S/133/60/000/004/004/010
A054/A026

AUTHORS: Karsanov, G.V.; Tirkina, A.N.; Odoyevskiy, L.S.

TITLE: Investigation of the Process of Chrome Metal Production in a Vacuum

PERIODICAL: Stal', 1960, No. 4, pp. 321 - 327

TEXT: Considerable attention is being paid to the production of chrome metal by reducing its oxides with carbon in vacuum. The problem was reported on by Salli (Ref. 2), Gel'd, Vlasov and Serebrennikov (Ref. 4), Yesin and Gel'd (Ref. 5) and Vertman and Samarin (Refs. 6 and 7). In order to establish the technology and the parameters for this process, tests were carried out by TsNIIChM. A thermodynamic analysis of the reactions possible in the chrome-oxygen-carbon system showed that only a higher carbide of chrome (Cr_3C_2, 13.34% C) could subsist in equilibrium, upon reducing chrome oxide by carbon (with and without vaccum) in the presence of a surplus of carbon. By decreasing the pressure in the reaction zone it was possible to reduce the temperature required for reduction and also to ensure the subsequent decarbonization of carbides by chrome oxide, while obtaining a metal of low C

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content. The tests established the stability range of chrome carbides as a function of the changes in pressure and the temperature. At 1,400°C and pressures under 15 mm Hg in the presence of chrome oxides only solid solutions of carbon in chrome were stable. It was found that a metal with a C constant of about 0.02% could be obtained at 1,400°C and a pressure of 1 mm of mercury. High vacuum was limited by the great elasticity of chrome vapors. The chrome-oxide-carbon reaction in vacuum took place with the aid of the gas phase according to two-stage process and displayed an adsorptive-autocatalytic character. In the first stage of reduction a metallic phase may form, whereas the introduction of C in the crystal lattice of the metal with the formation of carbides takes place in the secondary stage in which the gas phase participates. The completeness of the process and consequently the quality of the metal produced depends on the kinetics of the final reduction period in which the product is decarbonized by chrome oxide. In this period diffusion is of great importance. Chrome oxides of the following composition were tested: Sample 2276: FeO 0.028%; SiO_2 0.04%; S 0.070%; C 0.020%; H_2O 0.08%; Sample 2370: FeO 0.070%; SiO_2 traces, S 0.038%; C

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0.11%, H_2O 0.03%. Pitch coke and charcoal dried and ground to 0 - 0.15 mm were applied as reducing agents; the samples were pressed and briquetted into pieces of 35 mm in diameter and each containing 50 g of chrome and sufficient reducing agents. For the coke treatment a 5% aqueous solution of chrome anhydride (4 ml for 100 g chrome oxide) and for the charcoal treatment an aqueous solution of molasses (20 ml for 100 g chrome oxide) were applied as binding agents. The test equipment contained an apparatus simulating a ТВВ(TVV) type vacuum pot kiln, a ЦНИИЧМ-1 (TsNIIChM-1) type tungsten-molybdenum thermocouple, ВН-2 or ВН-1 and ВН-3 type (VN-2, VN-1 and BN-3) vacuum pumps, a ВТ-2 (VT-2) type vacuum gauge. The kinetics of the process were tested by the amount of gas separated during the reaction. An inverse relation between the C content and the oxygen content of the produced metal was established. During the one-stage reaction a metal with a low carbon content (0.02 - 0.03%) was produced. In the initial stage the reduction of chrome oxide developed rapidly, while carbides formed which were decarbonized due to the interaction with chrome oxide. The decarbonization of chrome carbides (mainly of $Cr_{23}C_6$) and of the C solutions in chrome was the

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most important feature of the entire process. The effect of temperature, the quality of reducing agents, the fineness of the particles of chrome oxides and the rate of vacuum as the main parameters of the process were also investigated. Upon comparing the test results, the priority of the technological process with two stages could be ascertained, where in the first reduction stage no vacuum is applied, whereas in the second (after repeated grinding to 0 - 0.15 mm) and briquetting (without binding agents) the product is treated in vacuum. When reducing chrome oxide by carbon at 1,300 - 1,400°C temperature and atmospheric pressure with a charge of such a composition that the decarbonization of the metal in a vacuum can be obtained, a product containing 5.2 - 6.8% C and 7.0 - 8.2% oxygen, mainly Cr_7C_3 and a surplus of chrome oxide will be produced. The process takes two hours at 1,300°C and 1.5 hours at 1,400°C, inclusively 1 hour of heating up to the required temperature. Repeated grinding and briquetting before the vacuum treatment promotes the diffusion of the reagents. The metal produced has a low C content and a still lower residual amount of oxygen (about 0.5%). There are 11 figures and 11 references: 9 Soviet and 2 English.
ASSOCIATION: TsNIIChM

Card 4/4

"An Investigation of the Mobility of Carbon Atoms in Steel and Alloys with the Use of the Isotope C^{14}," with Gruzin, P. L., Dr. Phys. and Math. Sci.; Babikova, Ye. F.; Borisov, Ye. V.; Zemskiy, S. V.; Peregudov, N. P.; Polikarpov, Yu. A.; Fedorov, G. B., C nd. Tech. Sci.; Shumilov, M. A., Cand. Tech. Sci., page 327.

In book Problems of Physical Metallurgy, Moscow, Metallurgizdat, 1958, 603p. (Its: Sbornik trudov, v. 5)

The articles in the book present results of investigations conducted by the issuing body, Inst. of Physical Metallurgy, a part of the Cent. Sci. Res. Inst. of Ferrous Metallurgy, located in Dnepropetrovsk. The investigations were concerned with phase transformations in alloys, strenghhening and softening processes, diffusion processes (studied with the aid of radioactive isotopes), and certain other questions.

3453
S/659/61/007/000/032/044
D217/D303

18.1731

AUTHORS: Karsanov, G.V., Tirkina, A.N., and Odoyevskiy, L.S.

TITLE: Problems associated with the vacuum metallurgy of chromium

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Issledovaniya po zharoprochnym splavam, v. 7, 1961, 276 - 279

TEXT: For the study of the basic principles and parameters of the process, the authors reduced chromic oxides with carbon in vacuum, using commercially pure chromic oxide. The latter was quenched from 800 - 900°C, sieved through a sieve of definite size, and the remainder was reground. Coke and wood charcoal, dried and ground to 100 mesh, were used as reducing agents. The required proportions of the charge materials were thoroughly mixed and briquetted in a 5-ton press into cylindrical briquettes of 35 mm diameter. A 5 % aqueous solution of chromic anhydride (4 ml/100 g of chromic oxide) was used as the binding material for reduction with coke, and an aqueous solution of molasses (spec. grav. 1042 g/cm^3) for reduction

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with wood charcoal (20 ml/100 g chromic oxide). The briquettes for testing, containing 50 g of chromic oxide and the required weight of reducing agent, were placed into alumina crucibles and charged into an appropriate furnace. The kinetics of reduction were studied from the volume of gas evolved which was passed through a counter. The study of the influence of temperatures, weight of reducing agent, fineness of the chromic oxide and degree of vacuum on the kinetics of reduction of chromic oxide with carbon in vacuum has shown that the rate of reactions in the final stage of the process is limited by the rate of diffusion of the reagents. The kinetic curves of the diffusion period are parabolic in nature. The investigation showed the considerable advantages of the two-stage process, in which the first reduction stage is carried out without vacuum, and the product obtained after the second grinding operation and briquetting is further reduced in a vacuum furnace. There are 2 figures and 14 references: 9 Soviet-bloc and 5 non-Soviet-bloc. The references to the English-language publications read as follows: W. J. Kroll and W.W. Schlechten, Trans. Electrochem. Soc., 93, 1948; US Pat. 2,833,645, May 6th, 1958; US Pat. 2,850,378, September 2nd, 1958.

