GRAVE, Nikolay Aleksandrovich, KACHURIN, Sergey Petrovich,
POPOV, Aleksandr Iosifovich

"Characteristics of relief development in distribution areas of frozen rocks in Northern Eurasia"

report to be submitted for the Intl. Conference on Permafrost, Purdue Univ, Lafayette Indiana, 11-15 Nov 63

GRAVE, V.I., kand. tekhn. nauk; GRAVE, N.A., inzh.

Evaluation of the magnetic fields of permanent magnets. Vest. elektroprom 34 no.6:66-69 Je '63. (MIRA 16:7)

(Magnets) (Magnetic fields)

KOREYSHA, M.M.; SAPOZHNIKOV, R.M.; SHUMSKIY, P.A., doktor geogr. nauk, otv. red.; GRAVE, N.A., doktor geogr. nauk, otv. red.; FEDOROVA, G.N., red.; ERILING, N.V., red.

[Suntar-Khayata] Suntar-Khaiata. Moskva, 1963. 2 v. (MIRA 18:5)

1. Akademiya nauk SSSR. Sibirskoye otdeleniye. Institut merzlotovedeniya.

GRAVE, N. A., Yakutsk

"The geographical landscapes of the North and the latest and recent tectonic movements."

report scheduled to be presented at the 20th Intl Geographical Cong, 6 Jul-11 Aug 64, London.

GRAVE, N.A., doktor geogr.nauk; GAVRILOVA, M.K.; GRAVIS, G.F.; KATASONOV, Ye.M.; KLYUKIN, N.K.; KOREYSHA, M.M.; KORNILOV, B.A.; CHISTOTINOV, L.V.; TORKHANOVA, Z.A., red.

[Collection of articles] Sbornik statei. Moskva, Nauka, No.14. 1964. 140 p. (MIRA 17:12)

1. Akademiya nauk SSSR. Mezhduvedomstvennyy komitet po provedeniyu Mezhdunarodnogo geofizicheskogo goda. IX razdel programmy MGG. Glyatsiologiya.

AVSYUK, G.A.; GRAVE, N.A.

The 13th General Assembly of the International Union of Geodesy and Geophysics and the Symposium on the Results of the International Geophysical Year in the U.S.A. Izv. AN SSSR. Ser. geog. no.1:113-122 Ja-F '64. (MIRA 17:3)

MEL'NIKOV, P.I.; GRAVE, N.A.

Trend and ways of studying rocks frozen for many years as a geographical phenomenon. Dokl. Inst. geog. Sib. i Dal'. Vost. no.6:10-15 '64.
(MIRA 18:10)

AVSYUK, G.A.; GRAVE, N.A.; KOTLYAKOV, V.M.; PESCHANSKIY, I.S.; TUSHINSKIY, G.K.

[Report on research in glaciology, 1960-1962; presented to the International Association of Hydrology and the International Snow and Ice Commission for the 13th General Assembly of the International Union of Geodesy and Geophysics] Soobshchenie o nauchnykh rabotakh po gliatsiologii, 1960-1962 gg.; predstavliaetsia v Mezhdunarodnuiu assotsiatsiiu nauchnoi gidrologii i Mezhdunarodnuiu komissiiu snega i L8da k XIII General'noi Assamblee Mezhdunarodnogo geodezicheskogo i geofizicheskogo soiuza. Moskva, AN SSSR, 1963. 109 p. (MIRA 17:3)

1. Akademiya nauk SSSR. Mezhduvedomstvennyy geofizicheskiy komitet. 2. Predsedatel' sektsii glyatsiologii Sovetskogo geofizicheskogo komiteta (for Avsyuk). 3. Byuro sektsii glyatsiologii Sovetskogo geofizicheskogo komiteta (for Grave, Kotlyakov, Peschanskiy, Tushinskiy).

GRAVE, N. P. *

35369 Planironaie I Uchet Sebestoimostn V Lesozashchitnykh Les I Step' 1949 No. 5
c. 57-64

SO: Letopis' Zhurnal'nykh Statey Vol. 34, Moskva, 1949

* 1 VEKSHEGONOV, V. YA.

GRAVE, P., kandidat tekhnicheskikh nauk.

New design for tracks. Zhel.dor.transp. 37 no.4:69-70 Ap '56.
(Railroads--Track) (MIRA 9:7)

GRAVE, P. S. Cand Med Sci -- (diss) "Epileptic Crepuscular States in the Judicial-Psychiatric Clinic." Riga, 1957. 21 pp 21 cm. (Second Mos State Medical Inst im I. V. Stalin), 300 copies (KL, 17-57, 99)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051661(

GRAVE, V.I., kand. tekhn. nauk; GRAVE, N.A., inzh.

Evaluation of the magnetic fields of permanent magnets. Vest. elektroprom 34 no.6:66-69 Je '63. (MIRA 16:7)

(Magnets) (Magnetic fields)

GRAVE, V.I., kand. tekhn. nauk

Harmonic components of residual stresses in some induction pickups of servosystems. Priborostroenie no.12:18-19 D '65.
(MIRA 19:1)

DENISOV, M.T.; GRAVERIS, V.K., zootekhnik; NECHIPORUK, L.P., red.;
DEYEVA, V.M., tekhn. red.

[Animal husbandry on our collective farm]Zhivotnovodstvo nashego kolkhoza. Moskva, Sel'khozizdat, 1962. 70 p. (MIRA 15:11)

1. Predsedatel' kolkhoza "Sarkanays Oktobris", Latvia (for Denisov).
(Latvia--Stock and stockbreeding)

L 28335-66 EWT(m)/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6013074 SUB CODE: UR/0048/66/030/004/0661/0663

47
46
B

AUTHOR: Valbis, Ya. A.; Graveris, V. Ye.; Rachko, Z. A.

ORG: None

27

TITLE: Luminescence of localized exciton-like excitations in alkali halide crystals /Report, Fourteenth Conference on Luminescence held in Riga 16-23 September 1965/

SOURCE: AN SSSR. Izvestiya, Seriya fizicheskaya, v. 30, no. 4, 1966, 661-663

TOPIC TAGS: crystal phosphor, luminescence, alkali halide, potassium bromide, luminescence center, exciton, mixed crystal, excited state

ABSTRACT: In the case of real alkali halide crystals containing intrinsic and/or impurity microdefects there are commonly observed secondary absorption bands on the long wavelength slope of the first "true" exciton band. Presumably the absorption gives rise to pseudolocal excitations in the vicinity of microdefects; although not unlike excitons, these excitations lack mobility and are therefore referred to by the authors as "localized exciton-like excitations". There have been several studies of such and similar excitations, but little attention has been given to the subsequent fate of these exciton-like excitations. To determine whether (and if so under what conditions) the near-impurity excitations give rise to "intrinsic" luminescence it is necessary to use ions that form such excitations but do not themselves have electronic

transitions in the frequency region of interest. Alkali metal ions are suitable. Earlier the authors studied specimens of the KBr-NaBr system with less than 1 mole percent of the second component. It was shown (Ya.A.Valbis, Optika i spektroskopiya, 20, No. 6, 1966) that introduction of the impurity (Na) ions gives rise to new luminescence bands under x ray and optic stimulation. Similar results have been reported by other investigators for CsI crystals. It was assumed that the impurity produces D absorption bands; these are located close to the strong exciton absorption bands and hence are difficult to detect. Comparative studies were carried out on KBr-NaBr and KBr-Ki mixed crystals; further comparison was made with the data on KBr with anionic vacancies, as reported by R.Onaka and I. Fujita (Quantit. Spectrosc. Radiat. Transfer, 2, 599, 1962). These systems are characterized by similar excitation, luminescence and temperature quenching curves. This indicates that the same mechanism obtains in the all these systems. The author is grateful to I.K.Vitol for guidance in the work. Orig. art has: 2 figures.

SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 008/ OTH REF: 023

GRAVERS, V.K., zootekhnik; GORSKIN, Ye.S., nauchnyy sotrudnik

4,5 per cent of fat in an average milk yield of 3852 kilograms from a herd of 585 cows. Zhivotnovodstvo 23 no.6:45-48 Je '61. (MIRA 16:2)

1. Kolkhoz "Sarkanays Oktobris", TSesisskogo rayona, Latviyskoy SSR (for Gravers). 2. Vesesoyuznyy institut ekonomiki sel'skogo khozyaystva (for Gorskin).

(Latvia—Dairy cattle)

GRAVES, Andrey Fedorovich; KENIS, S.I., otv. red.; SUROVA, V.A., red. izd-va; BERLOV, A.P., tekhn.red.; ALADOVA, Ye.I., tekhn.red.

[Planning and analyzing costs in coal mining] Planirovanie i analiz sebestoimosti na ugol'nykh kar'erakh. Moskva, Ugletekhizdat, 1958. 135 p. (MIRA 12:1)
(Coal mines and mining--Costs)

EXCERPTA MEDICA Sec 18 Vol 4/1 Cardiovas. Dis. Jan. 60

183. **The effects of brief sleep upon the plethysmogram of hypertensive patients** Efectul somnului de scurta durata asupra pletismogramei la hipertensivi. AUBERT H. and GRAVILESCU S. Clin. I. Med., Timisoara *Med. interna (Bucuresti)* 1958, 10/9 (1307-1316) Graphs 9 Tables 1

A plethysmographic study was made of 20 patients in various stages of hypertension, and the results were compared with those in 6 healthy control subjects. The plethysmograms show modifications during physiological sleep; in patients with early stages of hypertension the oscillations disappeared and reappeared after waking, whereas in those with advanced stages of hypertension it was exactly the other way round.

