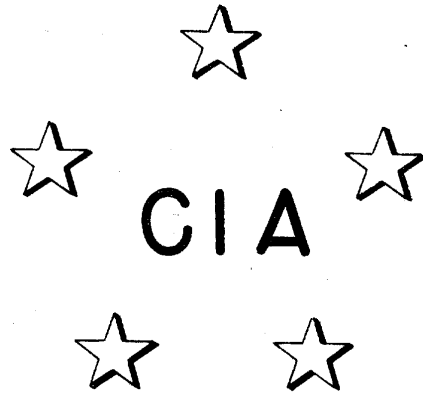


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## Foreign Documents Branch C I A Periodical Abstracts

13 Jul 1948

SCIENTIFIC

Number 54

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Abstracted in this issue:

<u>Title</u>	<u>Issue</u>	<u>Date</u>
<u>Russian Periodicals</u>		
"Acta Physicochimica URSS" (Physicochemical Works of the USSR) Cards 35-45, 94	Vol XXI No 5	Sep/Oct 1946
"Acta Physicochimica URSS" (Physicochemical Works of the USSR) Cards 28-34, 84-86	Vol XXI No 6	Nov/Dec 1946
"Gidrokhimicheskiye Materialy" (Hydrochemical Materials)* Cards 55-60	Vol XIII	1947
"Izvestiya Sektora Fiziko-Khimicheskogo Analiza" (News of the Sector of Physico-Chemical Analysis)* Cards 26, 27, 64-67, 82, 83	Vol XV	Sep 1947
"Journal of Physics of the Academy of Sciences of the USSR" Cards 48, 49, 61, 70, 71, 87-92, 95	Vol X No 4	Jul/Aug 1946
"Journal of Physics of the Academy of Sciences of the USSR" Cards 25, 72-81	Vol X No 6	Nov/Dec 1946
"Promyshlennaya Energetika" (Industrial Energetics) Cards 46, 47, 50, 51	No 1	Jan 1947
"Vestnik Akademii Nauk SSSR" (Herald of the Academy of Sciences of the USSR) Cards 1-11, 52, 63, 68, 69	No 5	May 1947
"Vestnik Akademii Nauk SSSR" (Herald of the Academy of Sciences of the USSR) Cards 12-24, 53, 54, 62, 93	No 6	Jun 1947

NOTE

In indexing these abstracts the following guides are used: MEDICINE - "Quarterly Cumulative Index Medicus," American Medical Association; CHEMISTRY - "Chemical Abstracts Subject Index," American Chemical Society; GENERAL - "Subject Headings for Technical Libraries," US Department of Commerce, Office of Technical Services.

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FDB Periodical Abstracts Scientific No 54		FDB Periodical Abstracts Scientific No 54	
USSR/Academy of Sciences Chemistry - Academy of Sciences	May 1947	USSR/Academy of Sciences	May 1947
"Department of Chemical Sciences" 3 pp		"In the Presidium" 1½ pp	
"Vest Akad Nauk SSSR" No 5		"Vest Akad Nauk SSSR" No 5	
Discusses experiments in polymerization of methylmetaakrylate under ultrahigh pressure. Conducted by L. F. Vereshchagin, V. A. Derevitskaya, and Z. A. Rogozin. At present scientists are attempting same experiment under pressures of 3,000 to 5,000 atmospheres. N. N. Serb-Serbina and K. F. Zhigach submitted a paper on formation of structures in dispersed systems and problem of their stability. G. M. Zhabrov and Ye. A. Fokin submitted a paper on their work in		Notes on proceedings of Presidium, evaluating work by Institute of World Literature imeni A. M. Gor'kiy. This institute was censured for not extolling achievements of Gor'kiy in Soviet as well as foreign literature, and for insufficient study of achievements of Gor'kiy, Stalin, and Lenin. On 20 Mar Presidium awarded prizes imeni S. V. Lebedev and imeni A. Ye. Fersman for work in field of chemistry. Committee, headed by Academician V. P. Volgin, appointed to make new roster for Academy of Sciences. M. A. Komarovich appointed secretary.	
FDB	54T1	FDB	54T2
USSR/Academy of Sciences (Contd)	May 1947	USSR/Academy of Sciences Geophysics	May 1947
promotion of oxidizing catalysts by means of metal-organic compounds; L. Ya. Margolis and O. M. Todes of Section on Catalysts completed their investigation of the poisoning and modification of catalysts.		"Candidates Theses" 4 pp	
		"Vest Akad Nauk SSSR" No 5	
		Following theses submitted: P. N. Uspenskiy, Institute of Theoretical Geophysics, "Some Questions of Flux Friction"; V. V. Kolyubakin, "Charting of the Ufimsk Rocks on the Basis of Data Obtained by Magnetic Surveys in the Ishimbay Region"; G. G. Tsurinov, "Polymorphic Transfers of Tri-Glycerides." V. A. Steklova discussed a static method of working the Brownian movement.	
FDB	54T1	FDB	54T3
USSR/Academy of Sciences Chemistry - Academy of Sciences	May 1947	USSR/Academy of Sciences Medicine - Biology	May 1947
"Doctor's Theses" 3 pp		"Department of Biological Sciences" ½ p	
"Vest Akad Nauk SSSR" No 5		"Vest Akad Nauk SSSR" No 5	
Following theses submitted: K. I. Shchelkin, Institute of Physical Chemistry, "Rapid Burning and the Back Detonation of Gases"; F. B. Turchin, "Ammonia Nitrogen in the Nutrition of Plants and as a Fertilizer in Varicus Soils"; A. Z. Yurovskiy, "Rock Coal Raw Material." Additional papers dealt with language, literature, and romance.		Every year Paleontological Institute has a meeting which honors the passing of Academician A. A. Borisyak. Twenty-five theses were read at this session, held 25-28 Feb. Interest displayed in article by Engineer Yu. N. Popov (Magadan) on discovery of frozen remains of animals (bison and horses) on Indigirka River. Session resolved a series of questions concerning future assignments of Institute in paleontology.	
FDB	54T4	FDB	54T5
USSR/Academy of Sciences Geology Geography	May 1947	USSR/Academy of Sciences Physics Seismology	May 1947
"Department of Geological and Geographical Sciences," A. Lazarev, 3½ pp		"The Physical Mathematical Department" 3½ pp	
"Vest Akad Nauk SSSR" No 5		"Vest Akad Nauk SSSR" No 5	
Agrophysical Section of Ural Expedition completed its survey of Ural region with respect to agricultural possibilities. Data collected is being prepared monograph form. D. M. Rauzer-Chernousovoy and V. I. Gromov were awarded prize imeni A. P. Karpinskiy for work in field of geology. On 7 Mar Soil Institute held first annual meeting to read articles by various authors.		High light of Feb session of Department of Physical Mathematics was reading of paper by Academician A. F. Ioffe on work of department for year 1946. Department, Feb 1947, composed of 26 Academicians and 51 Corresponding Members. In the Seismological Institute, a Candidate in Geologo-Mineralogical Sciences has completed collecting data for new seismological map of Soviet Union. Articles by V. G.	
FDB	54T6	FDB	54T7

