Alkaloids of Piptanthus Nanus. The Separation of Isopiptantine 79-11-52/56

no secondary nitrogen atom. It has no methylimide-group and is not identical with the product of the methylation of isopiptantine with methyl iodide. It seems that the condensation of isopiptantine with formaldehyde is accompanied by the closure of a new cycle and a formation of a sparteine-skeleton. For this reason it must be assumed that isopiptantine is a stereisomer of the two earlier separated alkaloids of Piptanthus nanus.
There are 3 references, all of which are Slavic.

ASSOCIATION: All-Union Chemical-Pharmaceutical Scientific Research Institute imeni S. Ordzhonikidze (Vsesoyuznyy nauchno-issledovatel'skiy khimiko - farmatsevticheskiy institut imeni S. Ordzhonikidze).

SUBMITTED: November 26, 1956

AVAILABLE: Library of Congress

1. Piptanthus Nanus-Isopiptantine separation 2. Isopiptantine-Condensation reactions 3. Formaldehyde-Condensation reactions 4. Isopiptantine-Sources 5. Alkaloids-Synthesis

Card 2/2

79-12-38/43

AUTHOR: Proskurnina, N. F.

TITLE: Alkaloids From Leucojum Aestivum (Alkaloidy Leucojum aestivum).
Separation of Isotazettine (Vydeleniye izotatsettina).

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, Nr 12, pp. 3365-3367 (USSR)

ABSTRACT: The present paper furnishes the results from the investigation of a series of samples of the bulbs and the leaves of the plant "leucojum aestivum", which were gathered during different vegetation periods from March 15th to April 13th 1956 under the superversion of Molodozhnikow M. M. From all these samples the likorine (from o'o5 - 1,13 %) and the galamantine (from o'o5 - o'22 %) was separated. In this instance, the content of "likorine" in the bulbs (o,o5 - o,o6%) remains constant as well as in the leaves (o,13 - o,11 %), independently of the time of gathering, whereas the amount of galamantine decreases according to the growth of the plant. Apart from likorine and galamantine, a third amorphous base ($C_{18}H_{21}O_5N$) was isolated, which could be purified by means of its chlorine- and bromide hydrate salts, which are

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difficult to dissolve. The new product was given the name of isotazettine, because it possesses the same empiric formula as tazettine. The results of this investigation are compiled in table 1. In spite of a careful purification tazettine remains amorphous. After it is dissolved in water, it is slowly transformed into a crystalline radical of the same composition ($C_{18}H_{21}O_5N$), which, however, differs with respect to its properties from the amorphous one. Within 10 to 12 days the amorphous isotazettine changes almost entirely into the crystalline radical. The salts of each radical differ essentially with respect to their solubility, their melting points and their rotatability (vrashcheniye). A comparison of the properties of the crystalline radical, which was obtained from isotazettine with the help of water, with those of tazettine (table 2) point to the identity of these two products. Therefore, the isotazettine appears to be only an epimeric form of tazettine.
There are 2 tables, and 4 references, 1 of which is Slavic.

Alkaloide From "Leucojum Aestivum". Separation of Isotazettine 79-12-38/43

ASSOCIATION: All-Union Scientific Research Institute for Chemistry and Pharmacy (Vsesoyuznyy nauchno-issledovatel'skiy khimiko - farmatsevticheskiy institut).

SUBMITTED: November 26, 1956

AVAILABLE: Library of Congress

1. Alkaloids - Sources

Card 3/3

PROSKURNINA, N. F.

79-1-55/63

AUTHOR: Proskurnina, N. F.

TITLE: On the Alkaloids Salsola Richteri (Ob alkaloidakh Salsola Richteri) VI. Structure of Salsamin (VI. Stroyeniye sal'samina)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol.28, Nr 1, pp.256-258(USSR)

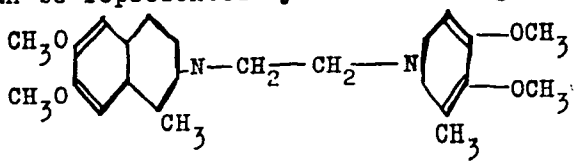
ABSTRACT: The author earlier described the isolation of the alkaloid salsamin from the parts above the earth of the Central Asiatic plant Salsola Richteri. The data of analysis varied between the formulae $C_{12}H_{17}O_2N$ and $C_{13}H_{19}O_2N$. The present paper gives more accurate results of the investigation of salsamin. It was found that this base after careful purification is optically inactive and melts at 165 - 167°C. After the determination of its molecular weight (428) and on the basis of the analysis it must be ascribed the formula $C_{26}H_{36}O_4N_2$. All four oxygen atoms are components of the methoxyl groups. Beside salsamin an isomeric, optically active base was liberated from the mother liquors. By oxidation of salsamin and its isomer with permanganate one and the same

Card 1/3

79-1-55/63

On the Alkaloids Salsola Richteri. VI. Structure of Salsamin

optically inactive product of a neutral nature, $C_{24}H_{28}O_6N_2$, was obtained. The composition and properties of this compound show that the oxidation of salsamin takes place under the splitting off of two carbon atoms and under formation of lactam groups, just as it is the case in the oxidation of salsolidine under equal conditions. Thus it was assumed that salsamin and its isomer represent corresponding condensation products of dl-salsolidine and l-salsolidine with dichloroethane, which was also confirmed by way of experiment: On condensation of dl-salsolidine with dichloroethane a base was obtained which is identical with salsamin, where at the same time a dextrorotatory base isomeric to salsamin was produced from l-salsolidine with dichloroethane. Both bases can be represented by the following formulae:



Card 2/3 In that manner apparently neither salsamin nor its optically

On the Alkaloids Salsola Richteri. VI. Structure of Salsamin 79-1-55/63

active isomer are found ready in the plant, but develop during the liberation process with dichloroethane. There are 2 references, all of which are Slavic.

ASSOCIATION: All-Union Scientific Chemical-Pharmaceutical Institute imeni S. Ordzhonikidze (Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut imeni S. Ordzhonikidze)

SUBMITTED: January 7, 1957

AVAILABLE: Library of Congress

Card 3/3 1. Chemistry 2. Methoxyl 3. Flora-Chemical analysis

SOV/79-29-3-61/61

5 (3)

AUTHORS: Yakovleva, A. P., Proskurnina, N. F., Utkin, L. M.

TITLE: On the Alkaloids of Ammothamnus Songoricus (Ob alkaloidakh Ammothamnus songoricus)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 3, pp 1042-1044 (USSR)

ABSTRACT: The plant Ammothamnus songoricus which grows in Central Asia was discovered by Massagetov as an alkaloid carrier. The whole part of the plant growing above the ground was subjected to the extraction. All alkaloids in it (1%) were extracted with ether and chloroform. The ether fraction consisted almost completely of Sofokarpin. An alkaloid of the melting point 198-200° which crystallizes with one molecule water was precipitated from the chloroform fraction. The ultimate analysis corresponds to the empirical formula $C_{15}H_{24}O_2N_2 \cdot H_2O$. One methylimide group does not contain the alkaloid. Only the perchlorate of the melting point 219-220°, and the picrate of the melting point 215° (under decomposition) as well as the iodine methylate could be obtained in crystalline state of the salts. The authors' assumption that the separated alkaloid represents an

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On the Alkaloids of Ammothamnus Songoricus

N-oxide of matrine was confirmed by the reduction of the base to matrine, by zinc dust in an acid medium. This oxide exists according to H. Kondo (Ref 1) and E. Ochiai (Ref 2) in two hydrate forms. On subjecting the chloroform fraction to chromatography over Al_2O_3 several fractions with different melting points, 153-207°, were separated. The base of the melting point 207° corresponds according to its properties to the N-oxide of the matrine described by Ochiai (Ref 2). After storage its melting point is reduced to 198-200°. The other fractions, with lower melting points, have all the same specific rotary power, contain a crystallization water and are transformed into matrine with a good yield during the reduction by zinc dust in an acid medium. The matrine was oxidized by the authors with hydrogen peroxide in order to compare the alkaloid obtained by them immediately with the N-oxide of matrine. The produced N-oxide of matrine was like the base separated from the plant obtained in various forms with melting points from 153 to 188°. The results obtained by the authors confirm thus the identity of the alkaloid separated by them with the N-oxide of matrine. There are 1 table and 3 references, 1 of which is