Nicolaesco Bucharest (XVIII, 6)

16(1) PHASE I BOOK EXPLOITATION SOV/2660

Vsesoyuznyy matematicheskiy s"yezd. 3rd, Moscow, 1956

Trudy. t. 4: Kratkoye soderzhaniye sektsionnykh dokladov. Doklady inostrannykh uchenykh (Transactions of the 3rd All-Union Mathematical Conference in Moscow. vol. 4: Summary of Sectional Reports. Reports of Foreign Scientists) Moscow, Izd-vo AN SSSR, 1959. 247 p. 2,200 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Matematicheskiy institut.

Tech. Ed.: G.N. Shevchenko; Editorial Board: A.A. Abramov, V.G. Boltyanskiy, A.M. Vasil'yev, B.V. Medvedev, A.D. Myshkis, S.M. Nikol'skiy (Resp. Ed.), A.G. Postnikov, Yu. V. Prokhorov, K.A. Rybnikov, P. L. Ul'yanov, V.A. Uspenskiy, N.G. Chetayev, G. Ye. Shilov, and A.I. Shirshov.

PURPOSE: This book is intended for mathematicians and physicists.

COVERAGE: The book is Volume IV of the Transactions of the Third All-Union Mathematical Conference, held in June and July 1956. The book is divided into two main parts. The first part contains summaries of the papers presented by Soviet scientists at the Conference that were not included in the first two volumes. The second part contains the text of reports submitted to the editor by non-Soviet scientists. In those cases when the non-Soviet scientist did not submit a copy of his paper to the editor, the title of the paper is cited and, if the paper was printed in a previous volume, reference is made to the appropriate volume. The papers, both Soviet and non-Soviet, cover various topics in number theory, algebra, differential and integral equations, function theory, functional analysis, probability theory, topology, mathematical problems of mechanics and physics, computational mathematics, mathematical logic and the foundations of mathematics, and the history of mathematics.

Card 22/34

YEVSTIGNEV, V. B.; GRAVILOVA, V.A.

Pheophytin

Comparison of spectral properties of chlorophyll and pheophytin in various solvents. Dokl. AN SSSR 85 no. 5, 1952.

Monthly List of Russian Accessions, Library of Congress, December 1952. UNCLASSIFIED.

GRAVIN, A. I.

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH ORDERS

Synthesis of vitamin B_1. A. I. Gravin. *J. Applied Chem.* (U. S. S. R.) 16, 105-17(1943)(English summary). —G. presents the results of a search for a com. method of manuf. of vitamin B_1. After a great deal of experimentation, the scheme presented below was accepted as the most practical. MeCN (I) was prepd. by mixing 500 g. $AcNH_2$ and 1780 g. Me_2NPh, heating to 50-60° and slowly adding 570 g. $POCl_3$, with the temp. rising to 90-100°; the mixt. was heated to 130° and finally to 170° (bath temp.), with MeCN distn. beginning at a bath temp. of 130°. Efficient stirring is essential for good yields, which generally range about 93% of crude I, sufficiently pure, however, for the next step. This method is claimed to be superior for the prepn. of dry I. I (600 g.), 670 g. abs. EtOH and 670 g. dichloroethane were mixed and treated with dry HCl with cooling and stirring until the d. of the mixt. approached 1.00-1.1; after stirring for 12 hrs. longer, the MeC(OEt):NH.HCl was filtered off (75%), then mixed with 1.1-1.2 l. of a soln. of NH_3 in abs. EtOH (contg. 135-45 g. NH_3), stirred at room temp. for 5 hrs., and filtered, and the ppt. was heated with 500 cc. abs. EtOH, which was combined with the main EtOH soln. and evapd. to yield 85% *acetamidine-HCl*. HCO_2Na (2.03 kg.) and 1.27 l. abs. EtOH were treated with cooling and stirring with 1.5 kg. concd. H_2SO_4, then refluxed for 2 hrs., after which *Et formate* was distd. off; 95%, b. 53-5°. Succinic acid (437 g.), 1.44 l. abs. EtOH, 720 cc. MePh and 8 g. H_2SO_4 were used for the prepn. of *di-Et succinate* by azeotropic distn.; 88-9%, b_{17-18} 105-9°. Dry xylene (360 cc.) and 36.6 g. Na were heated with stirring to 110-15° and after cooling, the Na dust was treated with 240 g. $(CH_2CO_2Et)_2$ and 149 g. HCO_2Et, added slowly with stirring and cooling; after standing overnight the resulting *Na deriv. of di-Et formylsuccinate* suspended in its xylene mother liquor was treated with 150 g. acetamidine-HCl in 798 cc. abs. EtOH, refluxed for 2 hrs., filtered hot and cooled, giving 63% *Et 2-methyl-4-hydroxy-5-pyrimidineacetate*, m. 169-75° (from EtOH). The above (192 g.) was mixed with 800 cc. $POCl_3$ and refluxed for 2 hrs., the excess $POCl_3$ distd. off at reduced pressure, the residue treated with an equal vol. of benzene and poured on ice, neutralized with Na_2CO_3, the benzene layer sepd. and distd.; 80-90% *Et 2-methyl-4-chloro-5-pyrimidineacetate* was obtained, b_4 110°, m. 39-41°. The above (280 g.) and 2.5 l. 22% NH_3 in MeOH were charged into an autoclave and heated for 9 hrs. to 110° at 13-15 atm.; on cooling, there was obtained 87-90% *2-methyl-4-amino-5-pyrimidineacetamide*, m. 227-8° (from MeOH-H_2O). Conversion of this to the aminomethyl deriv. by hypohalites was questioned as to feasibility; actually hypobromites lead to neg. results. However, when 124.5 g. NaOH in 340 cc. water and 680 g. ice was treated with 86 g. Cl and added slowly to 187 g. of the above suspended in 1023 cc. 10% NaOH, followed by heating for 3 hrs. on a water bath, filtration and addn. to the filtrate of 225 g. BzH, followed by filtration of the benzylidene deriv. and its decompn. with *N* HCl, there was obtained 70% *2-methyl-4-amino-5-(aminomethyl)pyrimidine-2HCl*, m. 250-2°. The above (90.9 g.) in 1.84 l. water, heated to 60°, was

10

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION treated with 24.5 g. N[illegible] in 220 cc. water; after addn. of Na_2CO_3 to alk. react. [illegible], followed by concn. under reduced pressure there was obtained 67% *2-methyl-4-amino-5-(hydroxymethyl)pyrimidine*, m. 187–90°. The above (22.5 g.) in 600 cc. AcOH at 40° was treated with dry HBr, with gradual heating to 60°, to yield 95% *2-methyl-4-amino-5-(bromomethyl)pyrimidine-HBr*, m. 207–10°. 1-Acetoxy-4-pentanone (200 g.) and 200 g. $CHCl_3$ were treated with stirring and cooling with dry Cl until 77 g. wt. gain occurred, yielding 60–5% *1-acetoxy-3-chloro-4-pentanone*, b_{12} 110–20°; 30 g. of this, 17.6 g. $NH_4CS_2NH_4$, and 60 cc. abs. EtOH were heated to 50° for 3.5 hrs., filtered and the filtrate treated with 75 cc. ice water to induce crystn., followed by 200 cc. water for completion; 71% *2-mercapto-4-methyl-5-(2-acetoxyethyl)thiazole* was obtained. The above (20 g.) in 57.8 g. concd. HCl was treated with 22.8 g. $BaCl_2$, followed by 31.5 g. 30% H_2O_2 soln. added at 60–70°, after which the soln. was heated to 90° for 2.5 hrs., filtered and neutralized with NH_4OH; the resulting oil was extd. with $CHCl_3$ and distd. to yield 58% *4-methyl-5-(2-hydroxyethyl)thiazole*, b_{4-5} 130–40°; 12 g. of this and 10 g. of the bromomethylpyrimidine deriv. in 30 cc. $CHBr_3$ were heated to 110–20°, then treated with 38 cc. water, the aq. layer sepd., treated with charcoal and dild. with 350 cc. Me_2CO to yield 54% *vitamin B_1 (as the bromide-HBr)*, m. 215–20° (after crystn. from aq. Me_2CO). G. M. Kosolapoff

ACC NR: AP6035865 ... IJP(c)

SOURCE CODE: UR/0413/66/000/020/0077/0077

INVENTOR: Gravin, O. N.; Koltik, Ye. D.; Kravchenko, S. A.