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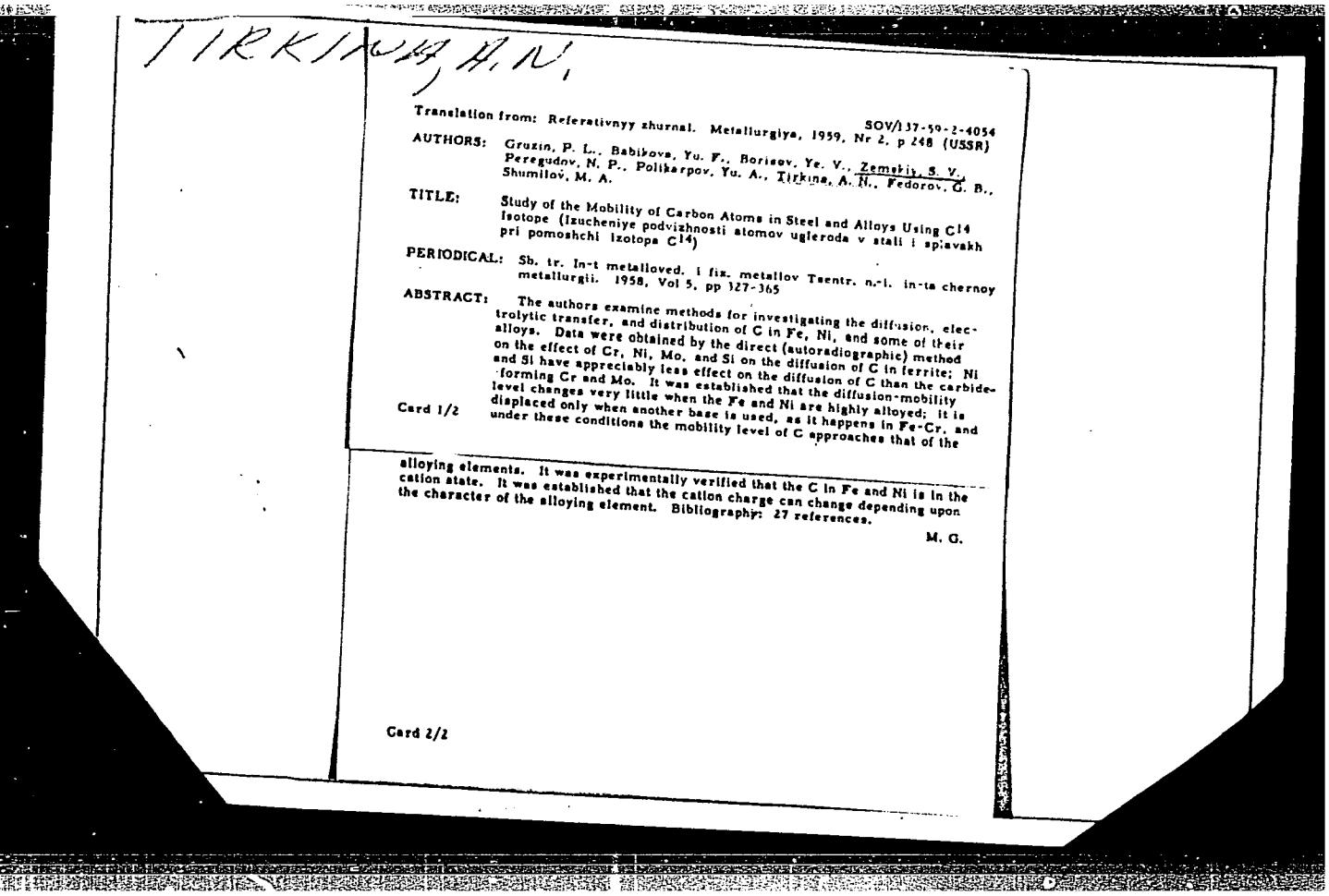
X

KARSANOV, G.V.; TIRKINA, A.N.; ODOYEVSKIY, L.S.

Vacuum metallurgy of chromium. Issl. po zharopr. splav. 7:276-279 '61. (MIRA 14:11)
(Chromium--Metallurgy) (Vacuum metallurgy)



TIRKINA, A. N.

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 2, p 248 (USSR) SOV/137-59-2-4054

AUTHORS: Gruzin, P. L., Babikova, Yu. F., Borisov, Ye. V., Zemskiy, S. V., Peregudov, N. P., Polikarpov, Yu. A., Tirkina, A. N., Fedorov, G. B., Shumilov, M. A.

TITLE: Study of the Mobility of Carbon Atoms in Steel and Alloys Using C^{14} Isotope (Izucheniye podvizhnosti atomov ugleroda v stali i splavakh pri pomoshchi izotopa C^{14})

PERIODICAL: Sb. tr. In-t metalloved. i fiz. metallov Tsentr. n.-i. in-ta chernoy metallurgii. 1958, Vol 5, pp 327-365

ABSTRACT: The authors examine methods for investigating the diffusion, electrolytic transfer, and distribution of C in Fe, Ni, and some of their alloys. Data were obtained by the direct (autoradiographic) method on the effect of Cr, Ni, Mo, and Si on the diffusion of C in ferrite; Ni and Si have appreciably less effect on the diffusion of C than the carbide-forming Cr and Mo. It was established that the diffusion-mobility level changes very little when the Fe and Ni are highly alloyed; it is displaced only when another base is used, as it happens in Fe-Cr, and under these conditions the mobility level of C approaches that of the alloying elements. It was experimentally verified that the C in Fe and Ni is in the cation state. It was established that the cation charge can change depending upon the character of the alloying element. Bibliography: 27 references.

M. G.

Card 1/2

Card 2/2

GRUZIN, P.L.,doktor fiz.-mat.nauk; BABIKOVA, Yu.F.; BORISOV, Ye.V; ZEMSKIY, S.V.; PEREGUDOV, N.P.; POLIKARPOV, Yu.A.; TIRKINA, A.N.; FEDOROV, G.B.,kand. tekhn.nauk; SHUMILOV, M.A.,kand.tekhn.nauk

Studying the migration of carbon atoms in steels and alloys by means of the isotope C14. Probl. metalloved. i fiz. met. no.5:327-365 '58. (Steel--Metallography) (Carbon--Isotopes) (MIRA 11:4) (Diffusion)

IOFFE, B.M.; TIRKINA, T.N.; YAKUSHEVA, T.S.

Effect of roentgen irradiation of the brain on glycemia and on glycosuria in experimental diabetes. Vest.rent.i rad. no.1:42-49 Ja-F '55. (MLRA 8:5)

1. Iz otdela patofiziologii (zav. prof. S.M.Leytes) Vsesoyuznogo instituta eksperimental'noy endokrinologii (dir.prof.Ye.A.Vasyukova).

(DIABETES MELLITUS, experimental,
eff. of x-irradiation of brain on blood & urine sugar)
(BRAIN, effect of radiations on,
x-ray, blood & urine sugar in exper. diabetes)
(ROENTGEN RAYS, effects,
on brain, blood & urine sugar variations in exper. diabetes).

DUSAN, V.; TIRLEA, D.

The force of united labor. St si Teh Buc 14 no.12:6 D'62.

1. Chairman, "Flcara" Collective Farms, Varias, Banat region (for Dusan). 2. Deputy Chairman, "Flacara" Collective Farms, Varias, Banat region (for Tirlea).

SURNAME, Given Names

Country: Rumania

Academic Degrees: /not given/

Affiliation: Pediatrics Clinic (Clinica de Pediatrie), Timisoara.

Source: Timisoara, Timisoara Medicala, No 2, Jul-Dec 60, pp 1-11

Data: "Hormone Therapy in Sokolski-Bouilland Rheumatism."

Co-authors:

MASCA-CIOBANU, L., /degree not given/, Pediatrics Clinic, Timisoara.

MORATH-MINDA, C., /degree not given/, Pediatrics Clinic, Timisoara.

GPO 981643

TIRLEA, I., prof.; MASCA-CIOBANU, L., dr.; MORATH, C., dr.; STANCIU, M., dr.; STAMBULIU, S., NUBERT, S., dr.

The clinical study, evolution and prognosis of chronic evolutive polyarthritis in children. Med. intern., Bucur 12 no.9:1375-1384 S '60.

(ARTHRITIS, RHEUMATOID, in inf & child.)

TIRLEA, I., prof.; TUREANU, L., assist. prof.; HERZOVI, F.; ELIAS, M.

Investigations concerning the phenomenon of renal osmotic regulation in immature infants. Rumanian M Rev. no.2:47-50 Ap-Je '60.
(KIDNEY physiology) (INFANT PREMATURE physiology)
(WATER-ELECTROLYTE BALANCE physiology)

TIRLEA, I.; MASCA-CIOBANU, L.

Characteristics of rheumatism in children between the ages of 2 and 5 years. Probl. reumat., Bucur. no.5:99-101 1958.
(RHEUMATIC FEVER, manifestations
in child. aged 2 to 5)
(RHEUMATIC HEART DISEASE, manifestations
in child. aged 2 to 5)

TIBLEA, Iuliana, prof.; ZAR-GAROIU, Felicia, dr.; IUSTIG, I., dr.; CETERCHI, Petru, dr.; PAKAI, Eva, dr.; HEMIDEA, Gh. dr.