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USSR/Academy of Sciences	May 1947	USSR/Academy of Sciences (Contd) May 1947
"Archeological Studies of the Land," A. D. Udal'tsov, Corr Mem, Acad Sci USSR, 4½ pp		Antonov-Romanovskiy on alkali earth phosphorus, and by V. L. Ginzburg on dielectric properties of ferroelectric crystals were awarded prize imeni L. I. Mandel'shtam.
"Vest Akad Nauk SSSR" No 5		
Short account of 1946 Expeditions of Institute of History of Material Culture imeni N. Ya. Marr, sent to study archeology of Kolya peninsula, Okhotsk coast, northern Crimea and southern Turkmen SSR. Several expeditions sent to foreign countries, Balkan peninsula, Yugoslavia, Bulgaria, etc.		
FDB	54T8	FDB
USSR/Academy of Sciences	May 1947	USSR/Academy of Sciences
"The Economic System in the Academy of Sciences USSR," P. G. Shidlovskiy, 5½ pp		"In India," V. P. Volgin, Academician, Vice-pres, Acad Sci USSR, 21 pp
"Vest Akad Nauk SSSR" No 5		"Vest Akad Nauk SSSR" No 5
Reports 1947 budget for scientific and research fields increased 1½ billion rubles over 1946, a three-fold increase over 1940. Discusses assignment of budget to Academy of Sciences. Work of Academy receives priority with regard to appropriations; nevertheless, Academy must practice economy while stimulating development of Soviet resources.		Academician Ye. N. Pavlovskiy headed delegation attending session of Scientific Congress held in India, Jan 1947. Discusses journey, procedure at airport, and operation of Congress. States that because of false propaganda of bourgeois press, even learned circles of India believed that in Soviet Union everything was under state ownership. This false impression corrected by speech at University of Benares.
FDB	54T9	FDB
USSR/Academy of Sciences	May 1947	USSR/Academy of Sciences
Agriculture		Jun 1947
"Department of Agricultural Sciences of the Academy of Sciences, USSR," V. P. Popov, Candidate Agr Sci, 2½ pp		"Journals" 1 p
"Vest Akad Nauk SSSR" No 5		"Vest Akad Nauk SSSR" No 6
This department, instituted on suggestion of Council of Ministers of USSR, given duty of discovering practical and theoretical methods to improve productivity of agricultural industries of Soviet Union. One of most important tasks now is discovery of an efficient method of crossbreeding and selective breeding of crops.		On 24 Mar legislation passed by Academy of Sciences establishing an Editing and Publishing Bureau for Council of Academy of Sciences to improve quality of journals published by Academy. Various scientists submitted articles discussing importance of journals and need of maintaining their high quality.
FDB	54T11	FDB
USSR/Academy of Sciences	Jun 1947	FRANCE/Academy of Sciences
"Review of 'Archives of the Academy of Sciences, USSR, Vol II," edited by G. A. Knyazeva, L. B. Modzalevskiy," S. Valk, 1½ pp		Jun 1947
"Vest Akad Nauk SSSR" No 6		"Scientific Research Work in Present-Day France," Prof J. Nicol, 7½ pp
Vol I of this series published in 1933. In 1940, work started on Vol II, which was a collection of all material available at Academy of Sciences. Book contains 392 pp. Only 2,000 copies published.		"Vest Akad Nauk SSSR" No 6
FDB	54T13	FDB
		54T14

RESTRICTED	FDB Periodical Abstracts Scientific No 54	RESTRICTED
USSR/Academy of Sciences	Jun 1947	USSR/Academy of Sciences Mathematics Jun 1947
"In the Presidium" 3 pp		"Department of Physical Mathematical Sciences" 3 pp
"Vest Akad Nauk SSSR" No 6		"Vest Akad Nauk SSSR" No 6
One important task of presidium was establishment of organizations for training, allocation, and utilization of scientific personnel. Suggested better training of aspirants to Academy of Sciences. Outlined procedure for applications for the 'imani' prizes of Academy of Sciences, USSR. Named various committees to judge papers for prizes imani Papaleksi and Lobachevskiy. Prizes for meritorious service awarded to G. A. Knyazev and A. I. Andreyev.		The Mar session of this department opened with reading of I. Ya. Pomeranchuk's article on Nonuniform Elimination of the Unlimited Quantum Theory of Fields." N. D. Morgulis, A. I. Alikhanyan, and N. A. Dobrotin also presented articles. Also discussion of 12 Feb 1947 meteorite which fell some 500 km to northeast of Vladivostok. Session 24 of Committee on History of Physical Mathematical Sciences of Academy of Sciences, USSR met on 25 Mar. K. K. Baumgardt submitted article on life of E. Kh. Lents.
FDB 54T15		FDB 54T16
USSR/Academy of Sciences Chemistry - Academy of Sciences	Jun 1947	USSR/Academy of Sciences Geology Geography Jun 1947
"Department of Chemical Sciences" 1 p		"Department of Geologo-Geographic Sciences" 4 pp
"Vest Akad Nauk SSSR" No 6		"Vest Akad Nauk SSSR" No 6
Session held 28-29 Mar. Paper on department activities read during first part of meeting and, during second half, judgment passed on articles by V. M. Rodionov and N. G. Yartseva on a laboratory method of preparing beta-analyne, and N. A. Izgaryshev and M. G. Khachatryan on anode processes during manufacture of perchlorates.		The Mar session opened with reading of A. N. Zavaritskiy's article, "The Tuff-Lava in Armenia." Several articles submitted in competition for prizes. F. I. Vol'fson submitted the results of many years of work on structure and genesis of polymetallic deposits of southwestern Karamazar; A. V. Peyv submitted an article on tectonics of northern Ural bauxite belt; A. A. Petrenko wrote an article on lower rock
FDB 54T17		FDB 54T18
USSR/Academy of Sciences	Jun 1947	USSR/Academy of Sciences (Contd) Jun 1947
"The Work of the Academy of Sciences of the Armenian SSR," V. A. Ambartsumian, Pres, Acad Sci Armenian SSR, 4 pp		coal-bearing layers of eastern slopes of southern Urals; K. R. Chepikov discussed Tatar belt of Volga Ural petroleum region; and F. B. Chukhrov wrote an article on oxidation zone of sulfide deposits of steppe part of Kazakhstan.
"Vest Akad Nauk SSSR" No 6		
Describes past work of Academy and gives details of work at present in progress, including work on cloud-bursts by physicists under A. I. Alikhanyan, study of astral astronomy and construction of a new astrophysics observatory, study of the origin of Armenian metals by I. G. Magak'yan, and other works.		
FDB 54T19		FDB 54T18
USSR/Academy of Sciences	Jun 1947	USSR/Academy of Sciences Jun 1947
"Future Projects for the Academy of Sciences of the USSR" 4 pp		"Six Years in the Turkmen Affiliate of the Academy of Sciences, and Its Future Projects," Prof M. P. Petrov, 4½ pp
"Vest Akad Nauk SSSR" No 6		"Vest Akad Nauk SSSR" No 6
Gives general description of work of Academy during first 2 years of Five-Year Plan. Announces that Presidium of Academy decided to reduce volume of work for 1947 to 58 specific problems, and discusses organizational matters which require improvement.		Briefly traces development of Turkmen Branch of Academy of Sciences from its start in 1940. At present composed of five institutes: botany and plant studies; zoology and zootechnology; geology; physical engineering; history and language; and economy and geography. Has two museums. Describes briefly operations and staff of each institute. Institutes have important roles in present Five-Year Plan to develop natural resources and people's economy of Turkmen SSR.
FDB 54T20		FDB 54T21