SOV/79-29-3-61/61

On the Alkaloids of Ammothamnus Songoricus

Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevtiches-kiy institut imeni S. Ordzhonikidze (All-Union Scientific Chemicopharmaceutical Research Institute imeni S. Ordzhonikidze)

SUBMITTED: February 6, 1958

USCOMM-DC-60,887

Card 3/3

PROSKURNINA, N.F.; UTKIN, L.M.

dl-stachydrine in Lagochilus. Med. prom. 14 no.9:30-31 S '60. (MIRA 13:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut im. S. Ordzhonikidze.
(STACHYDRINE) (LAGOCHILUS)

5.3610,5.3900

77917
SOV/79-30-2-68/78

AUTHORS: Arendaruk, A. P., Proskurnina, N. F., Konovalova, R. A.

TITLE: Investigation of Alkaloids of Thesium Minkwitzianum Plants

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp 670-676 (USSR)

ABSTRACT: The overground part of Thesium Minkwitzianum, an herbaceous plant collected in 1939 in the Turkomen SSR by P. S. Massagetov, was extracted with dichloroethane. They yielded 0.7% alkaloids (based on the dry weight of the plant), consisting of 0.5% of a saturated phenolic base, $C_{34}H_{42}O_6N_2$, mp 254-256° C, which the authors named "thesin" (tezin). The remaining 0.2% alkaloids (after separation of thesin) gave a phenolic fraction, from which a second new alkaloid was isolated. Its empirical formula corresponded best to $C_{17}H_{21}O_3N$, mp 38-40° C; the authors named it "thesinin" (tezinin). Finally, the non-phenolic fraction yielded an alkaloid with an empirical formula $C_{10}H_{11}O_2N$,

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Investigation of Alkaloids of Thesium Minkwitzianum Plants

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SOV/79-30-2-68/78

mp 124-125° C, which the authors named "thesinicin" (tezinitsin). The aqueous extract of the plant roots yielded a crystallic base $C_8H_{15}ON$, mp 39-40° C (identified as d-isoretronecanol), d-mannitol, succinic acid, and acid $C_4H_8O_4$. It was established that thesin is an ester of the dibasic acid $C_{18}H_{16}O_6$ (named by the authors "thesinic acid") and d-isoretronecanol and that thesinin is an ester of p-hydroxycinnamic acid and d-isoretronecanol. There are 1 table; and 4 references, 1 U.S., 1 German, 2 Soviet. The U.S. reference is: R. Adams, K. Hamlin, J. Am. Chem. Soc., 64, 2597 (1942).

ASSOCIATION: Institute of Pharmacology and Chemotherapy, Academy of Medical Sciences USSR (Institut farmakologii i khimioterapii Akademii meditsinskikh nauk SSSR)

SUBMITTED: February 4, 1959

Card 2/2

RULKO, F.; PROSKURNINA, N.F.

Establishment of the structure of sophoridine and leontine. Zhur. ob. khim. 31 no.1:308-313 Ja '61. (MIRA 14:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut imeni S. Ordzhonikidze.
(Leontine) (Sophoridine)

PRYAKHINA, Z.A.

79-1-53/63

AUTHORS: Maksimov, V. I., Pryakhina, Z. A.

TITLE: Investigations in the Field of the Analogues of Steroid Hormones (Issledovaniya v oblasti analogov steroidnykh gormonov) I. Synthesis of 3-(4'-Ketocyclohexyl)-2-Methylcyclopentanol-1 (I. Polucheniye 3-(4'-ketotsiklogeksil)- 2-metiltsiklopentanola--1)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol.28, Nr 1, pp.246-253(USSR)

ABSTRACT: The present paper describes the synthesis of 3-(4'-ketocyclohexyl)-2-methylcyclopentanol-1 (formula (I)) which is necessary for the synthesis of the analogous steroid hormones which have no C-ring. The authors started from p-methoxy-ω-bromoacetophenone (II) and propionylacetate (III) which were converted to Δ^3-3-(p-methoxyphenyl)-2-methylcyclopentenone (V) by reactions based on the synthesis of the phenylcyclopentane structure (references, 1, 2, 3). According to the given scheme 1 the synthesis of the desired compound (I) takes place in the following manner. The conversion of the sodium derivative

Card 1/3

Investigations in the Field of the Analogues of Steroid Hormones . I. Synthesis of 3-(4'-Ketocyclohexyl)-2-Methylcyclopentanol-1

(III) with (II) takes place admidst ether. The obtained impure p-methoxyphenacylpropionyl ester of acetic acid (IV) was subjected to saponification and ketone-splitting by a 2 % warm caustic soda solution. The resulting p-methoxyphenylhexadione-1,4 is under the influence of the alkaline medium at once converted to Δ^3-3-(p-methoxyphenyl-2-methylcyclopentenone (V) with a yield of 45,6 % (relative to III). The catalytic hydrogenation of the dual tertiary double bond in compound (V) took place over a palladium catalyst in an acid as well as in an alkaline medium. The alkaline reaction is to be preferred. On hydrogenation of (V) in the presence of 2 % caustic potash the addition of hydrogen took place slowly and completely ceased after the incorporation of one molecule. The configuration of 3-(p-methoxyphenyl)-2-methylpentanone (VI) obtained with a 95,5 % yield was not accurately determined, but according to Meyer-Dolius (reference 4) the methyl group and the hydrogen at C_2 should be in a cis-position. The conversion of compound (VI) to (I) was realized by several consecutive reactions. There are 2 Slavic references (see scheme 8).

79-1-53/63

Investigations in the Field of the Analogues of Steroid Hormones. I. Synthesis of 3-(4'-Ketocyclohexyl)-2-Methylcyclopentanol-1

ASSOCIATION: All-Union Scientific Chemical-Pharmaceutical Institute imeni S. Ordzhonikidze
(Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut imeni S. Ordzhonikidze)

SUBMITTED: November 1, 1956

AVAILABLE: Library of Congress

Card 3/3 1. Chemistry 2. Hormones 3. Cyclic compounds-Synthesis

PRYAKHINA, Z. A.

79-1-54/63

AUTHORS: Maksimov, V. I., Pryakhina, Z. A.

TITLE: Investigations in the Field of the Analogues of Steroid Hormones (Issledovaniya v oblasti analogov steroidnykh gormonov) II. Synthesis of 6-(2'-Methylcyclopentanol-3')-$\Delta^{1(9)}$-Octalone-2 (II. Sintez 6-(2'-metiltsiklopentanol-3')-$\Delta^{1(9)}$oktalona-2)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol.28, Nr 1, pp.253-256(USSR)

ABSTRACT: For further systematic investigations of the analogues of the steroid hormones supplementary data on the dependence of the physiological properties on the structure are necessary, and it is also important to know how far modifications of the skeleton of the steroid hormones can be allowable. For this reason the authors synthesized 6-(2'-methylcyclopentanol-3')-$\Delta^{1(9)}$-octalone-2 (formula I). This compound is a hormone analogue which does not contain any C ring and any angular methyl group at C_{10} and was produced from the earlier synthesized benzoate of 3-(cyclohexanone-4')-2-methylpentanol (II). In order to convert compound (II) to the derivative of octalone, the authors employed the method by Robinson R (reference 8). This