Characteristics of ulcerous disease in childhood. Pediatria (Bucur.) 13 no.6:491-499 N-D '61

1. Lucrare efectuata in Clinica I de pediatrie, Cluj.

TIRLEA, J.; CUCU-CADADAIEF, L.; BICLESANU, A.; STERN, A.

Function tests in rheumatic fever. Cesk. pediat. 20 no.11: 964-966 N '65.

1. I. detska klinika Cluj (Rumunsko) (prednosta prof. dr. J. Tirlea).

ROMANIA

TIRLEA, P., Professor.

Clinic of Dermatovenerology of the Institute of Medicine and Pharmacy (Clinica de dermatovenerologie a I.M.F.), Cluj.

Bucharest, Viata Medicala, No 8, 15 Apr 63, pp 519-525.

"Occupational Dermatoses in the Sector of Agriculture and Animal Husbandry."

(11

RUMANIA

TIRLEA, S., Engineer, Poultry Trust (Trustul gostat Constanta)

"Application of the "All-in-All-out" Principle as a Basic Tenet in Poultry Farming"

Bucharest, Revista de Zootehnie si Medicina Veterinara, Vol 16, No. 6, June 1966; pp 14-20

Abstract: Schematic program for rotating generations of chickens and hens through poultry farm in 63 weeks, or 441 days, including a 28 day interval to clean and repair the facilities; and 413 of actual care of poultry with 3 cycles of chickens brought through during that time. Technical details are given on optimal sequence of various breeds and number of birds, with examples as seen on some Rumanian farms. 3 diagrams.

1/1

TIRIEA, T.; OPRIS, F.; VASILESCU, E.; ZALMAN, M.; LEVIN, S.; GHERMAN, D.; REICHART, S.; ELIAS, A.; MOISE, O.

Clinical, bacteriological, and epidemiological study of staphylococcal infection cases in the Timisoara Pediatric Clinic during 1957-1959. Microbiologia (Bucur) 6 no.1:29 Ja-F '61.

TIRLEA, T.; POPPER, A.

Regualtion of looms with revolver mechanisms. p. 270.

(INDUSTRIA TEXTILA. Vol. 8, No. 6, June 1957, Bucuresti, Rumania)

SO: Monthly List of East European Accessions (EEAL) Lc. Vol. 6, No. 10, October 1957. Uncl.

BACIU, Emil, ing.; TIRNACOP, Gh., tehnician

From the experience of socialist units. Mec electrif agric 9 no.3:65-73 '64.

1. Machine-tractor Station, Draganesti-Vlasca.

TIDIAVEANU, S.

Evolution of the mortality and morbidity of cardiovascular diseases in the Rumanian Peoples' Republic. Stud. cercet. med. intern. 5 no.3: 287-296. '64.

TIRNOVEANU, Mircea

A transfinite logical domain. Communicarile AR 11 no.9:1017-1023 S '61.

1. Comunicare prezentata de academician G. Vranceanu.

TIRNOVEANU, Mircea

Some properties of the complete topologic structures S-D-. Comunicarile AR 11 no.9:1025-1031 S '61.

1. Comunicare prezentata de academician G. Vranceanu.

TIRNOVEANU, Mircea

Some properties of the normal divisor structures ST-. Comunicarile AR 11 no.9:1033-1038 S '61.

1. Comunicare prezentata de academician G. Vranceanu.

TIRNOVEANU, Mircea

Some differential properties of the logical domains K-. Comunicarile AR 11 no.10:1175-1178 O '61.

1. Comunicare prezentata de academician Miron Nicolescu.

TIRNOVEANU, Mircea

On the function of logical expression ϕ . Comunicarile AR II no.12:1417-1422 D '61.

1. Comunicare prezentata de academician G. Vranceanu.

TIRNOVEANU, Mircea
SURNAME, Given Names

Country: Rumania

Academic Degrees: -not given-

Affiliation: -not given-

Source: Bucharest, Comunicarile Academiei Republicii Populare Romine, Vol XI, No 12, 1961, pp 1411-1422.

Data: "Regarding the Logical Expression Function Φ."

TIRNOVEANU, Mircea

SURNAME (in caps); Given Names

Country: Rumania

Academic Degrees: -not given-

Affiliation: -not given-

Source: Bucharest, Comunicarile Academiei Republicii Populare Romine, Vol XI, No 9, 1961, pp 1005-1009; 1017-1023; 1025-1031; 1033-1038.

Data: "On Some Differential Properties of K-logical Domains. I."

"On a Transfinite Logical Domain."

"On Some Properties of Complete S-D-Topological Structures."

"On Some Properties of Normal ST-Divisor Structures."

SURNAME, Given Names: TIRNOVEANU, Mircea

Country: Rumania

Academic Degrees: -not given-

Affiliation: -not given-

Source: Bucharest, Comunicarile Academei Republicii Populare Romine, Vol XI, No 10, 1961, pp 1175-1178.

Data: "Some Differential Properties of K-logical Domains. II."

TIRNOVEANU, Mircea

On a general semiconstructive system. Bul Inst Politeh 26 no.5: 17-22 S-O '64.

1. Chair of Mathematics, Polytechnic Institute, Bucharest.

TIRNOVEANU, Mircea

On the generalized functions. Comunicarile AR 12 no.1:29-35 Ja '62

1. Comunicare prezentata de academician G. Vranceanu.

KULESHOVA, K.; TIRNSHTEYN, B.

Observations of lunar occultations of stars in Tashkent.
Astron.tsir. no.140:18 Ag '53.
(MLRA 7:1)

1. Astronomicheskaya observatoriya Akademii nauk Uzbekskoy SSR (Tashkent).
(Occultations)

TIRNSHTEYN,B.

Observations of lunar occultations at Tashkent. Astron.tsir. no.157:22 F'55. (MLRA 8:10)

1. Astronomicheskaya observatoriya AN Uz SSR (Tashkent)
(Occultations)

TIRO, A.

Experimental investigation of test differential drive of a belt conveyor. Khim. i tekh.gor.slan. i prod. ikh perer. no.12:82-89 '63.
(MIRA 17:2)

TIRO, A.M. [illegible] ZAGRN, V.M.

Determining the optimum operative capacity of the loading machines for the chamber sections of oil shale mines. Khim. i tekh. gor. slan. i prod. 18 no.13:56-60 '64. (MIRA 18:9)

TIRO, A.M.; SMIRNOV, G.V.; DYKOV, O.V.

Investigating the relation between the number of switchings of the crawlers of loading machines and some factors in the stoping chambers of oil shale mines. Khim. i tekh. gor. slan. i prod. Ikh perer no.13:61-66 '64. (MIRA 18:9)

TIRO, A.M.

Determining the permissible coefficient of failure and overhaul life for the machinery complexes of the stoping equipment in oil shale mines. Khim. i tekh. mor. plan. i prod. 1kh perer no.13; 67-73 '64. (MIRA 18:9)

TIRO, A.M.

Efficiency of the driving drums of a drive with a differential mechanism. Khim. i tekh. gor. slan. i prod. ikh perer. no.10: 84-89 '62.

Selecting the drive system and the degree of asymmetry in the differential drives of belt conveyors. Ibid.:90-10[illegible]

(MIRA 17:5)

ISTVAN, Lajos, dr.; TIROLER, Zoltan, dr.

Blood transfusion in tuberculosis. Orv. hetil. 96 no.6:159-161 6 Feb 55.

1. Az Orsabos Vertransfusios Szolgalat (igazgato: foorvos: Sores Balint dr.) Szombat helyi Alkozpontjanak, a Vasmegyei Tanacs Korhaza (igazgato: foortos: Szvoboda Jeno dr.) Vertransfusios es Tudosobeszeti Osztalyanak kozlemenye.

(TUBERCULOSIS,
blood transfusion in)
(BLOOD TRANSFUSION, in various diseases,
tuberd.)

MASIF, R. M., ing.; TIRON, E., ing.

Discussions on the article "Technical progress, a determining factor in increasing labor productivity and in improving the product quality in the shoe industry." Industria usoara 11 no.1:41-42 Ja '64.

TIHON, Emilian, ing.

Technical and operative organization of shoe factories. Industria usoara 11 no.1:37-40 Ja '64.

TIRON, Emilian, ing.

Technical progress in the shoe industry, a decisive factor for increasing labor productivity and improving the quality of products. Industria usoara 10 no.5:181-186 My '63.

TIRON, I.M.