ORG: none

TITLE: Addition and subtraction phasemeter for infrared frequency. Class 21, No. 187148 [announced by the All-Union Scientific Research Institute of Metralogy im. D. I. Mendeleyev (Vsesoyusnyy nauchno-issledovatel'skiy institut metrologii)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 20, 1966, 77

TOPIC TAGS: phase measurement, electric test equipment

ABSTRACT: An Author Certificate has been issued for an addition and subtraction phasemeter for infrared frequency waves which input attenuators for both tested and

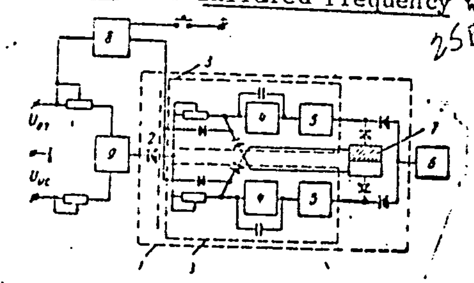

Fig. 1. Infrared phasemeter

1 - Measuring converter; 2 - rectifier diode; 3 - converter channels; 4 - current integrator; 5 - threshold elements; 6 - recording device; 7-bistable trigger; 8 - measurement time controller; 9 summator; U_{on} - reference voltage; V_{uc} - tested voltage

Card 1/2

UDC: 621.317.772

L 09942-67
ACC NR: AP6035865

reference voltage. The attenuators are connected at the summator input, and the summator output is coupled to a measuring converter which in turns is loaded by a recording unit. To increase accuracy and to reduce measurement time, the circuit shown in Fig. 1 is proposed. Orig. art. has: 1 figure.

SUB CODE: 14/ SUBM DATE: 27Aug65/ ATD PRESS: 5105

Card 2/2

39057

9,4174

S/115/62/000/006/005/005
E032/E514

AUTHORS: Gravin, O.N., Galakhova, O.P. and Koltik, Ye.D.

TITLE: Application of thermal converters at infra-low frequencies

PERIODICAL: Izmeritel'naya tekhnika, no.6, 1962, 31-34

TEXT: Possible applications of thermoelectric devices at frequencies below 0.5 cps have not been adequately explored. The authors therefore discuss the use of thermal converters at these frequencies. Circuits are suggested for: 1) the determination of a 90° phase difference between two alternating currents, 2) the indication of the fact that two currents are exactly in phase, and 3) determination of the current and voltage amplitudes. These circuits are respectively shown in Figs. 1, 2 and 3. In the first case the signal recorded by Π contains an alternating component whose amplitude is proportional to the difference from the 90° phase-shift between the currents i_1 and i_2. The analysis is particularly simple when the two converters are identical. When they are not identical, one of them has to be suitably shunted. In the second case the two elements are connected in opposition and

Card 1/3

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051661(

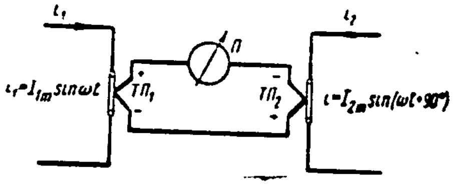

Fig.1

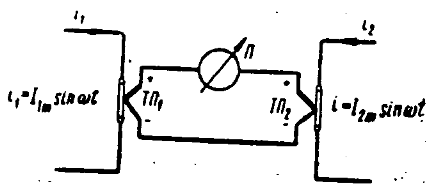

Fig.2

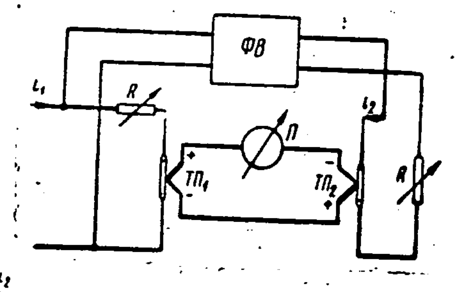

Fig.3

GRAVIN, O.N.

Use of infralow-frequency thermocomparators. Izm. tekh. no.12: 34-37 D '63. (MIRA 16:12)

GRAVIN, O.N.

Measurement of the effective values of current, voltage, and power at infralow frequencies. Nov.nauch.-issl.rab.po metr. VNIIM no.4: 8-13 '64.

(MIRA 18:3)

ACC NR: AR7000829 SOURCE CODE: UR/0272/66/000/010/0112/0112

AUTHOR: Bezikovich, A. Ya.; Gravin, O. N.

TITLE: Investigation of multielement thermoelectric converters

SOURCE: Ref. zh. Metrologiya i izmeritel'naya tekhnika, Abs. 10.32.798

REF SOURCE: Tr. in-tov Gos. kom-ta standartov, mer i izmerit. priborov SSSR, vyp. 82(142), 1965, 112-116

TOPIC TAGS: thermoelectric converter, extreme low frequency, multielement converter

ABSTRACT: The results of new experimental investigations of multielement thermal converters are discussed. Relationships are derived by means of which it is possible to determine the frequency error of thermoelectric devices in the extreme l-f range on the basis of volt-ampere characteristics and time constants of the converter. A bibliography of 5 titles is included. P. Agaletskiy. [Translation of abstract] [DW]

SUB CODE: 09/

Card 1/1 UDC: 621.36.001.4

ZIL'BERBORD, A.F.; GRAVIS, G.F.

Intensity of deformations in mine workings depending upon conditions of accumulation and freezing of quaternary deposits. Fiz.-tekh. probl. razrab. pol. iskop. no.1:20-24 '65. (MIRA 18:10)

1. Institut gornogo dela im. A.A. Skochinskogo, Moskva.

GRAVISHKAS, Vl., (g. Miass)

Without an adjuster. Rabotnitsa no.1:13-14 Ja '59. (MIRA 12:3)

1. Avtozavod, g. Miass.
(Miass--Automobile industry workers)

GRAVE, N.A., doktor geogr.nauk; GAVRILOVA, M.K.; GRAVIS, G.F.; KATASONOV, Ye.M.; KLYUKIN, N.K.; KOREYSHA, M.M.; KORNILOV, B.A.; CHISTOTINOV, L.V.; TORKHANOVA, Z.A., red.

[Collection of articles] Sbornik statei. Moskva, Nauka, No.14. 1964. 140 p. (MIRA 17:12)

1. Akademiya nauk SSSR. Mezhduvedomstvennyy komitet po provedeniyu Mezhdunarodnogo geofizicheskogo goda. IX razdel programmy MGG. Glyatsiologiya.

ZABLOVSKIS, E. (Riga); GRAVITIS, E. (Riga)

Signaling circuits used in visual observations of artificial earth satellites. Astron. tsir. no.190:11-12 Mr '58. (MIRA 11:9)
(Artificial satellites) (Electronic measurements)

SOROKIN, V.S., aspirant; GRAVITIS, V.A.

Some characteristics of the distribution of authigenic silica in the sediments of the Daugava series. Izv.vys.ucheb.zav.; geol.i razv. 7 no.8:58-66 Ag '65. (MIRA 18:11)

1. Institut geologii AN Latviyskoy SSR, Riga.

GRAVKIS, Ya.

Outfitting the machine engineering study room with our own hands..
Politekh.obuch. no.1:90-91 Ja '59. (MIRA 12:2)

1. Srednyaya shkola No.415, Leningrad.
(Leningrad--Schools--Furniture, equipment, etc.)

GRAVOVSKAYA, L.I.

Scientific and public activities of L. A. Tarasevich in Odessa during the first Russian revolution. Zhur.mikrobiol. epid. i immun. no.7:94-98 Jl '55. (MLRA 8:9)

1. Iz kafedry organizatsii zdravookhraneniia (zav.prof. I.L. daylis) Odesskogo meditsinskogo instituta (dir.prof. I.Ya. Deyneka)
(BIOGRAPHIES,
Tarasevich, L.A.)

GRAVOWSKA, Halina; TYSZKIEWICZ, Magdalena

Treatment of enuresis. Polski tygod. lek. 11 no.17:740-743 23 Apr 56.

1. Z Wojewodzkiej Przychodni Zdrowia Psychicznego i z Oddzialu Psychiatrii Dzieciecej Kliniki Chorob Psychicznych Akad. Med. w Gdansku, Gdansk-Oliwa; ul. Poczty Gdanskiej 4/1.
(ENURESIS, therapy,
(Pol))

GRAVROGKAS, A.

22503 Gravrogkas, A. Proizvodstvo Iskusstvennykh Zhernovov V Litovskoy SSR. Trudytekhn Fak. Kaunassk. Gos. Un-Ta I, 1949, S 183-97 -- Na Litov. Yaz Rezyume Na Rus. Yaz.

SO: Letopis' No 30, 1949

SOV/124-58-10-11161

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 10, p 64 (USSR)

AUTHOR: Gravrogkas [Gravrogkas, A.]

TITLE: An Investigation of the Hydraulic Regimes of an Axial-flow Propeller Turbine in Connection With a Change in the Design of the Intake Duct (Issledovaniye gidravlicheskikh rezhimov osevoy propellernoy turbiny v svyazi s izmeneniyem konstruktsii vsasyvayushchey truby)

PERIODICAL: Tr. Kaunassk. politekhn. in-ta, 1957, Vol 6, pp 115-119; in Lithuanian

ABSTRACT: The paper investigates the characteristics of a laboratory turbine. To increase the efficiency of a turbine during operational conditions involving considerable losses of energy, deflector vanes of various types were installed into the cylindrical part of the intake duct and the best versions of such vanes were determined.