Card 1/3

Investigations in the Field of the Analogues of Steroid Hormones. II. Synthesis of 6-(2'-Methylcyclopentanol-3')- $\Delta^{1(9)}$-Octalone-2

method consists in the condensation of the initial ketone with methylvinyl ketone in an alkaline medium and subsequent cyclization of the resulting diketone, as it is the case in the croton condensation. As it is known that the introduction of the formyl residue into the α-position to the ketone group facilitates the binding of the methylornyl ketone, (II) was first converted to its formyl derivative (III) which was then condensed to (IV). Reaction (II) took place with the ethyl ester of formic acid in benzene in the presence of sodium methylate. The formation of (III) was accompanied by a side reaction, because ethyl benzoate was liberated from the reaction mixture. The obtained 3-(3'-oxymethylene-cyclohexanone-4')-2-methylcyclopentanol-1 (III) gave an intensive violet color with iron chloride. In the conversion of (III) with (IV) in the presence of sodium methylate, 3-(3'-γ-ketobutyl-cyclohexanone-4')-2-methylcyclopentanol (V) was obtained which then with caustic potash in a methanol solution yielded a reaction mixture from which an oily product was liberated. This was purified on a chromatographic way over aluminum oxide and recrystallized from ether. The desired hormone (formula I) melts at 107,3 - 109,5°C. There are 9 references, 1 of which

79-1-54/63

Investigations in the Field of the Analogues of Steroid Hormones. II. Synthesis of 6-(2'-Methylcyclopentanol-3')- $\Delta^{1(9)}$-Octalone-2

is Slavic.

ASSOCIATION: All-Union Scientific Chemical-Pharmaceutical Institute imeni S. Ordzhonikidze
(Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut imeni S. Ordzhonikidze)

SUBMITTED: November 1, 1956

AVAILABLE: Library of Congress

Card 3/3

1. Chemistry 2. Hormones 3. Cyclic compounds-Synthesis

RULKO, F.; PROSKURNINA, N.F.

Structure of sophoridine and "leontine" alkaloids. Part 2: Space configuration of sophoridine. Zhur.ob.khim. 32 no.5:1690-1695 My '62. (MIRA 15:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy institut imeni S.Ordzhonikidze.
(Alkaloids)

PROSKURIN, V.F.; BATRAKOV, Yu.V.

Perturbations in the motion of artificial satellites caused by the earth's oblateness. Biul.Inst.teor.astron. 7 no.7: 537-548 '60. (MIRA 13:5)
(Artificial satellites)

PROSKOURNINA, N. P.

"Sur les alcaloides Salsola Richteri. Memoire IV". Proskournina, N. P., Orechov, A. P. (p. 145)

SO: Journal of General Chemistry
(Zhurnal Obshchei Khimii) 1939, Volume 9, #5

PROSKURNINA, N. R.

Proskurnina, N. R., and Areshkina, L. J.- "On the Alkaloids Galanthus Woronovi". (p. 1219)

SO: Journal of General Chemistry, (Zhurnal Obshchei Khimii), 1947, Vol. 17, No. 6

IVYANSKIY, G.B., kand. tekhn. nauk; POLYAKOV, V.I., kand. tekhn.nauk; RAYPENBERG, S.M., inzh.; CHEREPAKHIN, N.V., inzh.; PROSKURNINA, V.P., red.; TRUBIN, V.A., glav. red.; SOSKIN, A.V., zam. glav. red.; GRINEVICH, G.P., red.; YEPIFANOV, S.P., red.; ONUFRIYEV, I.A., red.; KHOKHLOV, B.A., red.; ZIMIN, P.A., red.; PEREVALYUK, M.V., red. izd-va; NAUMOVA, G.D., tekhn. red.

[Erection of completely precast apartment houses]Montazh polnosbornykh zhilykh zdanii; spravochnoe posobie. Pod red. V.P. Proskurnina. Moskva, Gosstroiizdat, 1962. 94 p. (MIRA 15:11)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu. (Apartment houses) (Precast concrete construction)

PROSKURNINA, V. S. Cand Med Sci -- (diss) "Data ~~Concerning~~ the Penicillin and Para-Penicillin Therapy of Patients With Progressive Skin Atrophy and Scleroderma." Khar'kov, 1957. 12 pp 20 cm. (Khar'kov Medical Inst), 200 copies (KL, 25-57, 119)

PROSKURNYA, F.A., kand.tekhn.nauk; KAZAKOV, V.A.

Drawbar family of motortruck trains. Avt. prom. no.5:22-23 My '60. (MIRA 14:3)

(Automobile trains)

STAROV, I.M.; PROSKURNYA, G.F.

Automatic control of fabric tension during its impregnation and coating with rubber mixtures. Trudy MIKHM 27:178-189 '64. (MIRA 18:8)

PROSKUROV, Kazimir Vasil'yevich; BELOSENOV, Viktor Alekseyevich; PANASENKO, Ivan Andreyevich; DISSKIY, B.S., spets. red.; BURLYGA, F.I., red.

[Operation and maintenance of television receivers] Ekspluatatsiia i remont televizorov. Izd.2., ispr. i dop. Donets, Donbass, 1964. 255 p. (MIRA 18:3)

SHEVCHENKO, A. (UB5CLX) (Chernovtsy); BASOV, V. (Moskva); PRILUTSKIY, G. (Pyatigorsk); ARKHIPOV, Ye. (Bugul'ma); VYSOCHIN, V. (Moskovskaya obl.); PRIKHUNOV, I. (Moskovskaya obl.); OBLASOV, G. (Kiyev); SMIRNOV, Yu. (UA4YB) (Kanash); KHOKHLOV, B. (Moskva); KHALDEYEV, A. (Przheval'sk); SKOBELEV, I. (Primorskiy kray); PROSKUROV, V. (Irkutsk); DOBRYNIN, Yu. (g.Ivanovo /obl./)

Exchange of experience. Radio no.10:22,26,29,32,37,40,44,46,58 O '64. (MIRA 18:2)

ACC NR: AR7002223 SOURCE CODE: UR/0275/66/000/010/V002/V002

AUTHOR: Noskov, D. A.; Proskurovskiy, D. I.

TITLE: Using alternating voltage to feed an electron welding gun

SOURCE: Ref. zh. Elektronika i yeye primeneniye, Abs. 10V10

REF SOURCE: Tr. Tomskogo in-ta radioelektron. i elektron. tekhn. no. 4, 1965, 102-103

TOPIC TAGS: welding equipment, electron gun, welding electrode, ~~welding gun~~ electron beam welding, alternating voltage

ABSTRACT: Experimental electron-beam welding equipment is described in which the electron gun is fed with alternating voltage. The unit uses the rectifier properties of the electron gun, which functions as a rectifier with high internal resistance. The parts intended for welding are heated only during the negative half-cycles. The anode of the electron gun is grounded, while the cathode is fed alternating voltage by a step-up transformer winding. In this connection, the use of a magnetic focusing beam is impaired and electrostatic focusing may be used. However, it requires a proportional change of voltage in all the electrodes. The cathode and cathodic electrode are under the same potential with respect to the anode, simplifying the

Card 1/2 UDC: 621.38:62

ACC NR: AR7002223

design and the circuit controlling the beam current. With this design, the electron gun will produce a conic converging beam with a high current density. The results of experiments and welding conditions are presented. Orig. art. has: 1 figure and a bibliography of 2 titles. [Translation of abstract] [NT]

SUB CODE: 13, 09/

Card 2/2

ACC NR: AR7002221 (AN) SOURCE CODE: UR/0275/66/000/010/A011/A011

AUTHOR: Kaz'min, G. S.; Noskov, D. A.; Pankovets, N. G.; Sudakov, V. I.; Proskurovskiy, D. I.