Investigating the accuracy of Stokes and Vening-Meinesz formulas. Trudy TSNIIGAIK no.139:21-44 '60. (MIRA 14:7)
(Earth—Figure)

TIRON, Marin, Ing., [illegible]

Gravitation. Studii Bucuresti 4 no.4:[illegible]

TIRON, M., ing., candidat in stiinte tehnice

Some problems on the calculation of external gravitational elements of the earth. Rev geodezie 7 no.2:21-32 '63.

TIRON, Zoya Mikhaylovna; RUPPERT, L.L., otv. red.; RUSAKOVA, G.Ya. red.

[Hurricanes] Uragany. Leningrad, Gidrometeor. izd-vo, 1964. 237 p. (MIRA 17:8)

TIRONOV, M. D.

TIRONOV, M. D. -- "Increasing the Fish Productivity of Lakes through Acclimatization and Annual Culture of Carp." All-Union Sci Res Inst of the Lake and River (Fish) Economy. Leningrad, 1955. (Dissertation for the Degree of Candidate of Biological Sciences.)

SO: Knizhnaya letopis', No. 4, Moscow, 1956

[illegible], M. P.

32641. Pyatnadtsat' let nauchnoy deyate'nosti ural vniorkh . Trudy ural'skogo otd - niya (vsesoyuz. Nauch. - issled. in-t ozer. i rech. ryb. khoz - va), T. IV, 1949, s. 3-9.

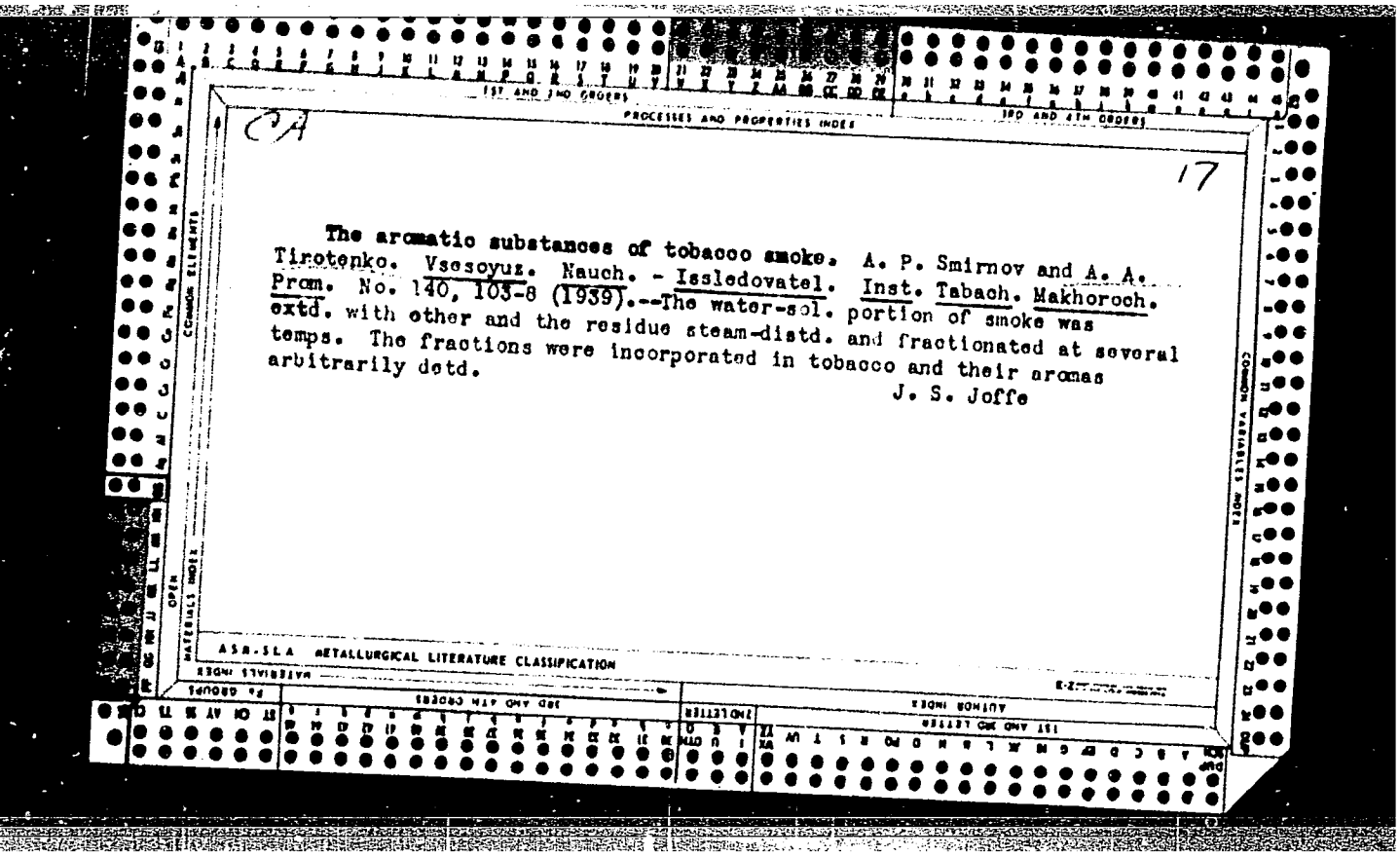
SO: Letopis' Zhurnal'nykh Statey, Vol. 44, Moskva, 1949

EXCERPTA MEDICA Sec.13 Vol.12/3 Dermato-Venereology Mar58

TIRLEA, P.

599. CONSIDERATIONS ON HAEMANGIECTATIC HYPERTROPHY (PARKES-WEBER-SYNDROME) - Considerații asupra hipertrofiei hemangiectazice (Sindromul Parkes-Weber) - Tîrlea P. and Buteanu N. Clin. Derm-Venereol., Inst. de Med., Timișoara - DERM. -VENEREOL. (București) 1956, 1/4 (326-331) Illus. 3

Report on the Parkes-Weber syndrome seen in a 32-year-old male; the syndrome is regarded as distinct from the Klippel-Trenaunay syndrome. Tijdens - Maastricht



CA

17

The aromatic substances of tobacco smoke. A. P. Smirnov and A. A. Tirotenko. Vsesoyuz. Nauch. - Issledovatel. Inst. Tabach. Makhorooch. Prom. No. 140, 103-8 (1939).--The water-sol. portion of smoke was extd. with other and the residue steam-distd. and fractionated at several temps. The fractions were incorporated in tobacco and their aromas arbitrarily detd.

J. S. Joffe

TIRATSUYAN, G.Kh.

"adular degeneration of the corneal membrane (Groenouw's dystrophy) in both eyes. Oft.zhur. 12 no.3:182 '57. (MLRA 10:11)
(CORNEA--DISEASES)

TIRNOVEANU, Mircea

On the geometric modeling of the Σ system. Comunicarile AR 13 no.1; 11-16 Ja '63.

1. Comunicare prezentata de academician G. Vranceanu.

TIRNOVEANU, Mircea

Probabilistic methods in nonconstructive logistic systems. Studii cerc mat 14 no.3:485-491 '63.

TIRNOVEANU, Mircea

On a communication system of first degree. Comunicarile AR 13 no.8:703-709 Ag'63.

1. Comunicare prezentata de academician Al.Ghika.

TIRNOVEANU, Mircea

On the logical deductive operations P,Q, and the function $\mathcal{J}$.
Comunicarile AR 12 no.2:177-182 F '62.

1. Comunicare prezentata de academician G. Vranceanu.

TIRNOVEANU, Mircea

Extensions of the types P and Q of the logic $\mathcal{L}\ \mathcal{S}$. Comunicarile AR 12 no.3:269-273 Mr '62.

1. Comunicare prezentata de academician G.Vranceanu.

TIRNOVEANU, Mircea

On the function of the logical valence Ψ. Comunicarile AR 12 no.6:623-629 Je '62.

1. Comunicare prezentata de academician G. Vranceanu.

TIRO, A.M.

Effect of change in elastic sliding on the tractive capacity of a flexible coupling. Khim. i tekh. gor. slan. i prod. ikh perer. no.11:65-72 '62.

Effect of a locking flexible coupling on the tractive capacity of the differential drive of a belt conveyor. 73-79

Investigating the appearance of additional tension in a belt in the two-cylinder drive of a belt conveyor with a rigid coupling between the cylinders. 80-87 (MIRA 17:3)

TIRON, Emilian, ing.; GOLDEN, Arry, ing.

Creative work, a means towards better quality shoes.
Industria usoara 10 no.9:378-383 S '63.