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<p>USSR/Academy of Sciences Medicine - Biology Jun 1947</p> <p>"Department of Biological Sciences" 5½ pp</p> <p>"Vest Akad Nauk SSSR" No 6</p> <p>Institute of Physiology of Growth imeni K. A. Timiryazev is studying regularities in growth and stability of growing organism. Institute of Forestry is taking part in expedition to Caucasus to study its natural resources from an industrial standpoint. Institute of Microbiology is studying antibiotics, bacteria, and molds. Laboratory of Photosynthesis conducted experiments to determine physiological features of various types of leaves, their content of chlorophyll a or b,</p> <p>FDB 54T22</p>	<p>USSR/Academy of Sciences Engineering Radio Jun 1947</p> <p>"Department of Technical Sciences" 2 pp</p> <p>"Vest Akad Nauk SSSR" No 6</p> <p>At the Mar session meeting opened by Vvedenskiy, who read a report on progress of department during past year. Seven Academicians and 20 Corresponding Members joined organization. Two theses were read. L. A. Zhekulin submitted a paper on transmission of messages over a coaxial cable. A. N. Kazantsev submitted a paper on absorption of radio waves in ionosphere and methods of calculating voltage of an electric field at point of reception of radio waves.</p> <p>FDB 54T23</p>	
<p>USSR/Academy of Sciences (Contd) Jun 1947</p> <p>amino acids, or albumin. At Murmansk Biological Station, studies conducted on a light warm wind in northern region. Studies over a period of time have shown that Barents Sea is getting warmer. Biological Station Borok has undertaken a study of water sheds of Rybinsk system. Seven first and 15 second prizes awarded in Department of Biological Sciences.</p> <p>FDB 54T22</p>	<p>USSR/Academy of Sciences Medicine - Microbiology Jun 1947</p> <p>"Socialistic Competitions" 1 p</p> <p>"Vest Akad Nauk SSSR" No 6</p> <p>Announces that theses in biology, microbiology, immunology, epidemiology and treatment of infectious diseases will be accepted in competition for prize imeni I. I. Mechnikov. 1 Sep 1947 is final date for acceptance of theses in field of radio for prize imeni Academician L. I. Mandel'shtam. Same date is effective for theses in field of crystallography in competition for prize imeni Ye. S. Fedorov.</p> <p>FDB 54T24</p>	
<p>USSR/Academy of Sciences Biography Nov/Dec 1946</p> <p>"Aleksey Nikolayevich Krylov (1863-1945), On the First Anniversary of His Death," V. Fok, 6 pp</p> <p>"Journal of Physics USSR" Vol X, No 6</p> <p>Brief biographical sketch of Aleksey Nikolayevich Krylov, scientist, naval engineer, physicist, and mathematician.</p> <p>FDB 54T25</p>	<p>USSR/Chemistry - Nontronite, Physical Properties of Chemistry - Minerals Sep 1947</p> <p>"The Physical and Chemical Nature of Nontronite," Ye. Ya. Rode, T. V. Rode, 4½ pp</p> <p>"Izv Sektora Fiz-Khim Analiza" Vol XV</p> <p>This mineral belongs to group of isomorphous minerals of "beydellit" series. General formula is <math>R_2O_3 \cdot 3SiO_2 \cdot nH_2O</math> where R is Al and <math>Fe^{III}</math>. Value of n fluctuates between 2 and 6, but usually equals 5. Relationship between <math>Fe^{III}</math> and Al also fluctuates. Authors refer to work done by other scientists in this field, and present some of their own observations. Submitted, 15 Dec 1940.</p> <p>LC 54T26</p>	
<p>USSR/Chemistry - Salts, Systems of Chemistry - Stratification Sep 1947</p> <p>"The Singly Related System <math>AgNO_3 + TLJ \rightarrow AgJ + TLNO_3</math>," L. G. Berg, I. N. Lepeshkov, 12 pp</p> <p>"Izv Sektora Fiz-Khim Analiza" Vol XV</p> <p>Authors conducted experiments to determine stratification of above given equation in presence of chemical bonds between various components, particularly fields in which region of stratification expands. Discusses setting up experiments, methods, and evaluation of results. Failed to determine upper limit of stratification since salts began to decompose at 500°. Prof A. G. Bergman aided experiments.</p> <p>LC 54T27</p>	<p>USSR/Chemistry - Photography Chemistry - Emulsions Nov/Dec 1946</p> <p>"Physico-Chemical Interpretation of the Characteristic Curve of the Photolayer," Kh. Bagdasar'yan, Karpov Inst Phys Chem, Moscow, 14 pp</p> <p>"Acta Physicochimica URSS" Vol XXI, No 6</p> <p>Deduction of a characteristic equation for photolayer (Hurter and Driffield curve). Discusses properties of curve, tangentials at inflexion points, and limiting cases. Received, 10 Oct 1945.</p> <p>FDB 54T28</p>	



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<p>USSR/Chemistry - Salts Chemistry - Charcoal, Activated</p> <p>Nov/Dec 1946</p> <p>"Surface Reactions: III, Interaction Between Solutions of Hydrolyzed Salts and Ashless Activated Charcoal," L. Lepin, G. Strakhova, Lomonosov Moscow State U, 16 pp</p> <p>"Acta Physicochimica URSS" Vol XXI, No 6</p> <p>Study of interaction of hydrolyzed salts: comparing and discerning differences between their interactions with ashless activated charcoal and those of neutral salts; dividing their interaction into two types; and discussing variance between the two. Received, 2 Aug 1945.</p> <p>FDB 54T29</p>	<p>USSR/Chemistry - Energy, Levels of Chemistry - Molecules</p> <p>Nov/Dec 1946</p> <p>"On the Determination of the Weights of Rotational Energy Levels of Polyatomic Molecules," I. Godnev, Inst Chem Tech, Ivanovo, 14 pp</p> <p>"Acta Physicochimica URSS" Vol XXI, No 6</p> <p>Applies method of resolving irreducible representations of inner rotation group "M" into irreducible representations of group "R" to determine symmetry of rotational functions with respect to group of permutations equivalent to molecular rotations, allowing relationship to be established between classifications of Mulliken and Wilson. Construc-</p> <p>FDB 54T30</p>	
<p>USSR/Chemistry - Aromatic Compounds Chemistry - Crystallography</p> <p>Nov/Dec 1946</p> <p>"The Crystal Chemistry of Aromatic Compounds: II, An Investigation of Two Dioctyl Naphthalenes of Unknown Structure," A. Kitaygorodskiy, Inst Org Chem, Acad Sci USSR, Moscow, 8 pp</p> <p>"Acta Physicochimica URSS" Vol XXI, No 6</p> <p>Using method of X-ray analysis, unit cells of the crystals of 2,6-dioctyl naphthalene and di-(2,2,4,4) tetramethyl butyl naphthalene were measured, their space groups determined and intensities of reflections estimated. Structure of molecule of former determined and diagram of structure of molecule and crystal drawn to scale in the paper. Received, 18 May 1945.</p> <p>FDB 54T31</p>	<p>USSR/Chemistry - Energy, Levels of (Contd)</p> <p>Nov/Dec 1946</p> <p>tion of rotational functions for group "R" isomorphous with <math>O</math>, <math>T</math>, <math>D_6</math>, <math>C_6</math>, <math>D_3</math>, <math>C_3</math>, <math>D_2</math>, <math>C_2</math>. Calculates weights of energy levels of <math>SF_6</math>. Received, 26 Jan 1946.</p> <p>FDB 54T30</p>	
<p>USSR/Chemistry - Polymerization Chemistry - Kinetics</p> <p>Nov/Dec 1946</p> <p>"The Double Refraction of Flow as a Method of Studying Polymerization Kinetics," V. Tsvetkov, E. Frisman, Phys Inst, Leningrad State U, 22 pp</p> <p>"Acta Physicochimica URSS" Vol XXI, No 6</p> <p>Investigations of double refraction, of degree of depolarization of scattered light and of viscosity, carried out at different stages of polymerization for styrene. In initial stage anomalous dynamo-optical properties discovered. Concentration and mean molecular weight of polymerized part determined. Received, 7 Jul 1946.</p> <p>FDB 54T32</p>	<p>USSR/Chemistry - Rubber Chemistry - Molecular Weight</p> <p>Nov/Dec 1946</p> <p>"Determination of Molecular Weight and Polydispersity of Rubber From Diffusion Measurements," A. Passynskiy, Lab Colloid Chem, Karpov Inst Phys Chem, T. Gatovskaya, Lab Macromolecular Structure, Back Biochem Inst, Acad Sci USSR, 20 pp</p> <p>"Acta Physicochimica URSS" Vol XXI, No 6</p> <p>Computes molecular weight for three rubber samples from measurements of diffusion coefficients and asymmetry of particles; calculates polydispersity coefficients. Notes close correspondence between variations of diffusion coefficient and molecular weight for rubber. Received, 4 Sep 1945.</p> <p>FDB 54T33</p>	
<p>USSR/Chemistry - Catalysis Chemistry - Kinetics</p> <p>Nov/Dec 1946</p> <p>"The Kinetics of Contact Reactions Over Porous Catalysts," S. Pshchetskiy, R. Rubinsteyn, Karpov Inst Phys Chem, Moscow, 14 pp</p> <p>"Acta Physicochimica URSS" Vol XXI, No 6</p> <p>Shows development of simple relation between concentration of various components of the reaction, and reduction of system of equations describing process to an equation for diffusion of only one of components. Relation is approximately true in presence of a temperature gradient within granule of catalyst. A general form of analytical expression for relation be-</p> <p>FDB 54T34</p>	<p>USSR/Chemistry - Catalysis Chemistry - Kinetics</p> <p>Sep/Oct 1946</p> <p>"The Kinetics of Exothermal Catalytic Reactions in a Current: II, Theory of Reaction on a Short Contact Layer," L. Margolis, O. Todes, Catalysis Lab, Inst Phys Chem, Acad Sci USSR, 14 pp</p> <p>"Acta Physicochimica URSS" Vol XXI, No 5</p> <p>On basis of theoretical analysis of equations of balance of matter and heat carried out to a certain degree of approximation, types of steady and unsteady thermal regimes are established for exothermal heterogeneous catalytic reactions in a current on a short contact layer. For an unsteady extinc-</p> <p>FDB 54T35</p>	