TITLE: Electron-beam welding of leads in electrovacuum devices

SOURCE: Ref. zh. Elektronika i yeye primeneniye, Abs. 10A74

REF SOURCE: Tr. Tomskogo in-ta radioelektron. i elektron. tekhn., no. 4, 1965, 112-114

TOPIC TAGS: electron beam welding, tungsten ~~welding~~, nickel ~~welding~~, flux, ~~electronbeam~~, ~~tungsten-nickel wire~~ electrovacuum, electrovacuum equipment, weld evaluation

ABSTRACT: An experimental investigation was made of electron-beam welding of leads in electrovacuum equipment, which were made of tungsten and nickel components. Acted upon by the accelerated and focused electron beam in vacuum, the tungsten component generates the heat which fuses the ends of the two wires. The leads are welded on an electron beam device. The components to be welded are fastened to a mandrel, placed in the operating chamber. During welding, the com-

Card 1/2 UDC: 621.3.032

ACC NR: AR7002221

ponents are brought to a distance at 0.2—0.3 mm. The nickel component is fed the tungsten component by a spring mounted on the mandrel. An unetched microscopic analysis 500X showed no defects in the weld. The weld was dense, without pores, cracks, and inclusions. [Translation of abstract] [NT]

SUB CODE: 13/

Card 2/2

PROSKUROVSKIY, L. V.

137-1958-1-54

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 10 (USSR)

AUTHORS: Rozhkova, Ye. V., Proskurovskiy, L. V.

TITLE: Determining the Dielectric Permittivity of Minerals and Separating them by Dielectric Means (Opredeleniye dielektricheskoy pronitsayemosti mineralov i ikh dielektricheskaya separatsiya)

PERIODICAL: V sb.: Sovrem. metody mineralog. issledovaniya gorn. porod rud i mineralov. Moscow, Gosgeoltekhizdat, 1957, pp 115-138

ABSTRACT: The general concepts of dielectrics and dielectric permittivity (DP) are adduced and a brief survey of methods of determining DP and of employing them in the study of metals is presented. The results of measurements of the DP of minerals by various methods are offered. Having studied the methods employed by a number of investigators, the Authors attempt to determine the reasons for the different DP values obtained for identical minerals. In their opinion, the reasons for underestimation of the moisture content of the minerals, are the condition of liquid dielectrics, the employment of chemically unstable fluids, and genetic differences in the deposits. The Boltzmann-Billitzer method (a variant of the VIMS method) is described. The source

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Determining the Dielectric Permittivity of Minerals (cont.)

of electric current is the secondary of a transformer yielding 50-cycle current, with smooth variation in voltage from 0 to 1300 and with the power taken off a 120-220 v line. Potentials of 400-600 v were used in determining DP. The electrodes were fine steel needles mounted in a hard rubber cartridge. The electrode tips were 1 mm apart. Mixtures of CCl_4 and CH_3OH provide good liquid media. Dielectric separation of minerals with kerosene and nitrobenzene used as the liquid media was performed. The possibility of separating minerals of closely similar specific weights presents the greatest interest, as it is impossible to separate them in heavy liquids. Minerals whose DP's differ by 1.5 - 2 are separated with ease. The procedure for separating minerals by needle electrodes and that of separation on a dielectric separator is described. Employment of DP permits separation of mixtures difficultly separable by other methods, such as rutile and zircon, beryllium and quartz, dolomite and apatite, monazite and zircon, pitchblende and barite, etc.

A. Sh.

1. Minerals--Separation 2. Minerals--Dielectric properties --Determination

Card 2/2

PROSKURNYA, T.I.

KUL'MINSKIY, M.F.; PROSKURNYA, T.I.

Therapeutic physical exercise as an important therapeutic factor. Pediatriia no.6:71-76 N-D '53. (MLRA 7:1)
(Exercise) (Children--Diseases)

PROSKUROVSKIY, Ya.S.; KHAYKIN, A.M.

Organization of the production of high-voltage insulators. Stek.i ker. 19 no.4:37-38 Ap '62. (MIRA 15:8)
(Electric insulators and insulation)

PROSKURYAKOV, A.

High speed boring of traction engine cylinder sleeves. MTS 14 no.3: 27-28 Mr '54. (MLRA 7:4)

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(Cylinders) (Drilling and boring)

PROSKURIN, V.V.

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(Mining engineering)

PROSKURIN, V.V.

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(Mining engineering)

PANASENKO, Ivan Andreyevich; PROSKUROV, Kazimir Vasil'yevich; BELOZEROV, Viktor Alekseyevich; DISSKIY, B.S., spets. red.; BURLYGA, F.I., red.; TIMOSHEVSKAYA, A.A., tekhn. red.

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(Television--Receivers and reception)

PROSKUROV, V.A.

Ballistocardiographic and electrocardiographic investigations in infectious hepatitis. Vrach. delo no. 3:66-70 Mr '61. (MIRA 14:4)

1. Kafedra infektsionnykh bolezney (zav. - prof. L.K. Korovitskiy) Odesskogo meditsinskogo instituta.
(BALLISTOCARDIOGRAPHY) (ELECTROCARDIOGRAPHY)
(HEPATITIS, INFECTIOUS)

L 18474-66 EWT(m)/EWP(v)/T/EWP(t)/EWP(k) JD/HM

ACC NR: AR6009960 SOURCE CODE: UR/0137/65/000/012/E036/E036

AUTHOR: Kaz'min, G. S.; Noskov, D. A.; Pankovets, N. G.; Proskurovskiy, D. I.; Sudakov, V. I.; Shangin, A.S.

ORG: none

TITLE: Electron-beam welding of materials in a vacuum

SOURCE: Ref. zh. Metallurgiya, Abs. 12E283

REF SOURCE: Sb. dokl. k Novosib. nauchno-tekhn. konferentsii po mashinostr. Ch. 1. Novosibirsk, 1964, 115-122

TOPIC TAGS: electron beam welding, vacuum welding, metal cutting

TRANSLATION: The authors describe the advantages of the electron-beam method for welding metal over other methods. Units are described for welding, drilling and cutting metals with the use of an electron beam. These installations were developed in the Department of Electronic Devices at the Tomsk Institute of Radioelectronics and Electronic Technology. V. Fomenko [JPRS]

SUB CODE: 13

Card 1/1

UDC: 621.791.72

PROSKURYAKOV, A.K., kand. tekhn. nauk, otv. red.; YASNOGORODSKAYA, M.M., red.; ALEKSEYEV, A.G., tekhn. red.; FLAUM, M.Ya., tekhn. red.

[Ice on rivers; album of photographs] Led na rekakh; al'bom fotografii. Leningrad, Gidrometeoizdat, 1962. 55 p. (MIRA 16:5)

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PROSKURYAKOV, A.K.; SHAMOV, G.I., otvetstvennyy redaktor.

[V.M.Lokhtin and N.S.Leliavskii - originators of the theory of river bed formation] V.M.Lokhtin i N.S.Leliavskii - osnovateli ucheniia o formirovanii rusla. Leningrad, Gidrometeorologicheskoe izd-vo, 1951. 62 p. [Microfilm] (MLRA 7:10)
(Lokhtin, Vladimir Mikhailovich, 1849-1919) (Leliavskii, Nikolai Semenovich, 1835-1905) (Hydrography) (Rivers)

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Vodnyy balans r. Amu-Dar'i na uchastke ot g. Kerki do g. Nukusa (Water balance of the Amu Darya River in the region from Kerki to Nukus) Pod red. K. P. Klibashev Leningrad, Gidrometeoizdat, 1953.
89 p. tables, diagrs.
At head of Title: Russia. Ministerstvo Sel'skogo Khozyaystva i Zagotovok.

SO: 42N/5
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POPOV, Igor' Vladimirovich; PROSKURYAKOV, A.K., redaktor; YASNOGORODSKAYA, M.M., redaktor.

[Life of a river bed] Zhizn' rechnogo rusla. Leningrad, Gidrometeorologicheskoe izd-vo, 1953. 97 p. (MIRA 8:6)
(Rivers)

CHEBOTAREV, A.I.; PROSKURYAKOV, A.K., redaktor; YASNOGORODSKAYA, M.M., redaktor; BRATNINA, D.I., tekhnicheskiy redaktor.

[Inland waters and calculations of river runoff] Gidrologiia sushi i rashchety rechnogo stoka. 2-e izd., perer. i dop. Leningrad, Gidrometeorologicheskoe izd-vo, 1953. 563 p. [Microfilm] (MLRA 8:5)
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[redacted], A. N.