NAZAROV, M.S.; OVSYANNIKOV, N.G.; SOYUZOV, A.A.; MITAISHVILI, A.A.; YUDIN, P.G.; SOLOV'YEV, I.F.; SVIRIDOV, A.A.; RUMYANTSEV, S.M.; KOLICHENKO, K.N.; NIKULIN, M.R.; ORLOV, D.A.; MAYORSKIY, G.I.; SEMENOV, I.Ya.; SUTYRIN, M.A.; KOVALEV, A.I.; VLASOV, A.A.; LEVIN, Ya.L.; KLIMOVITSKIY, A.Z.; METAL'NIKOV, G.F.; PANUSHKIN, G.P.; CHECHETKIN, A.V.; MIKHEYEV, V.D.; KOLOKOL'NIKOV, K.A.; MOISEYEVA, A.I.; TIRON, G.I.; KRYLOVA, V.F.; GOFMAN, Ya.M.; BUDCHANOV, B.F.

K.I. Korshunova; an obituary. Rech. transp. 20 no.12:59 D '61. (MIRA 14:12)
(Korshunova, Kseniia Ivanovna, 1910-1961)

TIRON, K. D.

Theoretical Bases of the Action of the Depth Gauge in the Open Sea in the Raushel'bakh System. Works of the GOIN, No 1 (13). 1947 (276-290)

Rpt U 2392, 22 Sept 1952

TIRON, K.D.

Nonperiodical level variations in the White Sea. Uch.zap.LGU no.309:78-91 '61. (MIRA 15:3)
(White Sea--Hydrology)

TIRON, K.D.

The hydrostatic principle and its application to the measurement of level variations in the open sea. Trudy AANII 210:38-45 '61.
(MIRA 14:11)

(Tide gauges)

TIRON, MARIN

(14)

Bucharest, Stiinta si Tehnica, Vol XIV, No 4, Apr 1962 (162)

1. "From the Battle of the Union of Working Youth Under the Leadership of the Party, 1922-1962"; pp 3-5.
2. "One of the Thousands of Youngsters," I. V.; pp 5. [A member of the Union of Working Youth]
3. "The Joy of the First Plans;" pp 6. [Interview with a young engineer.]
4. "The Success of Ion Bunea;" pp 6. [A young livestock breeder on a cooperative farm]
5. "The Antarctics. The Ice Continent Reveals Its Mysteries," M. ANDRIESCU; pp 7-9.
6. "The Use of Manures on Acid Soils," Puiu [illegible], Candidate in Agricultural Sciences(Candidat in stiinte agricole); pp 10-11.
7. "Novelties in Soldering;" pp 12.
8. "Gravity," Engr Marin TIRON, Candidate in Technical Sciences (Candidat in stiinte tehnice); pp 14-17.
9. "Anti-Gravity," Engr Ioan [illegible]; pp 14-17.
10. "72,000 lei Income per Hectare of Vegetables," I. CPITU; pp 18-19.
11. "How a Fluorescent Tube Is Born," Engr D. SAVOPOL, and I. VADUVA-POENARU; pp 20-23.
12. "12 April 1961. A Year Since Man's Penetration Into the Cosmos," Engr Ion PASCARU, Conf Univ, Secretary (Secretar) of the Astronautics Commission (Comisia de Astronomica) of the Academy of the Rumanian People's Republic (Academia R.P.R.); pp 24-25.
13. "The Offensive Against Cancer Continues," Dr E. MARGHIAN; pp 26-27.
14. "Life in the Universe," Calin POPOVICI, Prof Univ; pp 28-29.
15. "The Intercepting of Rockets," Engr D. St. ANDREESCU; pp 30-33.
16. "Another Enigma Elucidated. The Mystery of Cretan Writing," Engr T. TEODORESCU, and P. CRETIA, Lector Univ; pp [illegible]-35.

L 3736-66

ACCESSION NR: AP5027641

CZ/0023/65/009/002/0137/0144

AUTHOR: Tiron, Marin (Doctor) (Bucharest); Strutu, Constantin (Bucharest)

TITLE: Some problems regarding the method of solution of Molodenskiy's integral equation for the Earth considered as a plane [This paper was presented at the Symposium on the Determination of the Figure of the Earth, October 6 - 10, 1964, Prague]

SOURCE: Studia geophysica et geodaetica, v. 9, no. 2, 1965, 137-144

TOPIC TAGS: integral equation, geodesy, gravimetry

Abstract [Author's Russian summary, modified]: The article presents certain concepts regarding the solution of Molodenskiy's integral equation for the case of a flat Earth. It is emphasized that according to the formulas recommended by the author the influences of the central zone are considered more precisely than with previously known equations. Formulas are cited for the construction of the corresponding master curves in two variants. In the first variant the region of integration is divided into rectangles of equal size. In the second variant there is a division into rectangles of equal influence, and thus of unequal dimensions. It is considered that the second variant can be used also in calculating corrections for relief.

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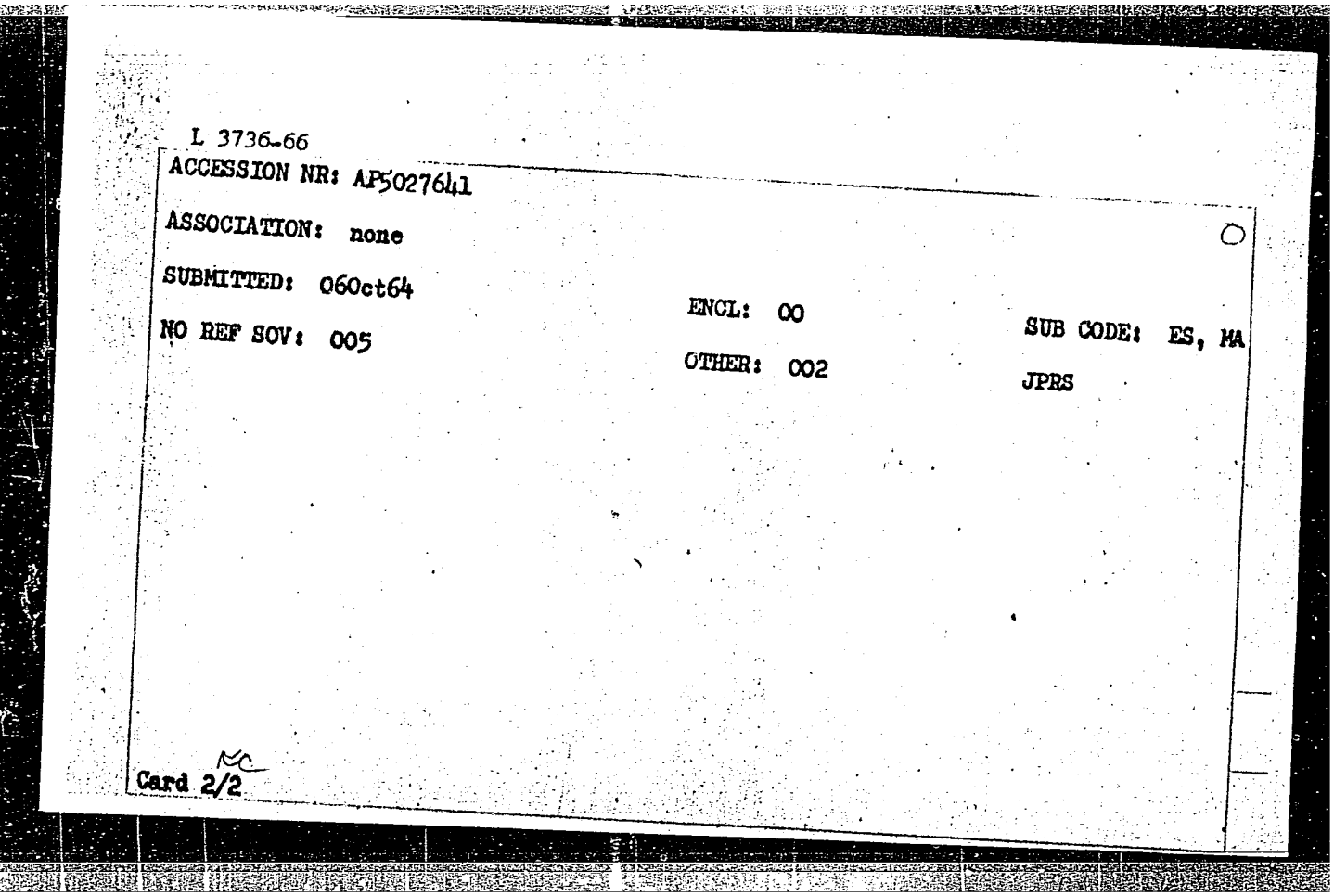