A. S. Ginevskiy

Card 1/1

GRAWEL, A.

Nephrite from Jordanow in Lower Silesia. p.299

(PRZEGLAD GEOLOGICZNY Vol. 5, No. 7, July 1957. Warszawa, Poland)

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

EPSHTEYN, L., dotsent, kand.ekonom.nauk; GRAY, A., isrolnyayushchiy obyazannosti dotsenta

Students should know economics. Prof.-tekh.obr. 22 no.8:19-20 Ag '65. (MIRA 18:12)

1. Zaveduyushchiy kafedroy politicheskoy ekonomii Chelyabinskogo pedagogicheskogo instituta (for Epshteyn). 2. Kafedra politicheskoy ekonomii Chelyabinskogo pedagogicheskogo instituta (for Gray).

GRAY, A.L.; BARLAI, Katalin [translator]

Radiation detectors. Atom taj 2 no.3:98-113 '59.

1. "Atomtechnikai Tajekoztato" fomunkatarsa (for Berlai).

GRAYAZNOV, A. G.

Tree Planting

Establishing tree belts by means of spot seeding. Les. khoz. 5 Nr. 4, 1952.

9. Monthly List of Russian Accessions, Library of Congress, August 1953? Uncl.

GRAYAZNOV, M.M., starshiy nauchnyy sotrudnik.

Method for processing frozen potatoes. Trudy TSNIIKPP no.2:86-103 '55. (MLRA 10:1)

(Potatoes)

SHIMULIS, V.I.; GRAYAZNOV, V.M.; CHERKASHIN, A.Ye.

Kinetics of the isomerization of allylbenzene in the presence of incandescent platinum. palladium, and tungsten wires. Kin. i kat. 2 no.1:127-134 Ja-F '61. (MIRA 14:3)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova, Khimicheskiy fakul'tet.
(Benzene) (Catalysts)(Isomerization)

GEL'FAND, Izrail' Moiseyevich; GRAYEV, M.I.; VILENKIN, N.Ya.

[Integral geometry and problems of the theory of representations related to it] Integral'naia geometriia i sviazannye s nei voprosy teorii predstavlenii. Moskva, Gos.izd-vo fiziko-matem.lit-ry, 1962. 656 p. (MIRA 16:8)

(Geometry, Differential)

GRAYEV, M. I.

Proc. Imp. Akad. Tokyo, 20(1944), 595-598, K teorii polnykh pryamykh proizvedeniy grupp. Matem. sb., 17(59), (1945), 85-104.
izomorfizmy pryamykh razlozheniy v dedekindovykh strukturakh. IAN, ser. matem., 11(1947), 33-46

SO: Mathematics in the USSR, 1917-1947
edited by Kurosh, A.G.,
Markushevich, A.I.,
Rashevskiy, P.K.
Moscow-Leningrad, 1948

GRAYEV, M. I.

Grayev, M. **Direct sums of cycles in the Dedekind structures.** Rec. Math. [Mat. Sbornik] N.S. 19(61), 439–450 (1946). (Russian. English summary)

The paper deals with complete Dedekind structures in A. Kurosch's sense [Bull. Acad. Sci. URSS. Sér. Math. [Izvestia Akad. Nauk SSSR] 7, 185–202 (1943); these Rev. **6**, 145]. Properties of cycles of finite or transfinite length are considered. It is proved that, if the unit is a direct sum of cycles, then any cycle whose length is equal to the maximum of the lengths of the components is a direct summand of the unit. Further results are obtained by assuming: (1) every element is a sum of cycles; (2) if a/b contains a single point (i.e., a cycle of length 1 over b), then a/b is a cycle; (3) if a point of the structure is contained in the sum of a set S of cycles, then a finite subset of cycles can be chosen in S whose sum contains the given point. It is proved that, if the unit is a direct sum of a finite number of cycles of length τ, every cycle of length $\alpha<\tau$ is a subcycle of a cycle of length τ. Conditions are found for decomposability of elements into the direct sum of cycles; in this connection a theorem of R. Baer [Trans. Amer. Math. Soc. **52**, 283–343 (1942); these Rev. **4**, 109] is generalized. A well-known theorem concerning decomposition of certain infinite periodic Abelian groups into the direct sum of primary cyclic groups follows as a simple corollary.

J. Levitzki.

Source: Mathematical Reviews, Vol 8 No. 8

GRAYEV, M. I. Cand. Physicomath. Sci.

Dissertation: "Free Topological Groups." Moscow Order of Lenin State U. imeni M. V. Lomonosov, 23 Apr. 1947.

SO: Vechernyaya Moskva, Apr. 1947 (Project #17836)

Grayev, M. Isomorphisms of direct decompositions in Dedekind structures. Bull. Acad. Sci. URSS. Sér. Math. [Izvestia Akad. Nauk SSSR] 11, 33–46 (1947). (Russian. English summary)

Deux théorèmes sur l'existence de raffinements homologues pour un couple de décompositions directes de l'unité dans une structure complète de Dedekind. [Voir A. G. Kurosh, même Bull. Sér. Math. 7, 185–202 (1943); 10, 47–72 (1946); ces Rev. 6, 145; 8, 309.] *H. Freudenthal.*

Source: Mathematical Reviews, Vol 8 No 10 .

GRAYEV, M. I.

Grayev, M. Structural isomorphisms of topological Abelian groups. Rec. Math. [Mat. Sbornik] N.S. 20(62), 125–144 (1947). (Russian. English summary)

For $i=1, 2$ let G_i denote a separable locally compact Abelian group and let L_i denote the lattice of closed subgroups of G_i. The author studies conditions on G_i under which every lattice isomorphism between L_1 and L_2 is induced by some topological group isomorphism between G_1 and G_2. In addition he studies the somewhat weaker conditions which suffice when only those lattice isomorphisms preserving a certain topology are considered. One further restricted class of lattice isomorphisms is also briefly treated. The principal results are as follows. Let d denote the dimension of G_1, let r denote its rank (rank is defined here in such a way that it turns out to be the dimension of the dual group) and let v be the dimension of its vector space component. Then if any one of the following conditions is fulfilled every lattice isomorphism between L_1 and L_2 is induced by exactly two topological group isomorphisms between G_1 and G_2: (a) $d=0$ and $r\geqq 2$, (b) $r=0$ and $d\geqq 2$, (c) $v\geqq 2$. Moreover, if either (a) $v\geqq 1$ or (b) $d+r\geqq 2$ then every lattice isomorphism between L_1 and L_2 which preserves the topology alluded to above is induced by exactly two topological group isomorphisms between G_1 and G_2. Examples are given showing that these results are the best possible of their kind. The proofs depend upon the Pontrjagin-van Kampen structure and duality theorems for locally compact Abelian groups and on the results of a corresponding study of discrete groups made by Baer [Amer. J. Math. 61, 1–44 (1939)].

G. W. Mackey.

Source: Mathematical Reviews, Vol 9 No. 6

GRAYEV, M.I.

2000

Graev, M. I. Theory of topological groups. I. Norms and metrics on groups. Complete groups. Free topological groups. Uspehi Matem. Nauk (N.S.) 5, no. 2(36), 3–56 (1950). (Russian)

This is an expository essay uniting a variety of topics on the structure of topological groups. The principal topics are named in the title in the order of the three parts into which the paper is divided. Almost all of the work belongs to the last decade.

L. Zippin (Flushing, N. Y.).

Source: Mathematical Reviews, Vol 12, No. 2

GRAYEV, M. I.

Graev, M. I. On free products of topological groups. Izvestiya Akad. Nauk SSSR. Ser. Mat. 14, 343-354 (1950). (Russian)

The author defines the free product (as opposed to the direct product) of an arbitrary collection M of topological groups A_α ($\alpha\epsilon M$) by these properties: (1) G is a topological group with A_α as subgroup, $\alpha\epsilon M$; (2) the minimal closed subgroup of G containing every A_α coincides with G; (3) if H is a topological group and there are given continuous homomorphisms h_α of A_α into H ($\alpha\epsilon M$), then there exists a continuous homomorphism h of G into H coinciding on each A_α with the given h_α. The author proves that a group G with these properties exists, whatever the collection of groups A_α, which is unique to within an isomorphism keeping elements of each A_α fixed. If M_1 is a subset of M, and A is the group generated by the corresponding A_α, $\alpha\epsilon M_1$, and B is the group generated by the remaining A_α, $\alpha\epsilon M-M_1$, then A and B are closed and G is their free product. Further, if G is a free product of groups A_α, each of these a free product of groups $A_{\alpha\beta}$, then G is a free product of the totality $A_{\alpha\beta}$. The author's proof of the existence of G is such as to show also that the group G is free in the algebraic sense, if topologies are ignored in the A_α and in G. Almost all of the argument of the paper is devoted to the case of two factors; the rest is relatively easy.

L. Zippin.

Source: Mathematical Reviews, Vol 12, No.

GRAYEV, M. I.