"The Magnitude of the Runoff of the River Amu-Dar'ya Near the City of Nukus (Concerning the Article of S. Yu. Geller and R. A. Sorokina)," Meteorol. i Gidrologiya, No 6, 1953, pp 61-64

The author presents his remarks on the article of S. Yu. Geller and R. A. Sorokina, entitled "Problem of the Consequences of the Future Lowering of the Aral' Sea." See RZhGeol, No. 1, 1954, abstract 1930. (The original article appeared in Izvestiya AN SSSR, Seriya Geograficheskaya, No 1, 1953, pp 3-14, and states that the incoming portion of the Aral' Sea's water balance must be considered to amount approximately to 30 km^3 per year instead of the presently assumed 57-63 km^3, the difference of 30 km^3 average mainly being nexessarily referred to an inaccurate accounting of the runoff of the Amu-Dar'ya River). (RZhGeol, No 3, 1955) SO: Sum.No. 713, 9 Nov 55

SHAMOV, Grigorii Ivanovich, doktor tekhnicheskikh nauk, professor; PROSKURYAKOV, A.K., redaktor; YASNOGORODSKAYA, M.M., redaktor; FLAUM, M.Ya., tekhnicheskiy redaktor.

[River debris; its character, calculations, and methods of measurement] Rechnye nanosy; rezhim, raschety i metody izmerenii. Leningrad, Gidrometeorologicheskoe izd-vo, 1954. 345 p. (MLRA 7:12)
(Rivers) (Silt)

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"Problems of Hydrometry," Trudy Gosudarstvennogo gidrologicheskogo instituta (Transactions of the State Hydrological Institute), No. 62, 1957, 108 pp.

ANDREYEVA, N.M.; GAVRILOV, A.M.; KOPLAN-DIKS, S.I.; PETRIKEVICH, N.P.; PROSKURYAKOV, A.K., kand.tekhn.nauk; SEMENOVA, Ye.S.; UKHANOV, V.V.; FLEROVA, K.A.; SHAMOV, G.I. [deceased]; GROSMAN, R.V., red.; SOLOVEYCHIK, A.A., tekhn.red.

[Instructions for hydrometeorological stations and posts] Nastavlenie gidrometeorologicheskim stantsiiam i postam. No.6, pt.1 [Hydrological observations and work on rivers] Gidrologicheskie nabliudeniia i raboty na rekakh. Leningrad, Gidrometeor. izd-vo. 1957. 399 p. (MIRA 12:2)

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(Hydroelectric power stations)

SELYUK, Yelena Mikhaylovna, kand. tekhn. nauk; KARAUSHEV, A.V., kand. tekhn. nauk; VEYNERT, V.A., inzh.; Prinimali uchastiye: VESPE, V.Yu., mladshiy nauchnyy sotr.; GAVRILOVA, V.P., starshiy tekhnik; PROSKURYAKOV, A.K., kand. tekhn. nauk, otv. red.; MIRONENKO, Z.I., red.; SOLOVEYCHIK, A.A., tekhn. red.

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GAVRILOV, Aleksandr Mikhaylovich, kand.geogr.nauk; KARANOVA, Kira Sergeyevna, kand.geogr.nauk; PROSKURYAKOV, Andrey Konstantinovich, kand.tekhn.nauk; IVZHENKO, A.Kh., red.; VLADIMIROV, O.G., tekhn.red.

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RYMSHA, Vladislav Aleksandrovich; PROSKURYAKOV, A.K., otv.red.; YASNOGORODSKAYA, M.M., red.; BRAYNINA, M.I., tekhn.red.

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Source: Mathematical Reviews, Vol 8 No. 6

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R. Bellman (Princeton, N. J.).

Source: Mathematical Reviews, 1948, Vol 9, No. 5

PROSKURYAKOV, A. P.

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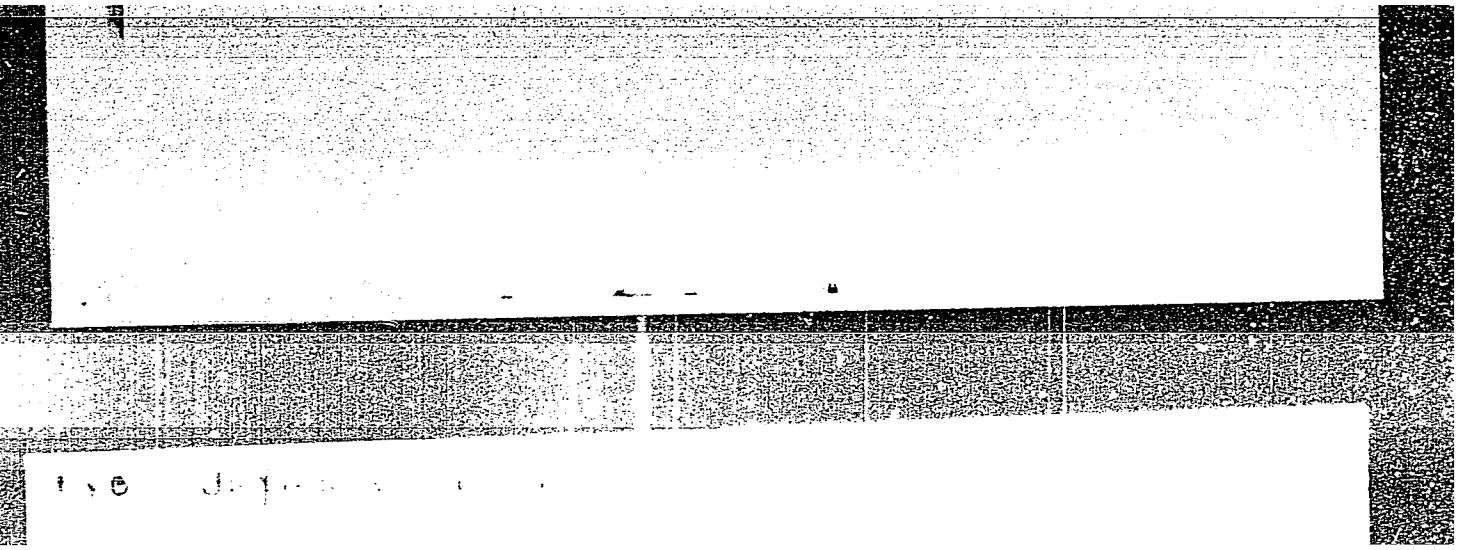

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AUTHOR: Proskuryakov, A. P. (Moscow)

TITLE: On a Property of Periodic Solutions of Quasilinear Autonomous Systems With Several Degrees of Freedom

PERIODICAL: Prikladnaya matematika i mekhanika, 1960, Vol. 24, No. 4, pp. 734-737

TEXT: The author considers the system

$$(1)\qquad \sum_{k=1}^{n} (a_{ik}\ddot{x}_k + c_{ik}x_k) = \mu F_i(x_1, \ldots, x_n, \dot{x}_1, \ldots, \dot{x}_n, \mu) \qquad (i = 1, \ldots, n),$$

where the F_i are analytic. The generating system

$$(2)\qquad \sum_{k=1}^{n} (a_{ik}\ddot{x}_k + c_{ik}x_k) = 0 \quad (i = 1, \ldots, n),$$

$$a_{ik} = a_{ki}, \quad c_{ik} = c_{ki}$$

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On a Property of Periodic Solutions of Quasilinear Autonomous Systems With Several Degrees of Freedom

is assumed to possess l different commensurable frequencies so that the general solution of (2) with the period T_o possesses the form:

$$(7)\quad x_{10}(t) = x_o^{(1)}(t) + x_o^{(2)}(t) + \cdots + x_o^{(l)}(t)$$
$$x_{ko}(t) = p_k^{(1)} x_o^{(1)}(t) + p_k^{(2)} x_o^{(2)}(t) + \cdots + p_k^{(l)} x_o^{(l)}(t),$$
$$(k = 2,3, \ldots, n).$$

The author shows that (1) then possesses a corresponding solution with the period $T = T_o + \alpha$ (α vanishes for $\mu = 0$) which for $\mu = 0$ changes over into the generating solution and which also for $\mu \neq 0$ possesses the same structure (7) as the generating solution, i. e.