L 3736-66

ACCESSION NR: AP5027641

ASSOCIATION: none

SUBMITTED: 060ct64

ENCL: 00

SUB CODE: ES, MA

NO REF SOV: 005

OTHER: 002

JPRS

Card 2/2

R/002/62/000/004/001/004
D272/D304

9.7867 (1538)

AUTHOR: Tiron, Marin, Engineer, Candidate of Technical Sciences

TITLE: Gravitation

PERIODICAL: Stiinta si tehnica, no. 4, 1962, 14-17

TEXT: After briefly reviewing the characteristics of gravity in the universe, recent studies in the field of gravitational fields and their propagation are briefly described. Mentioned first is the suggestion of V.B. Braghinsky and G.I. Rukman to construct two parallel groups of cylindrical piezo-crystals (barium titanate), perfectly insulated (thermally, acoustically, mechanically), each disc having a surface of 1 m^2, 2000 discs in each group (a piezo-crystal of 5 m^3 may generate gravitational waves of 10^{-13} erg/sec.) If these groups are forced to oscillate simultaneously (period coincidence) a purely gravitational connection is formed. Mentioned further are the hypotheses of D. Ivanenko, A. Sokolov, and A. Droski, maintaining that there are graviton-quanta of the gravitational field, capable of transforming into electrons- positrons or photons and

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vice-versa, the demonstration by A.S. Kompaneyets indicating that discussion on application of gravitational waves is still premature, and the supposition of D. Ivanenko that the phenomenon of screening the gravity forces will be studied best by means of gravimetric devices installed on artificial satellites. The possible developments after magnetic fields -- a million times more powerful than the present-- are realized in the laboratory, are briefly mentioned. There are 3 figures.

TIROH, M.; STRUB, C.

Some problems on solving the Molodenski integral equation for the earth considered a plane. Rev geodezie 9 no.1:26-27 '65.

TIRON, M., ing.

On the International Symposium concerning the Earth Form Theory.
Rev geodezie 9 no.1:67-68 '65.

TIRON, M.I. (Rumaniya)

Studying the precision of the Vening-Meinesz formula for determining the deflection of vertical lines. Geod. i kart. no.11:23-29 N '58. (MIRA 11:12)
(Plumb-line deflections)

3(4)

AUTHOR: Tiron, M. I. (Roumania) SOV/6-58-11-4/15

TITLE: Check of The Accuracy of the Formula by Vening-Meynes for the Determination of Deviations of Plumb Lines (Issledovaniye tochnosti formuly Veninga-Meynesa dlya opredeleniya ukloneniy otvesnykh liniy)

PERIODICAL: Geodeziya i kartografiya, 1958, Nr 11, pp 23-29 (USSR)

ABSTRACT: 1928 Vening-Meynes showed for the first time that the deviations of the plumb lines on the surface of the geoid can be determined from gravimetrical data. He differentiated Stokes' (Stoks) relation, and obtained formula (1). M. S. Molodenskiy suggested to use data from astronomical surveying and from gravimetrical measurements for the determination of gravimetrical deviations. He further showed that Stokes' formula does not offer means for an exact investigation of the geoid shape. He proposed to investigate the shape of the physical surface of the earth instead of that of the geoid. The calculations of the deviations of the plumb line according to the method by Molodenskiy on a model were carried out by V. F. Yeremeyev. The calculated values fully agree with the experimental data. This paper includes a study

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of the accuracy of the Vening-Meynes formula on a model, which represents actual conditions encountered in mountainous, hilly, and level terrain. The considerations advanced in this paper permit to make the following statements: 1) The data obtained by the Vening-Meynes formula rather give the deviations of the plumb line on the physical surface of the earth and as a rule do not represent the deviation of the plumb line on the geoid. 2) The errors in the determination of the deviations of the plumb line on the physical surface of the earth depend upon the gradient α of the element of the physical surface. Results obtained by V. F. Yeremeyev (Ref 3) show that the deviations of plumb lines calculated according to M. S. Molodenskiy's formula almost coincide with the exact values. The differences obtained here are therefore due to the calculations made according to Molodenskiy's formula and those according to Vening-Meynes' formula. Consequently, when calculating plumb lines in mountainous regions, Molodenskiy's formula is to be employed. There are 4 figures, 2 tables, and 3 Soviet references.

TIROVSKA, St.; GROZEV, G.

Accelerated inter-row cultivation of maize. Izv mekh selsko stop BAN no. 2:65-79 '62.

Z/037/62/000/005-6/047/049
E140/E520

AUTHORS: Ďurček, J. and Tirpák, A.

TITLE: 3 cm Directional coupler using cyclotron resonance in a gas discharge

PERIODICAL: Československý časopis pro fysiku, no.5-6, 1962, 720-722

TEXT: A gas-discharge tube in a magnetic field parallel to the wide side of a rectangular waveguide gives a directional effect of the order of 15 - 30 dB. The effect may be utilised for control and modulation purposes. There are 3 figures.

ASSOCIATIONS: Katedra fyziky Vyzokej školy dopravnej, Žilina (Physics Department of the High School of Transport, Zilina) (Ďurček)
Katedra exper. fyziky Prírodovedeckej fakulty Univerzity Komenského, Bratislava (Department of Experimental Physics, Faculty of Natural Sciences, Komensky University, Bratislava) (Tirpák)

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DURCEK, J.; TIRPAK, A.

Directional coupler in 3 cm band using the cyclotron resonance in gaseous discharge. Cs cas fys 12 no.5/6:720-722 '62.

1. Katedra fyziky, Vysoka skola dopravna, Zilina (for Durcek).
2. Katedra experimentalni fyziky, Prirodovedecka fakulta University Komenskeho, Bratislava (for Tirpak).

Z/045/63/000/001/003/003
E024/E309

AUTHORS: Lampert, Miloš, Šranko, Silvester, Šurka, Štefan and Tirpák, Andrej

TITLE: Measurement of relaxation times by the spin-echo method

PERIODICAL: Matematicko-fyzikálny časopis, no. 1, 1963, 80 - 95

TEXT: A short theoretical analysis of the spin-echo effect is given and a nuclear spin-echo spectrometer developed by the authors is described. This spectrometer, adapted for the Hahn (A) and Carr-Purcell (B) methods in the frequency range of 13 to 17 Mc/s, enables the measurement of longitudinal (T_1) and transverse (T_2) relaxation times in the range 5×10^{-4} to 10^{-1} sec with an accuracy of less than 10%. A detailed description of the apparatus is given (Fig. 4.). The square pulse generator supplies pairs of pulses for method A (E.L. Hahn - Phys. Rev. 80, 1950, 580) or a series of pulses for method B (Carr, Purcell, Phys. Rev. 94, 1954, 630). The width of the pulses varies between 10 µs and 0.01 sec. The time between pulses can be adjusted between 7 µs and 0.4 sec, and the time between series of pulses is

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Z/045/63/000/001/003/003
E024/E309

Measurement of ....

adjustable from 0.1 μs to approximately 20 sec. The amplitude of the pulses is 10 V. The triggered HF generator can be tuned between 13 and 17 Mc/s. The maximum volume of samples which can be inserted into the instrument is 0.6 c.c. The HF receiver has a bandwidth of 0.3 Mc/s and a sensitivity of about 1 μV for a signal-to-noise ratio of unity. The magnetic field is obtained from an electromagnet with pole pieces 10 cm in diameter and about 3 cm apart. The required fields vary between 3050 and 3990 gauss. The current is obtained from NiFe batteries. To verify the performance of the instrument, the longitudinal (T_1) and transverse (T_2) relaxation times of aqueous solutions of $CuSO_4$ and of $K_3Cr(SCN)_6$ were measured as functions of the concentration. The measurements on $CuSO_4$ are in good agreement with those obtained by Pfeifer (Ann. Phys., 20, 1957, 322). The variation in the relaxation time in the $K_3Cr(SCN)_6$ aqueous solution is due to hydration. The measurements were carried out at 18 °C. Relaxation times between 5×10^{-4} and 10^{-1} sec could be measured with an error less than 10%. There are 10 figures.