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USSR/Chemistry - Catalysis (Contd) Nov/Dec 1946

tween the observed and true rates of heterogeneous catalytic reactions. Received, 18 Mar 1946.

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54T34

USSR/Chemistry - Quinones Sep/Oct 1946  
Chemistry - Resonance, Energies

"The Reduction Potentials of Quinones and Resonance Energy," M. Dyatkina, Ya. Syrkin, Karpov Inst Phys Chem, Moscow, 22 pp

"Acta Physicochimica URSS" Vol XXI, No 5

Reduction potentials of quinones are correlated with changes in resonance energy on passing over from the quinone to corresponding hydroquinone. Parallelism found between changes in resonance energy and reduction potentials. Data on resonance energy allow value to be predicted for potentials of uninvestigated quinones. Received, 15 Oct 1945.

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USSR/Chemistry - Acetic Acid Sep/Oct 1946  
Chemistry - Perchloric Acid

"The Systems Formed by Perchloric Acid With Acetic Acid and Its Chlorine Derivatives," T. Sumarobova, M. Usanovich, Lab Phys Chem, Middle Asia State U, Tashkent, 8 pp

"Acta Physicochimica URSS" Vol XXI, No 5

Experiment undertaken to display possible basic properties in  $\text{CCl}_3\text{COOH}$ . Electrical conductivity, viscosity and density of systems  $\text{HClO}_4\text{-CHCl}_2\text{COOH}$ ,  $\text{HClO}_4\text{-CCl}_2\text{COOH}$ ,  $\text{HCCl}_4\text{-ClCOOH}$ ,  $\text{HClO}_4\text{-CH}_2\text{COOH}$  were studied, and it was established that  $\text{HClO}_4$  does not form any complex compounds with  $\text{CCl}_3\text{COOH}$ . The compounds

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USSR/Chemistry - Acetic Acid (Contd) Sep/Oct 1946

$\text{CHCl}_2\text{COOH}\cdot 2\text{HClO}_4$ ,  $\text{CHCl}_2\text{COOH}\cdot\text{HClO}_4$ ,  $\text{CH}_2\text{ClCOOH}$ ,  $2\text{CH}_2\text{COOH}\cdot\text{HClO}_4$  were detected; formation of these compounds is indicative of the basic properties of  $\text{CHCl}_2\text{COOH}$ ,  $\text{CH}_2\text{ClCOOH}$ ,  $\text{CH}_3\text{COOH}$ . Received, 1 Aug 1945.

FDB

54T38

USSR/Chemistry - Catalysis (Contd) Sep/Oct 1946

tion regime, rate of cooling of the reactor and activity of the catalyst can be connected by an extremely simple, almost linear relation valid over definite ranges. Received, 15 Sep 1945.

FDB

54T35

USSR/Chemistry - Catalysis Sep/Oct 1946  
Chemistry - Aggravation and Ensemble Principles

"The Ensemble and Aggravation Principles in Catalysis: II, The Aggravation Principle and Structural Classification of Catalysts," N. Kobosev, Lab for Catalysis and Electrochem Gases, Moscow State U imeni Lomcnosov, 15 pp

"Acta Physicochimica URSS" Vol XXI, No 5

Outline of development of structural classification of catalysts formulated by author in 1941. Principle, underlying classification, is degree of complexity of structure of active center. Designed to replace existing system based upon aggregate characteristics of catalysts. Received, 15 Jul 1945.

FDB

54T37

USSR/Chemistry - Precipitates Sep/Oct 1946  
Chemistry - Microscopy, Electron

"An Electron Microscopic Investigation of Freshly-Formed Precipitates From Solutions," A. Shekhter, S. Roginskiy, S. Zakharova, Sec Catalysis, Inst Phys Chem, Acad Sci USSR, 7 pp

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Submicroscopic structure study of freshly-formed precipitates of silver chloride, copper chromate, barium chromate, etc. with RCA type B microscope with a resolving power of several tens of angstroms. In all cases tested, photographs clearly show a predominance of rounded forms instead of the com-

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USSR/Chemistry - Precipitates (Contd) Sep/Oct 1946

pond's natural crystalline form. Under more favorable conditions of crystallization the natural forms are assumed. Received, 15 Jan 1946.

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RESTRICTED	FDB Periodical Abstracts Scientific No 54	RESTRICTED
USSR/Chemistry - Catalysts Chemistry - Silica, Colloidal	Sep/Oct 1946	USSR/Chemistry - Electrolytes, Effect on Chemistry - Ferrialuminosilica Gels
"A Physicochemical Study of Silica-Gel Catalysts," T. Rode, A. Balandin, Inst Org Chem, Acad Sci USSR, Moscow, 16 pp		"The Action of Electrolytes on Highly-Purified Ferrialuminosilica Gels," M. Shishnyavili, V. Kargin, A. Barzanadze, Chem Inst, Acad Sci Georgian SSR, Tbilisi, 16 pp
"Acta Physicochimica URSS" Vol XXI, No 5		"Acta Physicochimica URSS" Vol XXI, No 5
Gives differential heating curves for silica-gel catalysts. Plots curves of rate of sorption of water, at room temperature, by catalysts after preliminary heat treatment for several days at temperatures 465, 545, 700, 790, and 1030° C. Shape of these curves indicates that the thermal irreversible inactivation of catalyst, which starts 480-550° C, is not due to		Pure gels are not electrolytes and lack all aptitude to exchange adsorption. When acted upon by neutral salts, hydrolytic adsorption takes place attended by chemical interaction of adsorbed acids with aluminosilica gels. Compounds formed in this process are poorly soluble electrolytes, appearance of which
FDB 54T40		FDB 54T41
USSR/Chemistry - Catalysts (Contd)	Sep/Oct 1946	USSR/Chemistry - Electrolytes, Effect on (Contd)
any inner structural change but probably to elimination of definite amount of chemically bound water. Received, 12 Oct 1945.		results in initiation of exchange-adsorption properties of gels. Received, 4 May 1945.
FDB 54T40		FDB 54T41
USSR/Electricity Electrodes Iron	Sep/Oct 1946	USSR/Electricity Oxidation Electrodes
"The Active Iron Electrode in Alkaline Solutions," B. Kabanov, D. Leikis, Inst Phys Chem, Acad Sci USSR, Moscow, 16 pp		"Adsorption of Oxygen on Iron and Influence of Adsorbed Oxygen on the Behavior of an Iron Electrode," R. Bursteyn, N. Shumilova, K. Golbert, Karpov Inst Phys Chem, Moscow, 20 pp
"Acta Physicochimica URSS" Vol XXI, No 5		"Acta Physicochimica URSS" Vol XXI, No 5
Experiments on electrochemical behavior of an iron electrode performed in an apparatus which permitted transferring the electrode, after heating to a high temperature in hydrogen atmosphere without contact with air, into polarization vessel. Polarization measurements were carried out over a range of current		This paper has as its objective quantitative study of influence of adsorbed oxygen on passivity of iron during its anodic oxidation. Adsorption is investigated at low pressures in temperature range 90-473° K. When oxygen is adsorbed to amount of $2 \times 10^{15}$
FDB 54T42		FDB 54T43
USSR/Electricity (Contd)	Sep/Oct 1946	USSR/Electricity (Contd)
densities from $10^{-8}$ to $10^{-3}$ A/cm in absence of foreign depolarizing agents. Discusses stoichiometry and mechanism of electrode processes on active iron. Received, 20 Jan 1946.		molecules per sq cm, the electrochemical activity of iron electrode is retained, and upon adsorption of $4 \times 10^{15}$ molecules per sq cm, complete passivation results. If oxide film were not removed by anodic polarization, amount of oxygen needed would probably be much less. Received, 15 Nov 1946.
FDB 54T42		FDB 54T43

