 006

Card 2/2 *gd*

BELOZERSKIY, I.V., kand.tekhn.nauk, dotsent

Effect of disubstituted sodium phosphate and orthophosphoric acid
on a layer of transfer color applied to a lake underlayer. Nauch.
trudy MPI no.7/8:227-232 '58. (MIRA 14:12)
(Color printing)

KLYZCHKO, I.R., prof.; ~~BELOZERSKIY~~, I.V., dotsent; VINOGRADOVA, A.D., kand.-
khim.nauk; KOVAL'SKAYA, M.Ye.; PPrinimali uchastiye: MOISEYENKO,
T.N.; VERZHBITSKAYA, M.Ye.

Using a semimicromethod to study zinc, nickel, iron, and copper
impurities in type metal. Nauch. trudy MPI no.7/8:207-225 '58.

(MIRA 14:12)

(Type and type founding) (Chemistry, Analytic--Qualitative)

BELOZERSKIY, L. K.

Cand Tech Sci

Dissertation: "Technological, Kinematic and Dynamic Analysis of Cap-Making Machines".

28 March 49

Moscow Polygraphic Inst. Ministry of Higher Education USSR

80 Vecheryaya Moskva
Sum 71

Brosirovochno-verepletnyye mashiny (Stitching Binding Machines). "Izdatstvo" Press. 1953. 372 p.

The booklet describes the principal types of contemporary stitching-binding machines, and includes data describing the work of Soviet scientists and inventors in the field of developing new machines. The last chapter discusses the possibility of using stitching-binding machines in conveyor-line production.

The booklet is intended for students in technological departments of graphic arts technical schools.

SO: Sovetskiye knigi (Soviet Books), No. 186, 1953, Moscow, (U-6472)

BELOZERSKIY, Leonid Konstantinovich; SMIRNOV, Georgiy Pavlovich;
LAPITSKIY, Sh.A., retsenzent; NEZNAMOVA, Ye.N., red.; BORISHCHEVA,
M.M., red.; CHICHERIN, A.N., tekhn.red.

[Stitching and bookbinding machines] Broshiuvochno-perepletnye
mashiny. Moskva, Gos.izd-vo "Iskusstvo," 1960. 551 p.

(Bookbinding--Equipment and supplies)

(MIRA 13:10)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

107

4

Diffusion of magnesium into molten aluminum. N. A. Rekershik. *Legkie Metal.* 6, No. 10, 18 (21007). Diffusion was stud. by use of a special graphite container which permitted joining a column of fused Mg with a column of fused Al and cutting the molten column into sections at the end of the expt. The coeff. of diffusion D was 5.25 and 0.82 sq. cm. per day at 670° and 700°, resp. From this the max. c. d. for depositing Mg on a molten Al cathode was calcd. as 1.5 amp./sq. cm. at 670° as compared to an exptl. value of 1.5 by Weiner (*C. A.* 26, 3442).
H. W. Rathmann

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

PROCESSES AND PREPARATION

9

Columbium and tantalum. N. A. Belozerskiy. *Titanium Metal*, No. 12, 76-83 (1974). Russian sources of Cb and Ta are ilmenite rutiles in the Urals and loparites in the Kola district. The ore deposits are enormous, but are of low grade. The ratio of Cb to Ta in the ores is from 8:1 to 20:1. He has developed a method of obtaining binary alloys containing these elements, either electrolytically or thermally. As cathode is used a metal which it is desired to alloy with Ta or Cb. A low-melting eutectic forms on the cathode, flows off and collects on the bottom of the bath. By this method were obtained alloys of Ta and Cb with Fe, Ni and other metals. Reduction of Cb₂O₅ by means of silumin waste and a method of reduction of chlorides and oxychlorides of Cb and Ta are mentioned.
 N. V. Daniloff