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On a Property of Periodic Solutions of Quasilinear Autonomous Systems With Several Degrees of Freedom

(17) $x_1(t) = x^{(1)}(t) + x^{(2)}(t) + \ldots + x^{(l)}(t)$

$$x_k(t) = p_k^{(1)} x^{(1)}(t) + p_k^{(2)} x^{(2)}(t) + \ldots + p_k^{(l)} x^{(l)}(t),$$

$$(k = 2, 3, \ldots, n).$$

There are 3 Soviet references.

SUBMITTED: May 10, 1960

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K.2600

AUTHOR: Proskuryakov, A. P. (Moscow)

TITLE: Periodic Oscillations of Quasilinear Autonomous Systems With Two Degrees of Freedom

PERIODICAL: Prikladnaya matematika i mekhanika, 1960, Vol. 24, No. 6, pp. 1103-1109

TEXT: The author considers the system

$$(1.1)\quad a_{11}\ddot{x}_1 + a_{12}\ddot{x}_2 + c_{11}x_1 + c_{12}x_2 = \varepsilon F_1(x_1, x_2, \dot{x}_1, \dot{x}_2, \varepsilon)$$

$$a_{21}\ddot{x}_1 + a_{22}\ddot{x}_2 + c_{21}x_1 + c_{22}x_2 = \varepsilon F_2(x_1, x_2, \dot{x}_1, \dot{x}_2, \varepsilon) \quad ,$$

where F_1, F_2 are analytic; $a_{12} = a_{21}$, $c_{12} = c_{21}$ and

$$(1.2)\quad \begin{vmatrix} c_{11} - \omega^2 a_{11} & c_{12} - \omega^2 a_{12} \\ c_{21} - \omega^2 a_{21} & c_{22} - \omega^2 a_{22} \end{vmatrix} = 0$$

possesses only positive roots.

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Periodic Oscillations of Quasilinear Autonomous Systems With Two Degrees of Freedom

These roots are assumed to be different and commensurable: $m_1 \omega_1 = m_2 \omega_2$, where m_1, m_2 are integer. Then there exists a periodic solution of the generating system ($\mu = 0$) with the frequency $\omega_0 = \frac{\omega_1}{m_2} = \frac{\omega_2}{m_1}$ and the period $T_0 = \frac{2\pi}{\omega_0}$. The author assumes that the initial system (1.1) possesses a periodic solution with the period $T = T_0 + \alpha$ which passes over into the generating solution for $\mu = 0$. For constructing this periodic solution of (1.1) the author uses the results of (Ref.3), where it is stated that the general solution of (1.1) is representable in the form

$$(2.4) \quad x_1(t) = x^{(1)}(t) + x^{(2)}(t), \quad x_2(t) = p_1 x^{(1)}(t) + p_2 x^{(2)}(t),$$

where

Periodic Oscillations of Quasilinear Autonomous Systems With Two Degrees of Freedom

$$(2.2)\quad p_r = -\frac{c_{11} - \omega_r^2 a_{11}}{c_{12} - \omega_r^2 a_{12}} = -\frac{c_{21} - \omega_r^2 a_{21}}{c_{22} - \omega_r^2 a_{22}} \qquad (r = 1,2)$$

and the $x^{(1)}(t)$, $x^{(2)}t$ can be given as series in certain parameters $\beta_1, \beta_2, \beta_3$. If now the periodicity conditions are used for $x_1(t)$, $x_2(t)$, then one obtains α as an implicit function of the parameters $\mu, \beta_1, \beta_2, \beta_3$. If it is furthermore assumed that the parameters β_i can be expressed by series in μ

$$(4.1)\quad \beta_1 = \sum_{n=1}^{\infty} A_n \mu^n, \quad \beta_2 = \sum_{n=1}^{\infty} B_n \mu^n, \quad \beta_3 = \sum_{n=1}^{\infty} E_n \mu^n \qquad \text{IX}$$

then all the parameters of the sought periodic solution of (1.1) can be given as series in μ. The convergence of the series obtained is not investigated.

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Periodic Oscillations of Quasilinear Autonomous Systems With Two. Degrees of Freedom

If the frequencies ω_1 and ω_2 are different and incommensurable, then the solution of (1.1) can be written in the form

(5.3) $x_1(t) = x^{(1)}(t), \qquad x_2(t) = p_1 x^{(1)}(t)$

and the determination of the periodic solution is a special case of the above consideration. If $\omega_1 = \omega_2 = \omega$, then the initial system (1.1) takes the form

(6.1) $$\ddot{x}_1 + \omega^2 x_1 = \frac{\mu}{\Delta_0}(a_{22}F_1 - a_{12}F_2) = \mu F_1^*(x_1, x_2, \dot{x}_1, \dot{x}_2, \mu)$$

$$\ddot{x}_2 + \omega^2 x_2 = \frac{\mu}{\Delta_0}(a_{11}F_2 - a_{21}F_1) = \mu F_2^*(x_1, x_2, \dot{x}_1, \dot{x}_2, \mu)$$

to which the same method of calculation as in the first case can be applied, where F_i is to be replaced by F_i^*, and the different

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Periodic Oscillations of Quasilinear Autonomous Systems With Two Degrees of Freedom

constants attain partially special values (e.g. 0).

There are 3 Soviet references.

[Abstracter's note: (Ref. 3) is a paper of the author in Prikladnaya matematika i mekhanika, 1960, Vol. 24, No. 4].

SUBMITTED: June 29, 1960

Card 5/5

PROSKURYAKOV, A. P.

"Periodic solutions of quasi-linear autonomous single degree of freedom systems expressed by power series in integer and fractional powers of parameter."

Paper presented at the Intl. Symposium on Nonlinear Vibrations, Kiev, USSR, 9-19 Sep 61

Institute of Mechanics, Academy of Sciences of the USSR, Moscow

PROSKURYAKOV, A.P. (Moskva)

Periodic solutions of quasi-linear autonomous systems with one degree of freedom in the form of series by fractional powers of the parameter. Prikl. mat. i mekh. 25 no.5:954-960 S-O '61. (MIRA 14:10)
(Differential equations, Linear)

PROSKURYAKOV, A. P.

"Stability of vibration of self-contained systems with multiple roots of the principal amplitude equations,"

Report presented at the Conference on Applied Stability-of-Motion Theory and Analytical Mechanics, Kazan Aviation Institute, 6-8 December 1962

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AUTHOR: Proskuryakov, A.P. (Moscow)

TITLE: On the construction of periodic solutions of quasilinear autonomous systems with several degrees of freedom

PERIODICAL: Prikladnaya matematika i mekhanika, v. 26, no. 2, 1962, 358 - 364

TEXT: The periodic solution is found for a quasilinear autonomous system; the case of 2 degrees of freedom is considered in more detail. The results obtained constitute corrections to the results of 2 earlier works by the author. The quasilinear system

$$\sum_{k=1}^{n} (a_{ik}\ddot{x}_k + c_{ik}x_k) = \mu F_i(x_1, \ldots, x_n, \dot{x}_1, \ldots, \dot{x}_n, \mu) \quad (i = 1,..,n) \qquad (1.1)$$

is considered, where μ is a small parameter. The generating system is a linear conservative system with constant coefficients. After