RESTRICTED	FDB Periodical Abstracts Scientific No 54	RESTRICTED	
USSR/Electricity Electrodes Gold  "Photogalvanic Processes on a Gold Electrode," V. Veselovskiy, Karpov Inst Phys Chem, Moscow, 34 pp  "Acta Physicochimica URSS" Vol XXI, No 5  Establishes relations between magnitude of photogalvanic effect on a gold electrode and amount of electricity passed; and between effect and intensity of radiation. Determines spectral sensitivity of effect, establishing its dependence on electrode potential. Discusses probable mechanism of photogalvanic process on gold electrode. Received, 26 Oct 1945.	Sep/Oct 1946	USSR/Electricity Conductivity Conductance - Charts  "The Electrical Conductivity of the System $\text{HClO}_4\text{-H}_2\text{O}$ ," M. Usanovich, T. Sumarokova, Lab Phys Chem, Middle Asia State U, Tashkent, 5 pp  "Acta Physicochimica URSS" Vol XXI, No 5  Complete electrical conductance diagrams obtained at temperatures 20°, 50°, 60°; and the 50° isotherm investigated at great length. Data obtained indicates chemical interaction in system; hydrates of perchloric acid, $\text{HClO}_4\cdot\text{H}_2\text{O}$ and $\text{HClO}_4\cdot 2\text{H}_2\text{O}$ appear to manifest themselves in liquid phase. Received, 1 Aug 1945.	Sep/Oct 1946
FDB 54T44		FDB 54T45	
USSR/Electricity Electrical Equipment Power Plants  "News From the State Inspection for Industrial Engineering and Energy Supervision" 1 p  "Prom Energetika" No 1  Brief article lists some more important standards and bulletins released: Resolution 46/3/11 on use of imported insulated conduits and cables with aluminum wires. Resolution 12, degree of precision for measuring transformers and for calculating electrical power at industrial enterprises. Resolution 13, regulations for construction of electrical equipment for	Jan 1947	USSR/Electricity Controls, Electric Calculators  "New Methods of Controlling Electric Calculating Machines," N. G. Vostroknutov, Engr, Committee on Measurements and Measuring Machines, Council of Ministers, USSR, 2 pp  "Prom Energetika" No 1  In last 15 years many new methods presented to control operation of calculating machines. "Electric eye" method is very complicated and difficult to operate efficiently. Author describes new combined method for controlling calculators, in which basic	Jan 1947
FDB 54T46		FDB 54T47	
USSR/Electricity (Contd)  industrial use. Resolution 14/50E for selection of an economical density of current for power transmission lines.	Jan 1947	USSR/Electricity (Contd)  pieces of equipment are a watt-meter, second-timer, and a transmission controlling calculator and out-lines operation.	Jan 1947
FDB 54T46		FDB 54T47	
USSR/Electricity Hysteresis, Magnetic Superconductivity  "The Residual Currents in Discs Made of Superconducting Metals and the Related Hysteresis Phenomena," N. Alekseyevskiy, Inst Phys Prob, Acad Sci USSR, 6 pp  "Journal of Physics USSR" Vol X, No 4  Studies topography of residual currents in superconducting lead discs, and experimental determination of distribution of residual current over the radius. Received, 19 Nov 1945.	Jul/Aug 1946	USSR/Electricity Arcs Oscillations  "Spontaneous Electrical Oscillations in Low-Pressure Arc Discharge," B. Granovskiy, L. Bykovskaya, All-Union Electrotech Inst, 9 pp  "Journal of Physics USSR" Vol X, No 4  Study of four modes of spontaneous oscillations of current and voltage in a low-pressure mercury-arc discharge arising in a circuit, lacking both capacitance and inductance: random voltage oscillations with a freely moving cathode spot; random voltage oscillations with an anchored cathode spot; regular	Jul/Aug 1946
FDB 54T48		FDB 54T49	

RESTRICTED	FDB Periodical Abstracts Scientific No 54	RESTRICTED
USSR/Engineering Training Bibliography	Jan 1947	USSR/Electricity (Contd) Jul/Aug 1946
"News on Handbooks" 1 1/4 pp		oscillations of low radio frequencies; and acoustic frequencies. Discusses possible mechanism of their generation. Received, 16 Nov 1945.
"Prom Energetika" No 1		
Announces several handbooks and instruction booklets published in 1946: "Handbook on Normalization of the Specific Expenditure of Power in Compressors" by D. I. Rubanovich, handbook for normalization of power expenditure in compressors up to 10 atmospheres pressure; "Handbook for Power Economy in Thermal Furnaces" by A. D. Svehchanskiy, giving methods for obtaining power economy up to 25%; "Instructions for Power Econ-		
FDB	54T50	FDB
USSR/Engineering (Contd)	Jan 1947	USSR/Engineering Metallurgical Plants Efficiency, Industrial
omy During Contact Spot Welding" by N. L. Kaganov, discussing methods for increasing efficiency of spot welding above present 15%.		Jan 1947
		"Economy of Electrical Power and Water in the Gas Economy of a Metallurgical Works," A. G. Romanenko, Engr, AzovStal' Works, 1 p
		"Prom Energetika" No 1
		Workers in gas economy of metallurgical works must be impressed with need for economy measures in use of electrical power and water. Author relates economies achieved at AzovStal' Works from Aug 1945 to Aug 1946. Plant saved one million kwt of power and 600,000 cu m of water. States that on basis of
FDB	54T50	FDB
USSR/Engineering	May 1947	USSR/Engineering (Contd)
Boilers, High Pressure Fuel Consumption		Jan 1947
"Department of Technical Sciences" 3 pp		power expenditure for refining 1,000 cu m of gas, this plant achieved economy superior to that of foreign countries.
"Vest Akad Nauk SSSR" No 5		
Energetics Institute reports results of studies on binary boilers for high pressure. Change-over from 30 to 100 atmospheres results in fuel saving of 13%. Increase to 180 atmospheres will result in saving of 25% of fuel consumption. First such boilers put into operation at the end of 1946 at MGES No 2. GlavGaz-TopProm reports having established new method of gasification of solid fuels. Institute of Machine Studies had seminar on theory of mechanisms and machines. FDB	54T52	FDB
USSR/Engineering	Jun 1947	USSR/Geological Prospecting
Construction, Underground Corrosion		Coal Oil
"Corrosion of Underground Installations" 1 1/4 pp		Jun 1947
"Vest Akad Nauk SSSR" No 6		"Study of the Natural Resources of the Northeastern Part of the USSR," I. I. Gorskiy, Corr Mem, Acad Sci USSR, 10 pp
Committee for Reconstruction of Moscow, Presidium of Academy of Sciences, USSR, recently met to discuss methods of controlling corrosion of underground installations. A. M. Terpigorev, V. A. Prityla, and K. A. Krug all submitted methods for controlling deleterious effects of corrosion.		"Vest Akad Nauk SSSR" No 6
		Reports the results of work of 1946 Northern Expedition to Komi ASSR and northern Urals. Discusses briefly results obtained by 20 sections of expedition, ranging from scientists in field of micropaleontology to geology and stratigraphy. Data collected proves need to establish route connecting
FDB	54T53	FDB
		54T54