A.S.N.S.S.A. METALLURGICAL LITERATURE CLASSIFICATION

E27

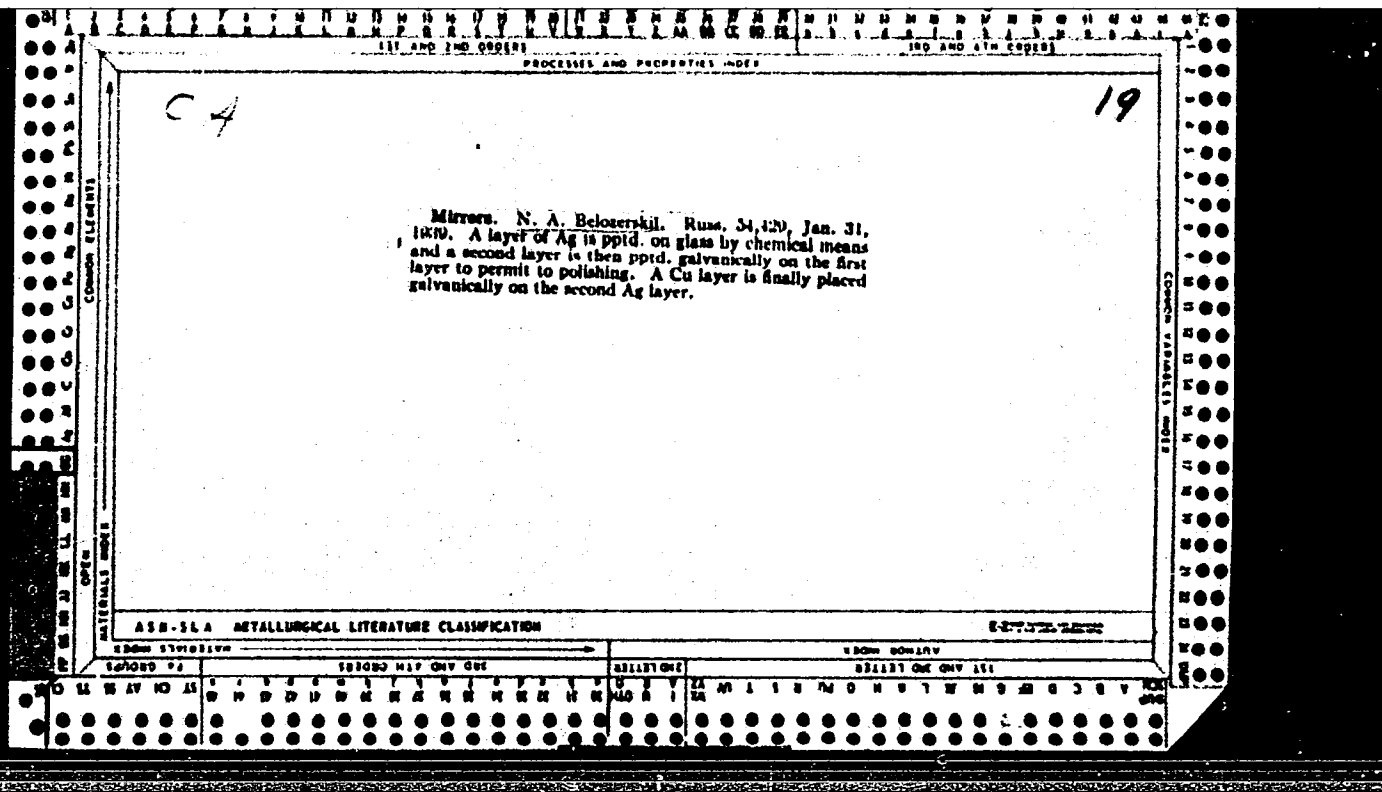
M.A.