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calculations, one obtains the following expression for the solution to system (1.1):

$$x_k(t) = \sum_{r=1}^{n} p_k^{(r)} x^{(r)}(t) \quad (k = 1, \ldots, n), \qquad (2.7)$$

where $x^{(r)}(t)$ are given by formulas involving sums of coefficients, and $p_k^{(r)}$ is the algebraic-complement ratio of the determinant of the frequency equation. The obtained result can be formulated as follows: If the generating solution of the quasilinear autonomous system (1.1) contains l distinct commensurate frequencies, determining a periodic solution with period T_0, then the corresponding periodic solution of the original quasilinear system with period $T_0 + \alpha$ (α vanishes for $\mu = 0$) has the form (2.7) for any l from 1 to n; (the corresponding solution of the original system reduces to the generating solution if $\mu = 0$). Further, the case of 2 degrees of freedom is considered; the generating system contains 2 incommensurate frequencies. The equations of the system are

$$a_{11}\ddot{x}_1 + a_{12}\ddot{x}_2 + c_{11}x_1 + c_{12}x_2 = \mu F_1(x_1, x_2, \dot{x}_1, \dot{x}_2, \mu)$$
$$a_{21}\ddot{x}_1 + a_{22}\ddot{x}_2 + c_{21}x_1 + c_{22}x_2 = \mu F_2(x_1, x_2, \dot{x}_2, \dot{x}_2, \mu). \quad (3.1)$$

The construction of the periodic solutions to system (3.1) is carried out in 2 successive steps: The construction of the function $x^{(1)}(t)$, followed by the construction of the function $x^{(2)}(t)$; both functions have the same period T_1. The first problem is entirely analogous to the construction of periodic solutions of a quasilinear system with one degree of freedom. The construction of the second function involves expansion in series and the solution of equations for the coefficients. Thereupon the solution to system (3.1) can be represented in the form

$$x_1(t) = x^{(1)}(t), \qquad x_2(t) = p_1 x^{(1)}(t) + x^{(2)}(t).$$

A change of variables is effected:

$$t = \tau(1 + h_1\mu + h_2\mu^2 + \ldots) \quad (3.20)$$

The functions $x_1(\tau)$ and $x_2(\tau)$ are expressed in the form of series:

$$x_k(\tau) = x_{ko}(\tau) + \mu x_{k1}(\tau) + \mu^2 x_{k2}(\tau) + \ldots \quad (k = 1, 2) \quad (3.21)$$

where $x_{1m}(\tau) = x_m^{(1)}(\tau) + x_m^{(2)}(\tau)$, $x_{2m}(\tau) = p_1 x_m^{(1)}(\tau) + p_2 x_m^{(2)}(\tau)$. (3.22)

The above method can be readily extended to systems with n degrees of freedom. There are 4 Soviet-bloc references.

SUBMITTED: December 2, 1961

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L 14408-63 EWT(d)/FCC(w)/BDS AFFTC IJP(C)
ACCESSION NR: AP3003251 S/0040/63/027/003/0559/0564

AUTHOR: Proskuryakov, A. P. (Moscow)

TITLE: Stability of periodic solutions of quasilinear autonomous systems with one degree of freedom

SOURCE: Prikladnaya matematika i mekhanika, v. 27, no. 3, 1963, 559-564

TOPIC TAGS: ordinary differential equation, small parameter, stability, periodic solution, autonomous system, multiple root

ABSTRACT: The author determines conditions of stability of periodic solutions of quasilinear autonomous systems, i.e., of equation (1.1),

$$\frac{d^2x}{dt^2} + p^2x = \mu f\left(x, \frac{dx}{dt}, \mu\right)$$

where the function $f(x,\dot{x},\mu)$ is analytic in its arguments in some region, and the parameter μ is small and positive. The periodic solutions can be represented as

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L 14408-63

ACCESSION NR: AP3003351

series in both integral and rational powers of the small parameter μ. Orig. art. has: 32 formulas, 1 table.

ASSOCIATION: none

SUBMITTED: 14Jan63 DATE ACQ: 23Jul63 ENCL: 00

SUB CODE: MM NO REF SOV: 002 OTHER: 000

Card 2/2

PROSKURYAKOV, A.P. (Moskva)

Effect of members of the higher order of infinitesimals on periodic solutions to quasi-linear systems. Prikl. mat. i mekh. 28 no.5:943-948 S-O '64.

(MIRA 17:11)

ACC NR: AP7001999 SOURCE CODE: UR/0040/66/030/006/1115/1120

AUTHOR: Proskuryakov, A. P. (Moscow)

ORG: none

TITLE: On the construction of periodic solutions of quasilinear nonautonomous systems with one degree of freedom in the case when the amplitude equations have multiple roots

SOURCE: Prikladnaya matematika i mekhanika, v. 30, no. 6, 1966, 1115-1120

TOPIC TAGS: harmonic oscillation, motion stability, differential equation system

ABSTRACT: The case of arbitrary multiple roots for nonautonomous systems is reduced to the analogous case for autonomous systems which simplifies the construction of periodic solutions. The quasilinear nonautonomous system

$$\ddot{x} + m^2 x = f(t) + \mu F(t, x, \dot{x}, \mu) \qquad (1)$$

is considered. Here the $F(t,x,\dot{x},\mu)$ is an analytic function of x, $\dot{x}$ and μ in some domain where x and $\dot{x}$ vary when $0 < \mu \leq \mu_0$ (μ is a small positive parameter). In addition to this, $F(t,x,\dot{x},\mu)$ and $f(t)$ are continuous periodic functions with period 2π and $f(t)$ does not contain harmonics of the m-th order where m is a whole number. The solution of (1) is obtained by the method of Poincare. As an example, the Duffing problem in its quasilinear formulation is considered. Orig. art. has: 44 formulas.

SUB CODE: 12,20,13/ SUBM DATE: 10Mar66/ ORIG REF: 003

L 39609-66

ACC NR: AP6004075 SOURCE CODE: UR/0040/65/029/005/0939/0945

AUTHOR: Proskuryakov, A. P. (Moscow)

ORG: none

TITLE: Stability of single-frequency periodic solutions of quasilinear autonomous systems with two degrees of freedom

SOURCE: Prikladnaya matematika i mekhanika, v. 29, no. 5, 1965, 939-945

TOPIC TAGS: differential equation, stability

ABSTRACT: The author considers

$$x_i'' + \omega_i^2 x_i = \mu F_i(x_1, x_2, x_1', x_2', \mu) \qquad (i = 1, 2) \qquad (1)$$

where F_i are analytic, μ is a small parameter, and ω_1 and ω_2 are incommensurable, subject to

$$x_1(0) = A_0 + \beta, \quad x_1'(0) = 0, \quad x_2(0) = \varphi, \quad x_2'(0) = \psi \cdot \qquad (2)$$

He transforms (1) to

$$z_i'' + \omega_i^2 z_i = \mu \Phi_i(z_1, z_2, z_1', z_2', \mu) \qquad (i = 1, 2) \qquad (3)$$

studying stability of periodic solutions (period T_1) of this latter, where the equation

$$C_{11}^*(T_1) = C_{11}(T_1) = 0 \qquad (4)$$

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ACC NR: AP6004075

determining amplitude A_0 has possibly double and triple roots. It is shown that for a system with two degrees of freedom there are four branches of the characteristic exponent, of which, in the case of incommensurable frequencies, one branch is real, not equal to zero in the general case, the second branch is zero, and two branches are complex. The first branches of the characteristic exponent for system (1) and system (1) with the second equation discarded have identical-form expansions in integral or fractional powers of the small parameter. The second branches are zero in both cases. Orig. art. has: 46 formulas.

SUB CODE: 12/ SUBM DATE: 13Apr65/ ORIG REF: 004

Card 2/2 mlp

ACCESSION NR: AP4043296 S/0040/64/028/004/0765/0770

AUTHOR: Proskuryakov, A. P.