RESTRICTED	FDB Periodical Abstracts Scientific No 54	RESTRICTED
USSR/Hydrology 1947 "Physical-Chemical Investigation of the Mineral Water Springs of Borjomi District," V. M. Levchenko, 10 pp "Gidrokhim Materialy" Vol XIII Derivation of formula for relation of solubility of calcium carbonate to concentration of carbon dioxide in mineral water, and investigation of process of formation of alkaline waters of Borjomi type through metathetical adsorption of cations from rock. Theoretical computations agree with data of chemical analysis.	1947	USSR/Geological Prospecting (Contd) Jun 1947 coal region of Pechorsk coal basin to northern Urals via Kozhva, Ivdel', also via Kozhva, Solikamsk. Reports decision to reconstruct Murmansk railroad making possible transportation of large shipments of ore over the road.
LC USSR/Hydrology Potamology 1947 "Seasonal Changes in the Concentrations of Potassium, Bromine, and Boracic Acid in the Salt Lakes of the Delta of the Volga," V. I. Nikolayev, N. M. Segel', Kalmytskiy Sci Res Salt Sta, Astrakhan Med Inst, 5 pp "Gidrokhim Materialy" Vol XIII Concentration of these ions increases with depth of brines at close of summer; by early autumn come up to maximum values of equilibrium between silts and brines. Phenomena of adsorption of these ions mainly involves argillaceous part of mud complex.	54T55	FDB USSR/Hydrology Oceanography 1947 "The Chemical Composition of Sediment Solutions of the Caspian Sea: Part I, The Northern Caspian (From the Data of 1939)," S. V. Bruyevich, Inst Marine Fisheries and Oceanography, Moscow; Ye. G. Vinogradova, Inst Oceanology, Acad Sci USSR, 19 pp "Gidrokhim Materialy" Vol XIII Describes and explains considerable accumulation of biogenic elements in sediment solutions of Northern Caspian. Discusses salinity and vertical distribution of chlorine in sediment solutions, and difference between sediment solutions of bay and those of open sea.
LC USSR/Hydrology Oceanography 1947 "The Chemical Composition of Sediment Solutions of the Caspian Sea: Part II, Northern, Middle, and Southern Parts of the Caspian Sea," S. V. Bruyevich, Inst Marine Fisheries and Oceanography, Moscow; Ye. G. Vinogradova, Inst Oceanology, Acad Sci USSR, Moscow, 39 pp "Gidrokhim Materialy" Vol XIII Describes determination of chemical composition of sediment solutions and physical and chemical composition of natural bottom deposits, i.e., humidity, specific gravity, carbonate content, chlorinity, etc.	54T56	LC USSR/Hydrology Oceanography 1947 "Determination of Gold in Matzesta Waters," K. S. Zverev, V. M. Levchenko, Ye. I. Miller, 3 pp "Gidrokhim Materialy" Vol XIII Establishes content of gold in fresh waters diluting Matzesta waters, under subterranean conditions, on basis of investigations carried out.
LC USSR/Hydrology Oceanography 1947 "Physicochemical Characteristics of Matzesta Waters," V. M. Levchenko, 14 pp "Gidrokhim Materialy" Vol XIII Matzesta waters belong to type of sea waters metamorphosed by biochemical desulphatization processes. Investigation of sulfate-carbonate equilibria permits establishment of origin of various kinds of Matzesta waters and allows classification.	54T58	LC USSR/Mathematics - Equations, Differential Jul/Aug 1946 Mathematics, Applied "A New Method of Solution of Certain Boundary Problems for Equations of Mathematical Physics Permitting Separation of Variables," G. Grunberg, Phys Tech Inst, Acad Sci USSR, 20 pp "Journal of Physics USSR" Vol X, No 4 Suggests a more general method, than Fourier-Lame method of particular solutions, for solving differential equations of mathematical physics permitting separation of variables. Received, 18 Oct 1945.
LC 54T60	FDB 54T61	

RESTRICTED	FDB Periodical Abstracts Scientific No 54	RESTRICTED
USSR/Medicine - Biology Medicine - Growth	Jun 1947	USSR/Medicine - Antibiotics Medicine - Penicillin May 1947
"Problems of Growth," N. D. Dubrovitskaya, Candidate Biol Sci, 1 p		"Projects in the Study of Antibiotics," N. A. Kravtsov, Corr Mem, Acad Sci USSR, 6½ pp
"Vest Akad Nauk SSSR" No 6		"Vest Akad Nauk SSSR" No 5
Brief account of work done in Institute of Biology, Ural affiliate, Academy of Sciences, USSR. Institute now interested in problems of growth, particularly morphological and physiological changes in basic flora and fauna of Urals. Scientists engaged in this work include: N. P. Krenke, V. I. Patrushev, I. I. Khrenov.		Discovery of penicillin opened whole new field of study of microbe-antagonists as means to control pathogenic microbes. Since discovery of penicillin some 40 new substances discovered. These antibiotics are produced by actinomycetes, bacteria, or fungus. Discusses antibiotics produced by actinomycetes, like streptomycin; those produced by bacteria, like gramicidin; and those formed by fungus, like
FDB	54T62	FDB
USSR/Metals Lead Alloys Lithium	Sep 1947	USSR/Medicine - Antibiotics (Contd) May 1947
"Solid Solutions of Lithium and Lead," S. A. Pogodin, Ye. S. Shpichinetskiy, IONKh, AN, SSSR, Sci Res Inst Polygraph Pub Techniques, 7½ pp		aspergillin. Central clearing house on antibiotic studies is Committee on Antibiotics of Academy of Sciences, USSR.
"Izv Sektora Fiz-Khim Analiza" Vol XV		
Records some studies made concerning lead angle in triple system lead-sodium-lithium. Purpose is better understanding of solid solutions of lithium and lead. Among phenomena observed was aging of alloys at room temperature. Submitted, 20 Nov 1940.		
LC	54T64	FDB
USSR/Metals Lead Alloys Lithium	Sep 1947	USSR/Metals Lead Alloys Magnesium Sep 1947
"Ternary Alloys of Lead With Sodium and Lithium," S. A. Pogodin, Ye. S. Shpichinetskiy, IONKh, AN, SSSR, Sci Res Inst Polygraph Pub Techniques, 16½ pp		"Solid Solutions of Magnesium and Lead," N. S. Kurnakov (Deceased), S. A. Pogodin, T. A. Vidusova, IONKh, AN, SSSR, Leningrad Polytech Inst imeni M. I. Kalinin Lab Gen Chem, 4½ pp
"Izv Sektora Fiz-Khim Analiza" Vol XV		"Izv Sektora Fiz-Khim Analiza" Vol XV
Describes studies conducted to select method for physical-chemical analysis of alloys with the lead angle in the ternary systems lead-sodium-lithium. Discusses thermal analysis, hardness and microstructure, also hardness and aging of rich lead alloys. Among results obtained was equilibrium diagram for the ternary system		Using data obtained in 1929, describes physical-chemical methods of analyzing lead solutions which have small additions of magnesium. Lead solutions, with small additions of magnesium, lent themselves readily to natural aging. Hardness of aged cast
LC	54T65	LC
USSR/Metals (Contd)	Sep 1947	USSR/Metals (Contd) Sep 1947
Pb-Na-Li, where Na was up to 50 atomic percent, and Li was 50 atomic percent. Submitted, 25 Dec 1940.		alloys, with 0.5 to 0.7% by weight of magnesium, was 15. Hardness of alloys which had 1.4% by weight of magnesium was as much as 20. Submitted, 15 Nov 1940.
LC	54T65	LC
		LC