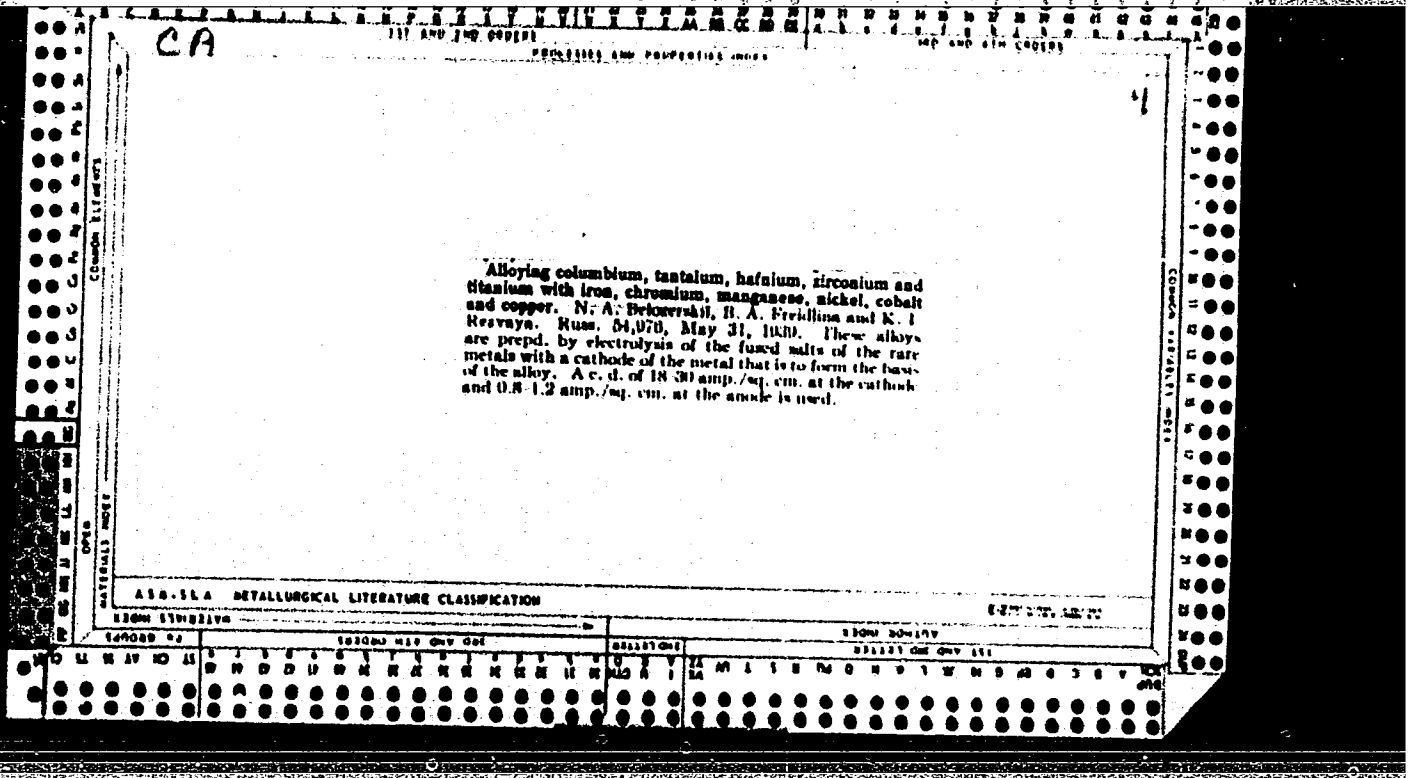
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*The Production of a Silver Mirror on Metallic Reflectors. N. A. Debozarsky.
(*Vestn. Metalloproiz. (Met. Ind. Herald)*, 1938, 18, (8-9), 109-115. [In
Russian.] The best results were obtained by plating the brass reflectors
with nickel and then silver. The tarnish-resistance is improved by a thin
layer of chromium. The coeff. of reflection of such a mirror is about 0.80.
—N. B. V.