"Unitary Representations of Real Simple Lie Groups," Dokl. Ak. Nauk SSSR, 86, No. 3, 1952.

GRAYEV, M.I.

(4) Math

Mathematical Reviews
Vol. 15 No. 3
March 1954
Algebra

6-23-54
LL

Gel'fand, I. M., and Graev, M. I. **Unitary representations of the real unimodular group (principal nondegenerate series).** Izvestiya Akad. Nauk SSSR. Ser. Mat. 17, 189–248 (1953). (Russian)

The authors present a series of continuous unitary representations on Hilbert space of the real unimodular group (=group of space matrices of determinant unity) of arbitrary order, and prove their irreducibility. In the case of the 2×2 group, all continuous unitary irreducible representations were obtained by Bargmann [Ann. of Math. (2) 48, 568–640 (1947); these Rev. 9, 133] by infinitesimal methods. The present series of representations, called the principal non-degenerate series, is obtained by global methods parallel to those used by Gelfand and Neumark in determining all the continuous unitary irreducible representations of the complex unimodular group [Trudy Mat. Inst. Steklov. 36 (1950); these Rev. 13, 722]. In particular, all the present representations are of multiplier type, and they do not exhaust the representations (of the stated type) of the real unimodular groups. *I. E. Segal.*

5000

GRAYEV, M.I.

Gel'fand, I. M., and Graev, M. I. On a general method of decomposition of the regular representation of a Lie group into irreducible representations. Doklady Akad. Nauk SSSR (N.S.) 92, 221–224 (1953). (Russian)

The problem treated is that of determining the value at the identity of a smooth function on a Lie group when its integrals over conjugate classes in general position are given. The groups involved are not necessarily compact, and in fact in the compact case the identity is simply a limit of conjugate classes in general position. Applying results of M. Riesz [Acta Math. 81, 1–223 (1949); these Rev. 10, 713] a technique is sketched for solving the problem, which is the principal difficulty in extending concrete Plancherel formulas from the case of complex to that of real Lie groups.

I. E. Segal (New York, N. Y.).

GRAYEV, M.I.

62

Gel'fand, I. M., and Graev, M. I. **Analogue of the Plancherel formula for real semisimple Lie groups.** Doklady Akad. Nauk SSSR (N.S.) 92, 461–464 (1953). (Russian)

The basic formula for the derivation of an extension of Plancherel's formula to the real unimodular group is obtained. It is indicated that the method applies to other real simple Lie groups. The basic formula in question represents the value $f(e)$ of a differentiable function f vanishing outside a neighborhood of the unit e of the $n\times n$ unimodular group G in terms of the integrals of f over the conjugacy classes of G. As indicated by the authors [same Doklady (N.S.) 92, 221–224 (1953); these Rev. 15, 601], $f(e)$ can be expressed as

$$\lim_{\lambda\to -r} c\int_G f(g)|\operatorname{tr}((\log g)^2)|^{\lambda/2}dg,$$

where c is a constant and r is the dimension of G. It results from this by a suitable computation that $f(e)$ is the result of applying a certain (simple and explicitly given) differential operator of order $\frac{1}{2}n(n-1)$ in the $2k$ ($k=[n/2]$) variables $r_1, \varphi_1, \cdots, r_k, \varphi_k$, where the complex eigenvalues of g are $\exp(r_j \pm i\varphi_j)$ ($j=1, 2, \cdots, k$) to the product of the function of those variables obtained by integration of f with respect to complementary variables (in a local parametrization of G) and a fixed function of the $r_1, \varphi_1, \cdots, r_k, \varphi_k$, followed by evaluation at the group unit.

It is indicated that the real case is significantly more complicated than the complex case because of the existence of $k+1$ different types of conjugacy classes (which relate interestingly to the $k+1$ types of irreducible unitary representations) in the real cases as contrasted with only one in the complex case. In the case of the 2×2 unimodular group the Plancherel formula had previously been obtained by Bargmann [Ann. of Math. (2) 48, 568–640 (1947); these Rev. 9, 133] and also treated by Harish-Chandra [Proc. Nat. Acad. Sci. U. S. A. 38, 337–342 (1952); these Rev. 13, 820].

I. E. Segal (New York, N. Y.).

GRAYEV, M.I.

USSR. 1-F/W 62

Graev, M. I. Principal series of unitary representations of real forms of the complex unimodular group. Dokl. Akad. Nauk SSSR (N.S.) 98, 517–520 (1954). (Russian)

All real forms of a complex simple Lie group are known to arise from automorphisms of period 2 of the compact form of the group. This note describes the principal series of irreducible unitary representations for those real forms of the complex unimodular group that arise from inner automorphisms. The representations are given in global form, the basic series being in a space of functions of several complex variables. The real unimodular groups, which constitute one of the main cases when the associated automorphism is outer, have been treated by Gelfand and Graev [Izv. Akad. Nauk SSSR. Ser. Mat. 17, 189–248 (1953); MR 15, 199]. The present groups are the subgroups of the complex unimodular groups leaving invariant certain non-degenerate hermitian forms. *I. E. Segal* (Chicago, Ill.).

GRAYEV, M.I.

SUBJECT USSR/MATHEMATICS/Topology CARD 1/2 PG - 141
AUTHOR GEL'FAND I.M. and GRAEV M.I.
TITLE An analogue of the Plancherel formula for the classical groups.
PERIODICAL Trudy Moskovsk.mat.Obšč. 4, 375-404 (1955)
reviewed 7/1956

The generalization of the Plancherel formula to simi-simple Lie groups has mainly the following difficulty: The values of the integrals over classes of conjugate elements of the "general situation" of a sufficiently often differentiable function $x(g)$ $(g \in G)$ which vanishes outside of a small neighborhood of the unity is known; then the value of the function in the unit element shall be obtained. In their investigations on the representation of classical groups, I.M.Gel'fand and M.A.Nejmark have found a complicated solution of this problem for the case of the complex unimodular group (compare I.M.Gel'fand, M.A.Nejmark: Unitary representations of the classical groups, Moscow-Leningrad 1950). This process is now replaced by a more general and clear one and for the classical group it is carried out in detail. The result has the following form: $x(e) = LI_\delta|_{\delta \to e}$, where I_δ is the integral of $x(g)$ over the class of all elements being conjugate to the diagonal matrix δ with different eigenvalues, and L is a certain linear homogeneous differential operator. For the proof results of M.Riesz (Acta. Math. 81, 1-221 (1949)) are used in a somewhat generalized form. Let $f(x)$ be a sufficiently often differentiable, outside of a compact set vanishing function in an Euclidean

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space of odd number of dimension and $\omega(x)$ a non-degenerated and non-definite quadratic form with an odd number of positive squares. Then the function $R(\lambda)$ being defined by the integral

$$\int_{\omega(x)\gtrless 0} f(x)\,|\omega(x)|^{\frac{\lambda}{2}}\,dx,$$

Re $\lambda > 0$ and by the derivative of which, respectively, has simple poles at the places $\lambda = -m-2k$ and we have $\operatorname{Res}_{\lambda=-m-2k} R(\lambda) = c_k(\Delta^k f)(0)$ $(k=1,2,\ldots)$.

Here the c_k are certain constants and $\Delta = \sum_{p,q} c_{pq} \frac{\partial^2}{\partial x_p \partial x_q}$, where $\| c_{pq} \|$ is the inverse of the matrix of the quadratic form $\omega(x)$. An other derivative of the Plancherel formula for complex semi-simple groups was given by Harish-Chandra (Proc.Nat.Acad.Sci. USA 37, 813-818 (1951); Trans.Amer.Math.Soc. 76, 485-528 (1954)).

GEL'FAND, I.M.; GRAYEV, M.I.,

Traces of unitary representations of a real-valued unimodular group. Dokl. AN SSSR 100 no.6:1037-1040 F '55. (MIRA 8:6)

1. Chlen-korrespondent Akademii nauk SSR (for Gel'fand)
2. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova

(Groups, Theory of)

GRAYEV, M. I.

Graev, M. I. On a general method of computing traces of infinite-dimensional unitary representations of real simple Lie groups. Dokl. Akad. Nauk SSSR (N.S.) 103 (1955), 357–360. (Russian)

If U is an irreducible unitary representation on a Hilbert space of a simple non-compact Lie group G, it must be infinite-dimensional, if non-trivial, so there is no character function for the representation in the usual sense. It was shown by explicit computations, first in the case of the Lorentz group, later for general classes of simple groups, that there existed a function X on the group having many of the properties of the character, and notably the property that if f is a sufficiently differentiable function on G vanishing outside a compact set, then $\int_G U(a)f(a)$ is a Hilbert-Schmidt operator whose trace exists and equals $\int_G X(a)f(a)da$. Formulas for these traces were given in the case of complex groups by Gel'fand and Naimark [Trudy Mat. Inst. Steklov. 36 (1950); MR 13, 722] based on formulations of the irreducible representations on spaces of all square-integrable functions on certain measure spaces such that the operator $\int_G U(a)f(a)da$ is an integral operator, in terms of whose kernel the trace of the operator is readily expressed. However, the representation spaces for the general real group are typically spaces of holomorphic functions, in formulations such as in Dokl. Akad. Nauk SSSR (N.S.) 100 (1955), 1037–1040 [MR 16, 795] and it is more difficult to obtain explicit formulas for the trace.