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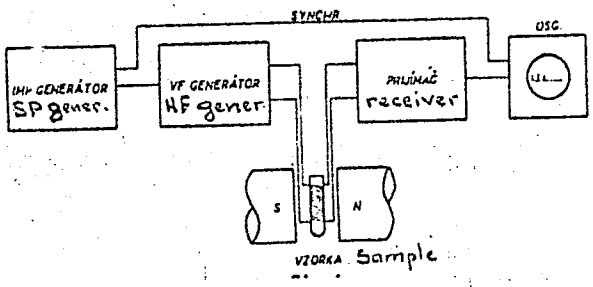
Measurement of ....

Z/045/63/000/001/003/003
E024/E309

ASSOCIATION: Katedra experimentálnej fyziky Prirodovedeckej fakulty Univerzity Komenskeho v Bratislave (Department of Experimental Physics, Komensky University, Bratislava)

SUBMITTED: August 10, 1962

Fig. 4:



Card 3/3

TIRPAK, L.

Improving our work on railroads. p. 218.
ZELEZNICE, Prague, Vol. 4, no. 8, Aug. 1954.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 6, June 1956, Uncl.

TIRPAK, L.

Soviet locomotive engineers for heavy tonnages as our example. p. 285. ZELEZNICE, Prague, Vol. 4, no. 11, Nov. 1954.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 6, June 1956, Uncl.

TIRPAK, L.

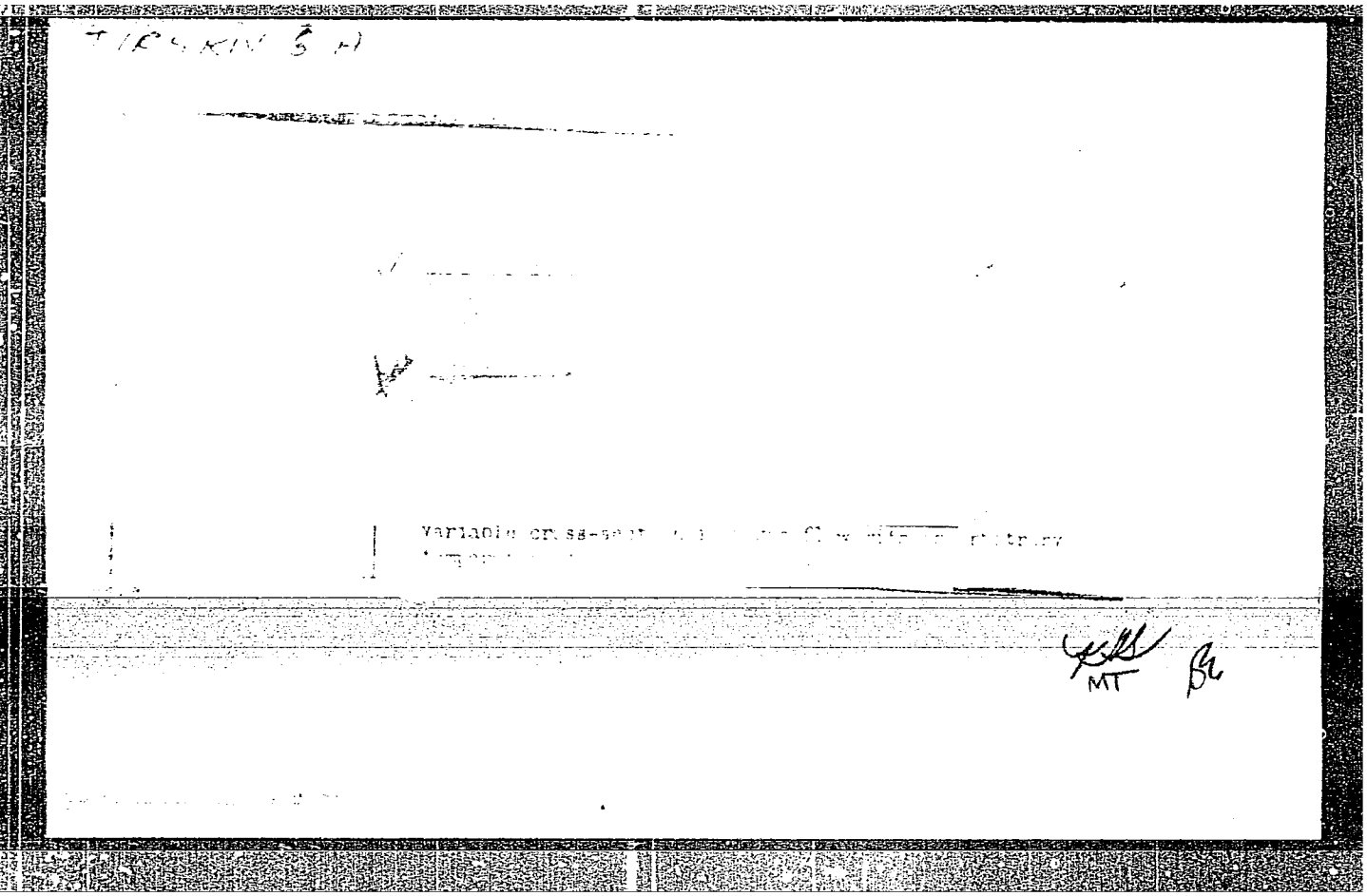
Experimental drive with a record load, p. 321, ZELEZNICE (Ministerstvo dopravy) Praha, Vol. 4, No. 12, Dec. 1954

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

TIRSKIY, G. A.

TIRSKIY, G. A.: "Certain solutions of some problems of free and forced heat convection". Moscow, 1955. Moscow State U imeni M. V. Lomonosov. (Dissertations for the Degree of Candidate of Physicomathematical Sciences)

SO: Knizhnaya letopis', No. 52, 24 December 1955. Moscow.



MT

SOV/24-58-7-18/36

AUTHOR: Tirskiy, G.A. (Moscow)

TITLE: On Non-stationary Heat Transmission Through a System of Discs Rotating in a Viscous Liquid (O nestatsionarnoy teploperedache cherez sistemu diskov, vrashchayushchikhsya v vyazkoy zhidkosti)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, 1958, pp 106 - 107 (USSR)

ABSTRACT: The present paper is concerned with the generalisation of the problem discussed by the author in Ref 1. The case of n discs is considered. Each of the n coaxial discs has a finite thickness d_i and infinite radius. The discs are placed in a viscous liquid; the distances between them are h_k ($k = 1, \ldots, m-1$). On the left, the disc system is bounded by an infinite plane OA at a distance h_o from the last disc and on the right by an infinite plane O_1B whose distance from the last disc on that side is h_n (see figure). In a special case the planes OA and O_1B or one of them, may move off to infinity. The

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On Non-stationary Heat Transmission Through a System of Discs Rotating in a Viscous Liquid

following problem is considered. Suppose at $t = 0$ each of the discs begins to rotate with an angular velocity $\omega_i(t)$ $(i = 1, \ldots, n)$. It is required to find the motion of the liquid between the discs and the temperature distribution in the system if the planes OA and O_1B are maintained at a temperature which is a function of the distance from the centre and of time, so that $T = T_0(r,t)$ on OA and $T = T_1(r,t)$ on O_1B. In a special case, when both OA and O_1B are at infinity, the above relations will be the boundary conditions at infinity. It is assumed that at $t = 0$ the temperature of all the discs and the liquid is the same. It is assumed also that the density ρ and the viscosity μ of the liquid are constant. In that case, the dynamic problem can be solved independently of the thermal problem. Since the discs have an infinite radius it follows that the flow of the liquid in any given gap between the discs cannot have any effect on the flow

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On Non-stationary Heat Transmission Through a System of Discs Rotating in a Viscous Liquid

in any other gap and will be fully determined by the angular velocities of the two discs which bound the particular gap (Ref 1). When the dynamical problem is solved, the thermal problem reduces to a solution of the energy equation (2) and the thermal conductivity - Eq (3). The former is solved for the gaps between the discs and the latter for the discs themselves. In these equations, T_k is the temperature of the liquid in the k-th gap, c_v is the specific heat at constant volume, λ_{zk} is the coefficient of thermal conductivity of the liquid, A is the thermal equivalent of mechanical energy, t_i is the temperature of the i-th discs, χ_d is the coefficient of thermal conductivity of the discs, r is the radial distance, z is the axial co-ordinate as shown in the figure, t is the time and the velocity components v_{rk}, $v_{\varphi k}$ and v_{zk} are determined from Formulae (5) in Ref 1.