RESTRICTED	FDB Periodical Abstracts Scientific No 54	RESTRICTED
USSR/Metals Silver Aluminum  "The Decomposition of a Solid Solution of Silver in Aluminum," N. V. Ageyev, M. A. Skryabina, IONKh, AN, USSR, Moscow Inst Nonferrous Metals and Gold, 9 pp  "Izv Sektora Fiz-Khim Analiza" Vol XV  Describes progress of experimental investigations made on process of decomposition of a solid solution of the beta system of aluminum-silver and evaluates results obtained. Mentions conditions necessary for experiment. Experimental studies conducted on hardness, electrical resistance, microstructure, and crystal structure. Submitted, 10 Dec 1940. LC 54T67	USSR/Metals Ore Deposits  "Northwestern Metallurgy and the Leningrad-Murmansk Expedition," I. P. Bardin, E. V. Britske, Academicians, Prof A. Ye. Probst, 9 pp  "Vest Akad Nauk SSSR" No 5  During summer of 1945, expedition known as Leningrad-Murmansk Expedition sent to study industrial potential of Soviet Union, particularly northwestern metallurgical reserves. Discusses data collected and briefly describes work accomplished as result of data obtained.  FDB 54T68	
USSR/Nuclear Physics - Cosmic Radiation Nuclear Physics - Particles May 1947  "The Existence of a Particle With Mass, Between the Masses of a Mesotron and Proton," A. I. Alikhan'yan, Corr Mem, Acad Sci USSR; A. I. Alikhanov, A. O. Vaynsenberg, Academicians, 9 pp  "Vest Akad Nauk SSSR" No 5  During period 1942-1946 authors were stationed on Mount Alagez, at an altitude of 3,250 m above sea level. Discerned cosmic particles very different from mesotrons or protons. Series of tests revealed data which showed that these particles to be ionized gases, two to three times greater than either protons or  FDB 54T69	USSR/Nuclear Physics - Cosmic Radiation Nuclear Physics - Acceleration Jul/Aug 1946  "Induction of Fast Charged Particles Currents by Rotating Magnetized Cosmic Bodies," Ya. Terletskiy, Moscow State U, 6 pp  "Journal of Physics USSR" Vol X, No 4  Calculation of motion of charged particles in the electromagnetic field of a rotating magnetized cosmic body with noncoincident magnetic and geographic poles, and of the energy up to which particles can be accelerated in such field. Received, 5 Jan 1945.  FDB 54T70	
USSR/Nuclear Physics - Cosmic Radiation (Contd) May 1947  mesotrons. Mass of this intermediate particle is 250 to 2,000 $m_0$ . They are either positive or negative. Authors express gratitude to V. M. Kharitonov and M. I. Dayon.  FDB 54T69	USSR/Nuclear Physics - Counters, Electronic Nuclear Physics - Cosmic Radiation Jul/Aug 1946  "A Flat Proportional Counter," L. Bell, V. Veksler, Lebedev Phys Inst, Acad Sci USSR, 2 pp  "Journal of Physics USSR" Vol X, No 4  Description and investigation of characteristics of a flat proportional counter. Result indicates that it possesses all properties usually required of proportional counters and, in addition, certain advantages resulting from special geometry. Received, 2 Jun 1946.  FDB 54T71	
USSR/Nuclear Physics - Accelerators Nuclear Physics - Synchrotron Nov/Dec 1946  "Investigation of the Phasing Properties of the Relativistic Resonance Accelerators: I, Synchrotron," M. Rabinovich, Lebedev Phys Inst, Acad Sci USSR, 7 pp  "Journal of Physics USSR" Vol X, No 6  Investigation of phasing properties of a synchrotron by means of method of finite differences; derivation of equation of phasing, showing stability of its solution; investigation of stationary and quasi-stationary working regime of accelerator, demonstration that radiation of electrons does not effect phasing properties; and derivation of formula for limiting energy value obtainable by synchrotron. Received, 30 Jul 1946. FDB 54T72	USSR/Nuclear Physics - Accelerators Nuclear Physics - Cyclotron Nov/Dec 1946  "Investigation of the Phasing Properties of the Relativistic Resonance Accelerators: II, Cyclotron With Varying Frequency of Dee Voltage (Phasotron)," M. Rabinovich, Lebedev Phys Inst, Acad Sci USSR, 3 pp  "Journal of Physics USSR" Vol X, No 6  Describes derivation of difference equation of phasing for phasotron, demonstration of stability of solution of law of variation of frequency in the stationary case; and reduction of problems of phasing and beam intensity in relativistic resonance accelerators to problem of pendulum with large ampli-  FDB 54T73	



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USSR/Nuclear Physics - Cosmic Radiation Nov/Dec 1946 Nuclear Physics - Equipment	USSR/Nuclear Physics - Accelerators (Contd)	Nov/Dec 1946
"The Measurements of the Intensity of the Cosmic Radiation by the Telescope Method," S. Azimov, V. Veksler, N. Dobrotin, G. Zhdanov, A. Lubimov, Lebedev Phys Inst, Acad Sci USSR, 7 pp	tude, slowly varying parameters, and external momentum. Received, 30 Jul 1946.	
"Journal of Physics USSR" Vol X, No 6		
Demonstrates two factors, scattering in counter walls and side showers, which influence measurements of soft components; in hard and soft components intensity measurements by different "telescopes." Formulates requirements for correct measurements in use of telescope method. Received, 26 Apr 1946.		
FDB 54T74	FDB 54T73	
USSR/Nuclear Physics - Cosmic Radiation Nov/Dec 1946 Nuclear Physics - Particles	USSR/Nuclear Physics - Cosmic Radiation Nov/Dec 1946 Nuclear Physics - Particles	
"Measurements of Cosmic Ray Intensity at 3,860 and 5,000 Meters Above Sea Level," A. Azimov, V. Veksler, G. Zhdanov, A. Lubimov, Lebedev Phys Inst, Acad Sci USSR, 4 pp	"Investigation of Narrow Showers at Sea Level," A. Alikhan'yan, N. Shostakovich, Inst Phys Prob, Acad Sci USSR, 5 pp	
"Journal of Physics USSR" Vol X, No 6	"Journal of Physics USSR" Vol X, No 6	
Describes results of measurements of soft and hard components by means of counter telescope and compares them with similar data of other authors. Infers presence of nonequilibrium soft component and production of mesons at altitudes in question. Received, 14 May 1946.	Determination of transverse dimensions and penetrating power of particles constituting narrow showers of cosmic radiation at sea level, demonstrates that narrow showers are equally decreased when traversing same mass of lead or iron. Received, 17 Aug 1946.	
FDB 54T75	FDB 54T76	
USSR/Nuclear Physics - Nuclei, Atomic Nov/Dec 1946 Nuclear Physics - Fission	USSR/Physics Luminescence Radiation, Thermal	Nov/Dec 1946
"Some Features of the Process of Fission of Heavy Nuclei," Ya. Frenkel, Phys Tech Inst, Acad Sci USSR, 7 pp	"Some Remarks Concerning the Difference Between Luminescence and Temperature Radiation. Anti-Stokes Fluorescence," P. Pringsheim, Pasadena, USA, 4 pp	
"Journal of Physics USSR" Vol X, No 6	"Journal of Physics USSR" Vol X, No 6	
Explanation of asymmetrical fission of heavy nuclei as result of dependence of probability of tunnel effect on effective mass of two fragments, and calculation of this probability as a function of excitation energy or of temperature of nucleus and compared with probability of $\alpha$ -decay. Received, 24 Apr 1946.	Discussion showing that second law of thermodynamics cannot determine limiting value of yield of anti-Stokes fluorescence, since latter is essentially a nonreversible process, and intensity, not yield, is a function of temperature. Includes proposal for steep drop in fluorescence yield when wave length of	
FDB 54T77	FDB 54T78	
USSR/Physics Luminescence Thermodynamics	USSR/Physics (Contd)	Nov/Dec 1946
"Photoluminescence and Thermodynamics, (Concerning P. Pringsheim's Objections to My Paper "Some Remarks on the Stokes Law")," S. Vavilov, Lebedev Phys Inst, Acad Sci USSR, 4 pp	exciting light exceeds that of peak of fluorescence band. Received, 27 Jun 1946.	
"Journal of Physics USSR" Vol X, No 6		
Thermodynamic proof that photoluminescence with a yield greater than unity is impossible in anti-Stokes region of excitation. Some remarks on meaning of term "irreversibility" as applied to photoluminescence. Considerations about dependence of yield in anti-Stokes region upon temperature. Received, 23 Jul 1946.		
FDB 54T79	FDB 54T78	