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Moscow State Univ.

GRAEV, M.I.

In the present note the author gives such a formula for the real forms of the complex unimodular group. The new method is a generalization of the observation that in the case of the real 2×2 group, in which the representation space may be taken as the square-integrable holomorphic functions on the unit disc in the plane relative to a suitable inner product [see Bargmann, Ann. of Math. (2) 48 (1947), 568–640; MR 9, 133], the representative for the matrix $\begin{pmatrix}\lambda & 0\\ 0 & \lambda^{-1}\end{pmatrix}$, where $|\lambda|<1$, takes the analytic function $f(z)$ into $f(\lambda^2 z)\lambda^n$, and using the functions $\{z^m; m=0, 1, 2, \cdots\}$ as a basis, the pseudo-character described above may be determined as $\sum_{m=0}^{\infty} \lambda^{n+2m}$.

I. E. Segal.

2/2

GRAYEV, M.I.

BEREZIN, F.A.; GEL'FAND, I.M.; GRAYEV, M.I.; NAYMARK, M.A.

Representation of groups. Usp.mat.nauk 11 no.6:13-40 N-D '56. (MIRA 10:3)

(Groups, Theory of)

GRAYEV, M.I.

2

Neprivodimyye Unitarnyye Predstavleniia Gruppy Matrits Tret'ego Poriadka, Sokhraniaiushchikh Indefinitnuiu Ermitovu Formu. M. I. Graev. AN SSSR Dokl., Apr. 11, 1957, pp. 000–000. In Russian. Irreducible unitary representations of the group of third order matrices conserving an indefinite Hermite form.

GRAYEV, M.I.

SUBJECT USSR/MATHEMATICS/Algebra CARD 1/1 PG - 805
AUTHOR GRAEV M.I.
TITLE Unitary representations of real simple Lie groups.
PERIODICAL Uspechi mat.Nauk 12, 1, 179-182 (1957)
reviewed 6/1957

The author considers a simple real Lie group $G_{p,q}$ $(p+q=n,\ p\geq q>0)$ of the complex unimodular matrices of n-th order which let invariant the Hermitean form

$$z_1\overline{z}_1+\dots+z_p\overline{z}_p-z_{p+1}\overline{z}_{p+1}-\dots-z_{p+q}\overline{z}_{p+q}\ .$$

In a Hilbert space which was considered in an earlier paper of the author (Doklady Akad.Nauk 98, 517-520 (1954)) the unitary representation of the group $G_{p,q}$ is realized. The representation is irreducible. There exist still some further analytic function spaces on which irreducible unitary representations of $G_{p,q}$ can be realized too. The number of different types of such spaces is C_n^p.
Furthermore with the example of $G_{p,q}$ a method for the calculation of the trace of analytic representations is given (Doklady Akad.Nauk 103, 357-360(1955))

20-5-5/67

The Irreducible Unitary Representations of the Group of Matrices of Third Order which Keep the Indefinite HERMITE Form.

$$\xi'_1 = (\xi_1 g_{11} + \xi_2 g_{21} + g_{31})/(\xi_1 g_{13} + \xi_2 g_{23} + g_{33});$$

$$\xi'_2 = (\xi_1 g_{12} + \xi_2 g_{22} + g_{32})/(\xi_1 g_{13} + \xi_2 g_{23} + g_{33}).$$

Also for the operators of the representation T_g an expression is given. The complex numbers σ and τ occurring there characterize the representation. If σ and τ are not whole real numbers, the space $\mathcal{H}$ has no invariant subspace of its own. In this case it is possible to represent $\mathcal{H}$ unambiguously, except for a constant factor, by the bilinear functional $A(f_1,f_2)$. But if σ and τ are real whole numbers, then the space $\mathcal{H}$ always has (with respect to the operators T_g) invariant subspaces of its own. In such a case it is possible to separate in $\mathcal{H}$ such irreducible invariant subspaces on which the bilinear functional T_g (that is commutative with the operators T_g) is definite with respect to the sign. In such a way it is possible to obtain all discrete series of the irreducible unitary representations of the group G. Then the paper lists another method for the description of the discrete series of the unitary representations of the group G. Three discrete series are obtained. The relevant theorems are given, and one of them

Card 2/3

GRAYEV, M. I.,

"Unitary Representations of Real Simple Lie Groups," Trudy, t. 7 (Transactions of the Moscow Mathematical Society, v. 7), Moscow, Fizmatgiz, 1958. p 335.

This article was presented at the January 20, 1956 Session of the All-Union Conference on Functional Analysis and its Application. The article contains the following sections: Introduction; 1) G_{pq} group; parameters and an invariant measure of G_{pq} group; 2) Generalized linear elements and transitive manifolds; 3) Discrete series of representations of type 1; 4) Irreducibility of repersentations of a discrete series; 5) Traces of representations of a discrete series; 6) Indiscrete basic series of unitary representations of $G_{p,q}$ group; references.

GRAYEV, M. I., Doc Phys-Math Sci (diss) -- "Analytic functions of many complex variables and representations of simple Lee groups". Moscow, 1959. 8 pp (Acad Sci USSR, Dept of Applied Math of the Math Inst im V. A. Steklov), 150 copies (KL, No 25, 1959, 125)

KHUA LO-KEN [Hua Lo-kêng]; YEVGRAFOV, M.A. [translator]; GRAYEV, M.I., red.; SHIROKOV, F.V., red.; REZOUKHOVA, A.G., tekhn.red.

[Harmonic analysis of functions of several complex variables in classical domains] Garmonicheskii analiz funktsii mnogikh kompleksnykh peremennykh v klassicheskikh oblastiakh. Pod red. M.I.Graeva. Moskva, Izd-vo inostr.lit-ry, 1959. 163 p. Translated from the Chinese. (MIRA 13:4)

(Functions of complex variables)

GRAYEV, M. I.

16(0) PHASE I BOOK EXPLOITATION SOV/3360

Moskovskoye matematicheskoye obshchestvo

Trudy, t. 8 (Transactions of the Moscow Mathematical Society, Vol 8) Moscow, Fizmatgiz, 1959. 518 p. Errata slip inserted. 2,050 copies printed.

Ed.: A.P. Lapko; Tech. Ed.: S.S. Gavrilov; Editorial Board: P.S. Aleksandrov, I.M. Gel'fand, and O.N. Golovin.

PURPOSE: This book is intended for mathematicians and theoretical physicists.

COVERAGE: This book contains a collection of articles by leading Soviet mathematicians on problems in pure and applied mathematics. All articles were written in 1957 and 1958. Among the topics discussed are: analytic - operator functions, function spaces, nonstationary plane flow of a viscous non-compressible liquid, root spaces, products of groups representations, ordinary and partial differential equations, 3rd and 4th order linear equations, homogeneous spaces, spectral theory of operators, and generalized random processes. References accompany each article.

AVAILABLE: Library of Congress

Card 3/3 AC/mmp 1-12-60

GEL'FAND, I.M.; GRAYEV, M.I.

Geometry of homogeneous spaces, group representation in homogeneous spaces and problems of integral geometry connected with them. Part 1. Trudy Mosk.mat.ob-va 8:321-390 '59. (MIRA 13:2)

(Topology)

16(1)

AUTHOR: Grayev, M.I. SOV/20-127-1-2/65

TITLE: Irreducible Unitary Representations of Certain Classes of Simple Real Lie Groups

PERIODICAL: Doklady Akademii nauk SSSR,1959,Vol 127,Nr 1,pp 13-16 (USSR)

ABSTRACT: In /"Ref 3_7 the author considered the irreducible unitary representations of the group $G_{p,q}$ of the complex matrices of the order n = p + q with determinant 1 which leave invariant the Hermitian form

(1) $x_1 \bar{x}_1 + \dots + x_p \bar{x}_p - x_{p+1} \bar{x}_{p+1} - \dots - x_{p+q} \bar{x}_{p+q}$.

In the present paper the author considers the representations of other classes of simple Lie groups, namely the representations of the groups A_p and B_p. A_p is the group of the complex matrices of order 2p with determinant 1 for which (1) with p = q and the form $x_1 x_{p+1} + \dots + x_p x_{2p}$ remain invariant. B_p is the group of the complex matrices of order 2p with determinant 1 for which (1) with p = q

Card 1/2

Irreducible Unitary Representations of Certain Classes of Simple Real Lie Groups

SOV/20-127-1-2/65

and the bilinear form $(x_1 y_{p+1} - x_{p+1} y_1) + \ldots + (x_p y_{2p} - x_{2p} y_p)$ remain invariant. Discreet and not discreet series of irreducible unitary representations of A_p and B_p are separately given. Altogether there are 2 theorems. There are 8 references, 5 of which are Soviet, 1 American, 1 German, and 1 Chinese.

PRESENTED: March 13, 1959, by M.V. Keldysh, Academician

SUBMITTED: March 10, 1959

Card 2/2

16(1) SOV/20-127-2-4/70

AUTHORS: Gel'fand, I.M., Corresponding Member of the AS USSR, and Grayev, M.I.