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On Non-stationary Heat Transmission Through a System of Discs Rotating in a Viscous Liquid

Eq (2) can be solved in the form given by Eq (4), in which p is an integer, t_o is a constant with the dimensions of time and the functions θ_{2j} should be determined from Eqs (15) in Ref 1. Eq (3) can be solved in the form (5) in which the functions $\theta_{2l}^{(i)}$ $(i = 1,2,\ldots,n;\ l = 0,1,\ldots,p)$ satisfy Eqs (6). Solutions given by Eqs (4) and (5) must satisfy the conditions given by Eqs (7) and, in addition to these, the boundary conditions (8) must also be satisfied where $a_{2l}(t)$ and $b_{2l}(t)$ are given functions of time. It is clear from this that the integer p in (4) is given by the highest power of r in the boundary conditions (8). Each of the functions $\theta_{2j}^{(k)}$ $(j = 0, 1, \ldots, p;\ k = 0,1,\ldots,n)$ is a solution of a parabolic equation (Ref 1) and hence it is determined from this equation and the initial conditions to within two arbitrary constants. Thus, the solution (4) contains

On Non-stationary Heat Transmission Through a System of Discs Rotating in a Viscous Liquid

$2(n + 1)(p + 1)$ constants. Similarly, solution (5) contains $2n(p + 1)$ arbitrary constants after the initial conditions have been satisfied. The solution (4)-(5) contains $2(p+1)(2n+1)$ arbitrary constants. Since conditions (7) must be satisfied for any value of r, it follows from the form of (4)-(5) that conditions (7) give $4n(p+1)$ relations for the functions $\theta_{2j}^{(k)}$ and $\theta_{2i}^{(i)}$ which, together with the $2(p+1)$ conditions which result from (8) give just the $2(p+1)(2n+1)$ relations to determine the $2(p+1)(2n+1)$ arbitrary constants. It follows that, generally speaking, the problem is soluble. There are 1 figure and 1 Soviet reference.

SUBMITTED: April 24, 1958

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TIRSKIY, G.A. (Moscow)

Nonstationary heat transfer through a system of disks rotating in a viscous fluid. Izv. AN SSSR. Otd.tekh.nauk no.7:106-107 Jl '58. (MIRA 11:9)
(Disks, Rotating) (Heat--Transmission)

10(2)

AUTHOR: Tirskiy, G.A. (Moscow) SOV/40-22-4-22/26

TITLE: On a Rigorous Solution of the Energy Equation in the Special Case of Motion of a Viscous Incompressible Liquid (Ob odnom toohnom reshenii uravneniya energii v chastnom sluchaye dvizheniya vyazkoy neszhimayemoy zhidkosti)

PERIODICAL: Prikladnaya matematika i mekhanika, 1958, Vol 22, Nr 4, pp 555 - 560 (USSR)

ABSTRACT: With the aid of the elliptic functions given by Weierstrass the author calculates a rigorous solution of the energy equation for a viscous incompressible liquid. He considers the special case of a plane stationary flow between two non-parallel plane walls, whereby the Prandtl number is put equal to 1. If in the obtained solution one passes from the elliptic functions of Weierstrass to the Jacobi functions given in tabulated form, then the solution can also be represented in the form of diagrams and tables.
Starting from the Navier-Stokes equations the author calculates at first a solution for the temperature profile of the flow and discusses it for several special cases. It can

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be taken from the solution that the temperature profile for a symmetric distribution of the velocities is symmetric too. Conversely there corresponds to an unsymmetric velocity distribution an unsymmetrical temperature profile. In all the special cases investigated in the paper the temperature profile is directed opposite to the velocity distribution.

If the Prandtl number is not equal to 1, then the initial equations cannot be integrated. However, it is possible to obtain also a rigorous solution for one special case with the aid of the Weierstrass functions. This solution is only indicated but not discussed.
There are 10 figures, and 5 references, 1 of which is Soviet, 1 German, and 3 are English.

SUBMITTED: September 4, 1956

Card 2/2

AUTHOR: Tirskiy, G. A. 20-119-2-8/60

TITLE: Unsteady Flow with Heat Transfer in a Viscous Incompressible Liquid Between Two Rotating Disks With a Liquid Injection (Nestatsionarnoye techeniye s teploperedachey v vyazkoy neszhimayemoy zhidkosti mezhdu dvumya vrashchayushchimisya diskami pri nalichii vduva)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol 119, Nr 2, pp 226-228 (USSR)

ABSTRACT: The flow investigated here is supposed to form out of the state of rest between two infinite disks at a distance h. The one of the two disks revolves with the time dependant angular velocity $\omega_0(t)$ and the other with the angular velocity $\omega_1(t)$. From the first disk a steady injection with the time dependent velocity $v_0(t)$ occurs and from the second disk with the velocity $v_1(t)$. The boundary conditions of wetting and the injection present, as well

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20-119-2-8/60

as the initial conditions determined by the absence of an initial velocity are put down. Then the solution of the Navier-Stokes equation (Nav'ye-Stoks) is put down for the axially symmetric case in the absence of mass forces. The functions F, G and H occuring in this solution must satisfy a given system of nonlinear partial differential equations. Also the limit conditions belonging to this system as well as its initial conditions are put down. Although the considerations discussed hold for infinite disks the results obtained can be used also for disks with a finite radius R when this radius is great compared to the distance h. Expressions are put down for the resistance moments M_o and M_1 of the disks with the radius R. The problem of the heat transfer in a viscous incompressible liquid can as is known, be solved when the solution of the dynamic problem is known. The author shows that: the unsteady energy equation put

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Unsteady Flow With Heat Transfer in a Viscous Incompressible Liquid Between two Rotating Disks With a Liquid Injection

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down in a cylindric coordinate system has an exact solution in the case of axial symmetry; this solution is put down here. Finally the author shortly discusses the following boundary value problems: a) The case with radially changing temperature, b) The case with radially changing thermal flow. After the solution of the thermal problem the local Nusselt (Nussel't) numbers N_o and N_1 can be determined by means of the given formulae.

PRESENTED: October 22, 1957, by L. I. Sedov, Member, Academy of Sciences USSR

SUBMITTED: October 1, 1957

AVAILABLE: Library of Congress

Card 3/3

TIRSKIY, G. A.

PHASE I BOOK EXPLOITATION SOV/3952

Moscow. Fiziko-tekhnicheskiy institut

Issledovaniya po mekhanike i prikladnoy matematike (Studies in Mechanics and Applied Mathematics) Moscow, Oborongiz, 1959. 262 p. (Series: Its Trudy, vyp. 3) 2,150 copies printed.

Sponsoring Agency: USSR. Ministerstvo vysshego obrazovaniya.

Ed.: K. Ya. Laytseva, Engineer; Ed. of Publishing House: S. D. Antonova; Tech. Ed.: N. A. Pukhlikova; Managing Ed.: A. S. Zaymovskaya, Engineer.

PURPOSE: This book is intended for scientific workers, engineers, and senior students working in the appropriate fields of science and technology.

COVERAGE: The book, the third issue of the Proceedings of the Moskovskiy fiziko-tekhnicheskiy institut (Moscow Physical and Technical Institute), contains a number of articles. The first half of the book concerns hydroaerodynamical problems (motion of a heavy liquid, calculation of pressure distribution along a solid of revolution, surface waves, etc.). The second half of the book is devoted to the theoretical and experimental study of the deformation of media (design of a thin-walled spherical shell, plastic torsion, etc.) and to certain problems of applied mathematics. No personalities are mentioned. References are given after most of the articles.

AVAILABLE: Library of Congress

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SOV/24-59-2-7/30

AUTHORS: Tirskiy, G. A., Trenogin, V.A. (Moscow)

TITLE: The Determination of the Temperature Field of a Gas Turbine Cooling Vane (Opredeleniye temperaturnogo polya okhlazhdayemoy lopatki gazovoy turbiny)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1959, Nr 2, pp 45-48 (USSR)

ABSTRACT: The problem of finding the temperature field of a thin body in the stream of hot gas, i.e. of a thin disc of a gas turbine, can be solved from one of the expressions (1.1) and (1.2), where x - coordinate along the shaft, T(x) - temperature (unknown), $S(x)\lambda(x)$ - cross-section of the shaft, $p_e(x)$ and h - perimeter and length of the shaft, $\alpha_e(x)$ - coefficient of heat transfer from gas to the shaft, $T_e(x)$ - temperature of friction. When a cooling system is applied in the channels, the Eq (1.1) takes the form of Eq (1.3), where $p_i(x)$ - total perimeter of channels, $T_i(x)$ - cooling temperature, $\alpha_i(x, T \text{ and } T_i(x))$ - coefficient of heat transfer which, in the case of free convection depends on the difference of temperatures $T - T_i(x)$. The latter relationship determines the flow inside the channels. It is expressed

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