1943





BC

Physico-chemical properties of rare metals. III. Electric conductivity of the systems $\text{NaCl}-\text{NbCl}_5$ and $\text{NaCl}-\text{NbCl}_4$. N. A. Holosinskiy and B. A. Fridman (*J. Appl. Chem. Russ.*, 1941, 14, 468-469).— The conductivity of NaCl at $300-350^\circ$ is reduced by ZrCl_4 (up to 38 mol-%) and by NbCl_5 (up to 22 mol-%) more than is the mol. fraction or the vol.-% of NaCl ; this shows that ZrCl_4 and NbCl_5 form with NaCl poorly conducting complexes. J. J. B.

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

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1	2	3	4	5
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81	82	83	84	85
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96	97	98	99	100

CA

4

Electrolytic reduction of glucose. N. G. Helen'kaya and N. A. Belosterski. *Zh. Obshch. Khim.* (J. Gen. Chem.) 19, 1664-8(1949).--Most satisfactory reduction takes place with cathodes of Ni-Al alloy or of amalgamated Pb with sep. of the cathode and anode compartments by a dense "nonfiltering" diaphragm. The process is favored by higher temps., higher pH, stirring, and lowering of c.d. The best catholyte is a soln. of Na_2SO_4 ; and next a soln. of Li_2SO_4 ; hence, all expts. were done with Na_2SO_4 . Electrolysis at 21-4° with 1.5 amp./sq. dm. c.d. with Na_2SO_4 concn. from 75 to 150 g./l. and glucose concn. 120 g./l. showed that in all cases the pH rapidly rose to 11, continuing a slow climb in the course of a 7-hr. expt.; hence alkali need not be added, but rather gradual addn. of H_2SO_4 is desirable to keep the soln. below pH 10 (higher pH tends to give sorbitol-mannitol mixts.). The current yield is 32% at pH 10.85 and drops to 11.9% at pH 8.2. With Al-Ni cathode at pH 10-11 the increase of initial glucose concn. from 10 to 300 g./l. increases current yield from 4 to 83%. Comparative electroc study at 120 g./l. glucose, 0.9 amp./sq. dm. c.d., at 20-5° gave 83% current yield with 1:1 or 3:10 Al-Ni alloy, 38% with amalgamated Pb; 19% with Cd and 18% Cd-Hg; 15% with Zn and 18% Zn-Hg, 0% with Ni and 12% Ni-Hg; 8% with Al and 10% Al-Hg, 0% with galvanized Fe and 10% Fe-Hg, 0% with Fe, 10% with Cu and 21% Cu-Hg. Porcelain diaphragms are satisfactory; stirring of the soln. increases the yield by 8-9%. Contrary to Creighton (C.I. 33, 2120) increase of temp. to 46° at 0.9 amp./sq. dm. gives 97% current yield, while at 3 amp./sq. dm. the yield is still 94%, but generally above 30° some tar formation is observed. At 20° reduction ceases at 1.5 amp./sq. dm. while at 24° the limit is 0.7 amp./sq. dm. G. M. K.

PHASE I BOOK EXPLOITATION

726

Belozerskiy, N. A.

Karbonily metallov (Metal Carbonyls) Moscow, Metallurgizdat, 1958.
372 p. 3,800 copies printed.

Reviewers: Ormont, B. F., Dr., Prof., Filin, N. A., Dr., Prof.,
Kheyfets, V. L., Candidate of Tech. Sciences; Ed.:
Chernobrov, S. M.; Ed. of Publishing House: Kamayeva, O. M.;
Tech. Ed.: Attopovich, M. K.

PURPOSE: The book is intended for scientists, engineers, and technicians working in metallurgical plants and other branches of industry. It may be used as a textbook by university students.

COVERAGE: The author sums up the periodical and patent literature on metal carbonyls. He also discusses some problems concerning the structure, properties, and uses of metal carbonyls and their derivatives. The author thanks Professor B. F. Ormont, Professor N. A. Filin, and Docent V. L. Kheyfets for their

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assistance. There are 1205 references, 124 of which are Soviet, 515 English, 453 German, 58 French, 20 Japanese, and 35 others.

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