TITLE: Resolution of Lorentz Group Representations Into Irreducible Representations in Spaces of Functions Defined on Symmetrical Spaces

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 2, pp 250-253 (USSR)

ABSTRACT: Let G be a Lorentz group, i.e. the group of complex matrices of second order $g = \begin{Vmatrix} \alpha & \beta \\ \gamma & \delta \end{Vmatrix}$ with the determinant 1. Let X be a symmetrical space with the motion group G. In the space of functions f(x) on X let to every $g \in G$ correspond a translation operator T_g: $T_g f(x) = f(xg)$. The obtained representation of G shall be decomposed into irreducible representations. The authors [Ref 2] have solved this problem if X is a Lobachevskiy space. In the present paper the same problem is treated in an other X. As a model of this space there may serve e.g. the exterior of the sphere (the "absolute") in the real projective

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Resolution of Lorentz Group Representations Into Irreducible Representations in Spaces of Functions Defined on Symmetrical Spaces SOV/20-127-2-4/70

space. Since in the present case the subgroup of the revolutions is not compact (this was used essentially in [Ref 2] for the case of the Lobachevskiy space) the authors propose a different method which in essential bases on a certain decomposition for the δ-function.

There are 3 references, 2 of which are Soviet, and 1 German.

SUBMITTED: May 5, 1959

Card 2/2

GEL'FAND, I.M. (Moskva); DYUDENI, N.Ye. (SShA); KIRILLOV, A.A. (Moskva); PODSYPANIN, V. (Tula); TER-MKRTACHAN, M. (Yerevan); KUZ'MIN, Yu.I. (Moskva); VEYL', G. (SShA); FADDEYEV, D.K. (Leningrad); ARNOL'D, V.I. (Moskva); IVANOV, V.F. (San-Karlos, Kaliforniya, SShA); GRAYEV, M.I. (Moskva); LEBEDEV, N.A. (Leningrad); LOPSHITS, A.M. (Moskva); ZHITOMIRSKIY, Ya.I.; MITYAGIN, B.S. (Moskva); SKOPETS, Z.A. (Yaroslavl'); PUANKARE, A. (Frantsiya); GAVEL, V.V. (Brno, Chekhoslovakiya); SOLOMYAK, M.Z. (Leningrad); LEVIN, V.I. (Moskva); BARBAN, M.B. (Tashkent); FRIDMAN, L.M. (Tula)

Problems. Mat. pros. no.5:253-260 '60. (MIRA 13:12)
(Mathematics--Problems, exercises, etc.)

GEL'FAND, I.M.; GRAYEV, M.I.

Correction to the article "Geometry of homogeneous spaces, group representation in homogeneous spaces, and problems of integral geometry connected with them. Part 1." Trudy Mosk.mat.ob.va 9:562 '60. (MIRA 13:9)

(Groups, Theory of)

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C 111/ C 333

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AUTHORS: Gel'fand, J. M., Corresponding Member of the Academy of Sciences USSR, Grayev, M. I.

TITLE: Integrals Over Hyperplanes of Fundamental and Generalized Functions

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 6, pp. 1307-1310

TEXT: The Radon transformation of a function $f(z)$, $z = (z_1, \ldots, z_n)$ in the n-dimensional complex affine space is defined by

$$(2) \quad \check{f}(\xi;s) = \int f(z)\, \delta(s-(\xi,z))\, dz\, d\bar{z},$$

where $\xi = (\xi_1, \ldots, \xi_n)$, $(\xi,z) = \xi_1 z_1 + \ldots + \xi_n z_n$, $dz = dz_1 \ldots dz_n$, $\delta(s)$ is a generalized function of the complex variable s which is defined by $(\delta(s), \varphi(s)) = \varphi(0)$. The functions f are assumed to be infinitely often differentiable with respect to $z_1, \ldots, z_n, \bar{z}_1, \ldots, \bar{z}_n$ and to be quickly decreasing together with the derivatives (quickly decreasing means that, for $|z| \to \infty$ and arbitrary $k > 0$ it holds $|f(z)| = o(|z|^{-k})$. The inverse formula

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Integrals Over Hyperplanes of Fundamental and Generalized Functions

is

$$(3)\ f(z) = \frac{(-1)^{n-1}}{(2\pi)^{2n-2}} \int_{\Xi} \Psi(\xi ; (\xi , z))\, \omega_{\xi} \quad \text{where}$$

$$\Psi(\xi , s) = \frac{\partial^{2n-2}\check{f}(\xi ; s)}{\partial s^{n-1}\, \partial \bar{s}^{n-1}}$$

The integral is extended over an arbitrary surface Ξ with the real dimension 2n - 2 in the space ξ, which has exactly one point of intersection with almost every straight line through $\xi = 0$. The differential form $\frac{1}{2n}\omega_{\xi}$ is the volume of the cone, the apex of which is $\xi = 0$ and the base of which is the surface element.

Theorem 1: In order that $\varphi(\xi ; s)$ is the Radon transform of an infinitely often differentiable function in the real space and vanishes quickly together with the derivatives, it is necessary and

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sufficient that 1.) $\varphi(\alpha\xi;\alpha s) = |\alpha|^{-1}\varphi(\xi, s)$ for every $\alpha \neq 0$; 2.) $\varphi(\xi,s)$ is infinitely often differentiable with respect to $\xi_1,\ldots,\xi_n$ and s for $(\xi_1,\ldots,\xi_n) \neq 0$; 3.) for every derivative $D\varphi$ of φ with respect to ξ, s and every $m > 0$ for $|s| \to \infty$ it holds uniformly in ξ:

$$D\varphi(\xi;s) = o(|s|^{-m})$$

(here ξ varies in a compact domain of the space with the point $\xi = 0$ slackened; 4.) the integral

$$\int_{-\infty}^{\infty} \varphi(\xi;s)\, s^k ds$$

is a homogeneous polynomial in ξ of the degree $k\ (k = 0,1\ldots)$.

Theorem 2 contains the analogous statement for the complex case.

The Radon transformation of a generalized function in the complex space is defined so that the usual definition is obtained for the fundamental functions. The formula

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$$(5) \quad \int F(z)f(z)dzd\bar{z} = \frac{(-1)^{n-1}}{(2\pi)^{2n-2}} \int \check{F}(\xi;s)\, \check{f}_s^{(n-1,n-1)}(\xi;s)\, ds\, d\bar{s}$$

is the starting point. (5) is briefly written as $(F,f) = (\check{F}, \check{f}_s^{(n-1, n-1)})$. As Radon transform of a generalized function F the authors denote the functional $\check{F}$ which is defined by the equation $(\check{F}, \check{f}_s^{(n-1, n-1)}) = (F, f)$ on the set of the functions $\check{f}_s^{(n-1, n-1)}$, where $\check{f}$ runs through the Radon transforms of the fundamental functions. Thereby $\check{F}$ is chiefly defined in the subspace of the fundamental functions which satisfy certain additional relations. $\check{F}$ can be continued to the whole space of the fundamental functions in different ways. The authors give 10 examples of Radon transformations.

There are 5 references: 3 Soviet and 2 German.

SUBMITTED: September 26, 1960

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B111/B112

AUTHORS: Gel'fand, I. M., Grayev, M. I., Zuyeva, N. M., Morozov, A. I, and Solov'yev, L. S.

TITLE: Magnetic surfaces of a triply twisted helical magnetic field perturbed by a corrugated field

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 10, 1961, 1164 - 1169

TEXT: The authors investigated a magnetic field described in cylindrical coordinates by the scalar potential $\psi = H_0 z + \frac{h_3}{\alpha} I_3(3\alpha r) \sin 3(\varphi - \alpha z)$ (1), where H_0 is a "longitudinal" homogeneous field; h_3 is the amplitude of a helical magnetic field; I_3 is a modified third-order Bessel function; $\alpha = (2\pi)/L$; L is the pitch of the helix. This type of field is of great interest for thermonuclear systems. The magnetic equipotential surfaces may be of two types: telescopic tubes or surfaces which do not enclose the axis of the system and are far away from it. The aim of this article was to give a general description of the effect of a corrugated field,

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Magnetic surfaces of a triply twisted ...

i.e., a perturbation of the form $\psi_{corr} = \frac{h_o}{\alpha} I_o (k\alpha r) \sin k\alpha z$ (.. on magnetic surfaces at different h_o and k. Since the total field (1) - (4) is not symmetric, magnetic surfaces can only be calculated numerically. The dependence of the angle of climb of the lines of force on a certain characteristic radius must usually be investigated separately. Calculations are made for $\psi = z + h_3 I_3 (3r) \sin 3 (\varphi - z) + h_o I_o (kr) \sin kz$ k = 1 and k = 3, $h_3 = 3$ at different h_o. The interval in which one line of force was considered, was taken as $0 \leq z \leq N\pi$ (N = 25 and 50, ...). Integration was performed by the Runge-Kutta method with the steps $\frac{2\pi}{40}$, $\frac{2\pi}{80}$, and $\frac{2\pi}{160}$. In particular, the following cases were discussed: 1) k = 1, h_o = 0.3 and 0.6. The magnetic surfaces approach one another with increasing h_o, and tubes not enclosing the z-axis are formed at h_o = 0.6. 2) k = 3, h_o = 0.05, h_o = 0.1, and h_o = 0.125. A periodicity in z with the period $2\pi/3$ was found in these cases. For k = 3, h_o = 0.. the magnetic surfaces coincide with those obtained at k = 1, h_o = 0.6.