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USSR/Physics Luminescence Thermodynamics	Nov/Dec 1946	USSR/Physics Magnetostriction Thermomagnetic Effect	Nov/Dec 1946	
<p>"The Thermodynamics of Photoluminescence," L. Landau, Inst Phys Prob, Acad Sci USSR, 4 pp</p> <p>"Journal of Physics USSR" Vol X, No 6</p> <p>Derivation of conditions imposed by thermodynamics upon total energy yield of photoluminescence and intensity of radiation in the anti-Stokes region. Received, 20 Jul 1946.</p>		<p>"Magnetostriction of Transformer Steel Subjected to Thermomagnetic Treatment," Y. Shur, A. Khokhlov, Ural Affiliate, Acad Sci USSR, Inst Metal Phys, 3 pp</p> <p>"Journal of Physics USSR" Vol X, No 6</p> <p>Plots magnetostriction curves for unidirectional elastic tension, and compares curves showing that in transformer steel thermodynamic treatment leads to a sharply pronounced texture which manifests itself weakly on the magnetization curves. Received, 27 Feb 1946.</p>		
FDB	54T80	FDB	54T81	
USSR/Oceanography Salt	Sep 1947	USSR/Physics Equilibrium Diagrams Graphic Methods	Sep 1947	
<p>"The Baskunchak Salt Sea," A. P. Nikolayevskiy (Deceased), Astrakhan Tech Inst for Fisheries, 7½ pp</p> <p>"Izv Sektora Fiz-Khim Analiza" Vol XV</p> <p>Records data collected by author during period 1937-1938 on Baskunchak salt lake while studying nature of lake and its processes. Explains source of salt in waters of this lake, noted for its heavy content of rock salt.</p>		<p>"The Use of Fourth-Dimension Geometry for Constructing Physical-Chemical Equilibrium Diagrams," V. P. Radishchev (Deceased), 31 pp</p> <p>"Izv Sektora Fiz-Khim Analiza" Vol XV</p> <p>Discusses use of four-dimensional diagrams. Gives general description of term, such as linear projections and orthogonal projection, drawing diagrams on basis of suggested methods. Explains a polytherm for four-dimension system Pb - Sn - Bi - Cd, and the polythermic development of carnallite third point in</p>		
LC	54T82	LC	54T83	
USSR/Physics Specific Heat	Nov/Dec 1946	USSR/Physics (Contd)	Sep 1947	
<p>"The Superficial Density of Specific Heat," A. Brager, A. Zhukhovitskiy, 18 pp</p> <p>"Acta Physicochimica URSS" Vol XXI, No 6</p> <p>Investigates influence of surface on thermal vibrations of a solid following Debye's approximation which results in a calculation of superficial density of specific heats of solids. Considerable difference between specific heat of graphite and that of activated charcoal, observed by Simon and Swain, explained on basis of theory elaborated in the paper. Received, 11 May 1946.</p>		<p>four-dimension system H<sub>2</sub>O - NaCl - KCl - MgCl<sub>2</sub>. Concludes with Russian and German bibliography.</p>		
FDB	54T84	LC	54T83	
USSR/Physics Evaporation Liquids	Nov/Dec 1946	USSR/Physics Flotation Kinetic Theory	Nov/Dec 1946	
<p>"Relations Governing the Evaporation of Liquids in the Spheroidal State: I," N. Pleteneva, P. Rebinder, Dept Dispersal Systems, Inst Phys Chem, Acad Sci USSR, Moscow, 16 pp</p> <p>"Acta Physicochimica URSS" Vol XXI, No 6</p> <p>Studies relation of the time for complete evaporation of liquid drop on heated metal surface to temperature showing time to be same for large variety of liquids. Analyzes and discusses this similarity for wide range of temperatures. Thickness of vapor coating around a</p>		<p>"The Laws Governing the Process of Separation of Solids of Different Floatability," Z. Volkova, Dept Phys, Moscow Pedagogical Inst, 9 pp</p> <p>"Acta Physicochimica URSS" Vol XXI, No 6</p> <p>Proposes methods of calculating: minimum quantity of air required for flotation of a given solid; coefficient of air utilization under different conditions of froth formation in the pulp; time of transfer of the solid particles onto surface of bubbles; and coefficient of separation of solids of different floatability. Received, 25 Nov 1945.</p>		
FDB	54T85	FDB	54T86	



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FDB Periodical Abstracts Scientific No 54

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USSR/Physics  
Crystallography  
Aromatic Compounds

Sep/Oct 1946

USSR/Physics (Contd)

Jun 1947

"The Crystal Chemistry of Aromatic Compounds: I, The Packing of Molecules in Crystals of Organic Compounds," A. Kitaygorodskiy, Inst Org Chem, Acad Sci USSR, Moscow, 22 pp

atomic molecules. Praises text highly, stating it is of interest to all students and those working in field of molecules.

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Establishes two types of close packing in a layer, the simple oblique-angled, and the "centered" rectangular packing. On basis of symmetry of closely packed layers, shows space groups in which they may occur. Formulates two rules of organic crystal chemistry,

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USSR/Physics (Contd)

Sep/Oct 1946

USSR/Radio

Jul/Aug 1946

Wave Guides  
Radiation, Black Body

checking them against all available experimental data. Discusses distribution in a crystal of centrosymmetric molecules. Received, 16 Aug 1945.

"The 'Black Body' for Radio Waves," N. Malov, Moscow Lenin Pedagogical Inst, 5 pp

"Journal of Physics USSR" Vol X, No 4

Proposes new method for investigation of electrical properties of materials at very high frequencies, by use of apparatus suggested by Southworth, to obtain a pure progressive wave alone in a wave guide. Consists of metal plate fixed to end of wave guide closed by a metallic piston. Received, 16 Feb 1945.

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List of Abbreviations  
used in FDB Periodical Abstracts

ID Intelligence Division Library  
AMC Air Documents Division, Air Materiel Command  
ST Reference Division, State Department  
BM Bureau of Mines, Dept of Interior  
BS National Bureau of Standards  
SI Smithsonian Institution  
LC Library of Congress  
FDB Foreign Documents Branch, CIA  
COM Department of Commerce  
AF A-2 Library, USAF

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