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Inside the fully developed surfaces there occurs a new surface with a three-leafed cross section. This configuration does not rotate but merely vibrates. The magnetic surfaces disappear under the action of strong perturbations, and the points lie on curves with helical cross sections (Fig. 9). The figures indicate the succession of the curve points. There are 10 figures and 5 Soviet references.

SUBMITTED: November 17, 1960

Card 3/4

GEL'FAND, I.M.; GRAYEV, M.I.

Integral transformations connected with straight-line complexes in a complex affine space. Dokl.AN SSSR 138 no.6:1266-1269 Je '61. (MIRA 14:6)

1. Chlen-korrespondent AN SSSR (for Gel'fand).
(Numbers, Complex) (Spaces, Generalized)

GEL'FAND, I.M.; GRAYEV, M.I.

Applying the orispheric method to the spectral analysis of functions in real and imaginary Lobachevskii spaces.
Trudy Mosk. mat. ob-va 11:243-308 '62. (MIRA 15:10)
(Spaces, Generalized) (Functions)

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B104/B108

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AUTHORS: Gel'fand, I. M., Corresponding Member AS USSR, Grayev, M. I., Zuyeva, N. M., Mikhaylova, M. S., and Morozov, A. I.

TITLE: Example of a toroidal magnetic field having no magnetic surfaces

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 1, 1962, 81-83

TEXT: The existence of magnetic surfaces can be proved and their exact equations derived only if the relevant magnetic field has some symmetry. In unsymmetric magnetic fields, the equations of these surfaces can only be approximated. An unsymmetric magnetic field with the scalar potential

$$\psi = z + h_3 I_3(3r)\sin 3(\varphi - z) + h_0 I_0(3r)\sin 3z.$$

has been calculated numerically in a previous study (ZhTF, 31, no. 10 (1961)). The magnetic surfaces of such a field were shown to decompose at $h_3 = 3$, $h_0 = 0.125$. In the present study, this phenomenon is investigated in detail. The course of the lines of force is calculated

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B104/B108

Example of a toroidal magnetic ...

and it is shown that the lines of force which should form the magnetic surfaces do not lie on a closed curve. Accordingly, no magnetic surface exists in this case. There are 3 figures and 3 references: 2 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: M. Spitser, Proc. of the II. Geneva Conference on the Peaceful Uses of Atomic Energy, 1958.

SUBMITTED: December 11, 1961

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GEL'FAND, I.M.; GRAYEV, M.I.

Categories of group representations and the problem of the classification of irreducible representations. Dokl. AN SSSR 146 no.4:757-760 O '62. (MIRA 15:11)

1. Chlen-korrespondent AN SSSR (for Gel'fand).
(Groups, Theory of)

GEL'FAND, I.M.; GRAYEV, M.I.

Construction of irreducible representations of simple algebraic groups over a finite field. Dokl. AN SSSR 147 no.3:529-532 N '62.
(MIRA 15:12)

1. Chlen-korrespondent AN SSSR (for Gel'fand).
(Lie algebras)

S/020/63/148/006/009/023
B112/B186

AUTHORS: Gel'fand, I. M., Corresponding Member AS USSR, Grayev, M. I., Zuyeva, N. M., Mikhaylova, M. S., Morozov, A. I.

TITLE: The structure of a magnetic toroidal field having no magnetic surfaces

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 148, no. 6, 1963, 1286-1289

TEXT: A large number of force lines of the field

$$\psi_3 + \psi_0 = H_0 z + h_3 I_3(3r)\sin 3(\varphi - z) + h_0 I_0(3r)\sin 3z$$

have been calculated numerically for $H_0 = 1$, $h_3 = 3$, $h_0 = 0.120$, 0.125, 0.130. From their plots a series of qualitative and quantitative properties of fields with collapsing magnetic surfaces are derived. There are 3 figures.

SUBMITTED: October 30, 1962

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S/020/63/149/003/001/028
B112/B180

AUTHORS: Gel'fand, I. M., Corresponding Member AS USSR, Grayev, M. I.

TITLE: Irreducible unitary representations of the group of unimodular second-order matrices with elements from a locally compact field

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 149, no. 3, 1963, 499 - 501

TEXT: The group G = SL(2,K) of unimodular second-order matrices is considered, with elements from a locally compact non-discrete field K. The representations $T_\pi(g)f(x) = f\left(\frac{\beta + \delta x}{\alpha + \gamma x}\right)\pi(\alpha + \gamma x) \, |\alpha + \gamma x|^{-1}$ which correspond to matrices $g = \begin{pmatrix}\alpha\beta\\ \gamma\delta\end{pmatrix}$. The function $\pi(x)$ is the group character. K is replaced by a quadratic extension $K(\sqrt{\tau})$ and the corresponding representations are obtained by analytic continuation. It is shown that $\mathrm{Tr}\, T_\pi(g) = \frac{\pi(\lambda) + \pi(\lambda^{-1})}{|\lambda - \lambda^{-1}|}$ if the eigenvalues λ, λ^{-1} of g are from K.

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Irreducible unitary representations ... S/020/63/149/003/001/028
B112/B180

Otherwise the relation Tr $T_{\pi}(g) = 0$ is valid.

SUBMITTED: December 12, 1962

Card 2/2

GEL'FAND, I.M.; GRAYEV, M.I.

Plancherel's formula for a group of second-order unimodular matrices with elements from a locally compact field. Dokl. AN SSSR 151 no.2:262-264 Jl '63. (MIRA 16:7)

1. Chlen-korrespondent AN SSSR (for Gel'fand).
(Matrices)

GEL'FAND, I.M.; GRAYEV, M.I.

Structure of a ring of finite functions on a group of second-order unimodular matrices with elements from a disconnected locally compact field. Dokl. AN SSSR 153 no.3:512-515 N '63. (MIRA 17:1)

1. Chlen-korrespondent AN SSSR (for Gel'fand).

GEL'FAND, I. M.; GRAYEV, M. I.; PYATETSKIY-SHAPIRO, I.I.

Representations of adele groups. Dokl. AN SSSR 156 no. 3:487-490 '64. (MIRA 17:5)

1. Chlen-korrespondent AN SSSR (for Gel'fand).

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AUTHOR: Grayev, M. I.; Mikhaylova, M. S.; Morozov, A. I.

TITLE: On the structure of unsymmetric toroidal magnetic fields 21

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 7, 1965, 1189-1192

TOPIC TAGS: magnetic field, toroidal field, helical magnetic field, perturbation

ABSTRACT: In a series of earlier papers (ZhTF, 31, No. 10, 1961; DAN SSSR, 143, No. 1, 1962; Ibid., 148, No. 6, 1963; Ibid., 153, No. 4, 1963) the authors and collaborators have discussed the structure of a three-turn helical magnetic field perturbed by a corrugated field. Further results of these calculations are reported in the present paper, but the calculations themselves are not presented and only one of them is described, and that only very briefly. The fields discussed are those derived from the scalar potential $V = z + 3I_3(3r)\sin 3(\varphi - z) + h_0 I_0(3r)\sin 3z$, where r, φ, z are cylindrical coordinates and h_0 is a parameter. The fields were treated as toroidal by identifying the points r, φ, z and $r, \varphi, z + 2\pi/3$. The behavior of the magnetic lines of force was characterized by their successive intersection points with the plane $z = 0$. The separatrix of this field is very involved, and the authors speak of an S-region rather than of the separatrix itself.

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There are two S-regions, of which the inner one has the form of three petals or loops. The results reported in the present paper pertain to the region between the inner and outer S-regions outside the loops. The image points of points on the negative x-axis ($\varphi = \pi$) were determined and the displacement function $\delta(x)$ and the function $\varphi_N(x)$ were calculated. These functions are defined in the references cited above but not in the present paper. The function $\delta(x)$ is presented graphically. The following conclusions are adduced: 1) The amplitude of $\delta(x)$ is not monotonic but has a minimum at $x = -0.022$. 2) There are regions on the negative x-axis at which $\delta(x)$ behaves as though it were tending to infinity. 3) The rational points (i.e., those at which $\delta(x)$ vanishes) correspond to periodic solutions with the period $2\pi N/3$. 4) For $h_o = 0.125$ all the rational points outside the petals are hyperbolic; for $h_o = 0.120$ there were found two elliptic points on the negative x-axis. The authors have devised a method for calculating the separatrix which is simpler than that of V.K.Mel'nikov (DAN SSSR, 148, No.6, 1963); they describe this method very briefly and present graphically a portion of the separatrix for $h_o = 0.125$ which they have calculated by means of it. "The authors are grateful to V.I.Arnol'd and V.K.Mel'nikov for discussing matters touched upon in this paper." Orig. art. has: 3 formulas and 3 figures.

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