TITLE: Comparison of periodic solutions of quasi-linear systems derived by the method of Poincare and the method of Kry*lov-Bogolyubov

SOURCE: Prikladnaya matematika i mekhanika, v. 28, no. 4, 1964, 765-770

TOPIC TAGS: Poincare method, Kry*lov Bogolyubov method, small parameter method, asymptotic method, quasilinear system, autonomous system, nonlinear oscillation, oscillatory system

ABSTRACT: A comparison is made of the periodic solutions of the autonomous quasilinear oscillatory system

$$\ddot{x} + \omega^2 x = \mu f(x, \dot{x}),$$

where $f(x, \dot{x})$ is a polynomial or analytic function of its arguments and μ is a small positive parameter, derived by the Poincare method of a small parameter and by the asymptotic method of Kry*lov-Bogolyu-

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ACCESSION NR: AP4043296

bov. With these methods, the solution is sought as series in powers of a small parameter μ. Coefficients of expansions in terms of known functions are determined and the final forms of the solutions derived by two methods are written. By comparing the coefficients of the first three terms of the expansions derived by the two methods, three equalities are derived which are proved to be identically satisfied for all values. It follows that all three approximations derived by the two methods completely coincide. Hence, any approximations derived by these methods will coincide. It is noted that for nonautonomous quasilinear systems in the case of a principal resonance, the first approximations derived by two methods completely coincide. The final conclusion is that both methods are equivalent when they are applied to the construction of periodic solutions of quasilinear systems. Orig. art. has: 26 formulas.

ASSOCIATION: none

SUBMITTED: 16Mar64	ATD PRESS: 3092	ENCL: 00
SUB CODE: MA	NO REF SOV: 005	OTHER: 000

Card 2/2

L 11361-65 EWT(d) Pg-4 IJP(c)

ACCESSION NR: AP4046274 S/0040/64/028/005/0943/0948

AUTHOR: Proskuryakov, A. P. (Moscow)

TITLE: The effect of higher infinitesimal order terms upon periodic solutions of quasilinear systems

SOURCE: Prikladnaya matematika i mekhanika, v. 28, no. 5, 1964, 943-948

TOPIC TAGS: quasilinear system, periodic solution, second order differential equation, Poincare expansion, solution stability, stability criteria, autonomous system, nonautonomous system

ABSTRACT: The effect of terms of various infinitesimal orders in the right-hand sides of quasi-linear systems upon the existence and stability of their periodic solutions is studied. First the autonomous system

$$\ddot{x} + k^2 x = \mu F(x, \dot{x}, \mu), \qquad (1)$$

where $F(x, \dot{x}, \mu)$ is an analytic function of its arguments, μ is a small positive parameter and k is a constant, is analyzed. The periodic

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0

solution of (1) is constructed with the initial conditions

$$x(0) = A_0 + \beta, \quad \dot{x}(0) = 0, \tag{2}$$

where A_0 is the amplitude of the harmonic motion ($\mu = 0$), β is a function of μ and $\beta(0) = 0$. This solution is expanded in Poincare series in powers of μ and β and the right-hand side $F(x, \dot{x}, \mu)$ of (1) is also expanded in series in powers of μ. It is shown how all magnitudes of the Poincare expansion can be expressed in $F(x, \dot{x}, \mu)$ expansion terms of the required highest infinitesimal order. Stability criteria, which were written in the form of inequalities in terms of certain magnitudes of the Poincare expansion for periodic solutions of (1) for a sufficient small μ, are expressed now in terms of $F(x, \dot{x}, \mu)$ expansion terms of the required highest infinitesimal order. The effect of these terms on the stability criteria is analyzed. A similar procedure is applied to the study of the nonautonomous system

$$\ddot{x} + m^2 x = f(t) + \mu F(t, x, \dot{x}, \mu). \tag{3}$$

An analysis of autonomous and nonautonomous systems with one degree of freedom shows that the effect of terms of various infinitesimal orders

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of the right-hand side of (1) and (3) on periodic solutions of these systems is identical. It is indicated that the same results can be obtained for systems with many degrees of freedom as in the case of systems with one degree of freedom. A detailed analysis is presented of the changes in periodic solutions (the number of solutions, their stability) when to the right sides of (3) is added a function of the form

$$\sum_{s=2}^{m} \mu^s F_s(t, x, \dot{x}, \mu),$$

where F_2, F_3... are independent of F and satisfy the same conditions as F. As an illustration, a system of the form (1) but with a small time delay is considered. Orig. art. has: 31 formulas.

ASSOCIATION: none

SUBMITTED: 15Jun64 ATD PRESS: 3118 ENCL: 00

SUB CODE: MA NO REF SOV: 008 OTHER: 000

PROSKURYAKOV, A.P. (Moskva)

Derivation of periodic solutions to quasi-linear autonomous systems with several degrees of freedom in special cases. Prikl. mat. i mekh. 27 no.6:1128-1134 N-D '63. (MIRA 17:1)

FROSKURYAKOV, A.P. (Moscow)

"Poincaré method of small parameter in the theory of non-linear vibrations"

Report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow 29 Jan - 5 Feb 64.

PROSKURYAKOV, A.P. (Moskva)

Stability of periodic solutions to quasi-linear autonomous systems with a single degree of freedom. Prikl. mat. i mekh. 27 no.3:559-564 My-Je '63. (MIRA 16:6)

(Differential equations, Linear)

PROSKURYAKOV, A.V., kand.tekhn.nauk, red.; POPOV, I.V., kand.ekonom.nauk, red.; TOMASHPOL'SKIY, L.M., kand.ekonom.nauk, red.; GOLOVINSKIY, G.P., kand.tekhn.nauk, red.; SOKOLOV, Yu.S., kand.ekonom.nauk, red.; CHUTKERASHVILI, Ye.V., kand.ekonom.nauk, red.; BERMEN'YEVA, S.I., red.; ZAKHAROVA, L.S., red.; KOLCHINA, V.I., red.; POSPELOV, Yu.S., red.; SMERTINA, N.I., red.; SOBOLEVA, N.M., tekhn.red.

[Great Britain; economic survey] Velikobritaniia; ekonomicheskii obzor. Moskva, 1960. 658 p. (MIRA 13:5)

1. Moscow. Vsesoyuznyy institut nauchnoy i tekhnicheskoy informatsii.
(Great Britain--Economic conditions)

SYSOYEV, P.V., inzh., red.; CHIKHACHEV, N.A., inzh., red.; KRASHENINNIKOVA, G.V., inzh., nauchnyy red.; PROSKURYAKOV, A.V., inzh., red.; UTKIN, A.V., inzh., red.; SUKHAREVA, R.A., red.; SITNIKOV, L.P., red.; KUDRYAVITSKAYA, A.A., tekhn. red.

[The established classes of patent licenses and certificates granted to Soviet inventors; an index divided into subclasses, groups, and subgroups]Ukazatel' klassov avtorskikh svidetel'stv i patentov, vydavaemykh v SSSR, s podrazdeleniem ikh na podklassy, gruppy i podgruppy. Moskva, TSentr. biuro tekhn. informatsii, 1962. 820 p. (MIRA 15:11)

1. Russia (1923- U.S.S.R.)Komitet po delam izobreteniy i otkrytiy.

(Patent licenses)

GLAGOLEVA, L.A., kand. tekhn. nauk, dots.; PROSKURYAKOV, A.V., kand. tekhn. nauk, dots.; IPATOV, M.I., kand. tekhn. nauk, dots.; RAZUMOV, I.M., prof., doktor ekon. nauk; FURTOV, S.G., inzh., starshiy prepodavatel'; MURAV'YEV, M.S., kand. tekhn. nauk, dots.; GRACHEVA, K.A., kand. tekhn. nauk, dots.; KOMAROV, F.V., inzh., retsenzent; TOBIAS, D.A., kand. tekhn. nauk, red.; SALYANSKIY, A.A., red. izd-va; EL'KIND, V.D., tekhn. red.

[Problems for the course in the organization and planning of machinery plants]Sbornik zadach po kursu organizatsii i planirovaniia mashinostroitel'nykh predpriiatii. Pod red. I.M.Razumova, L.A.Glagolevoi. Moskva, Mashgiz, 1962. 261 p. (MIRA 15:12)

(Machinery industry)

PROSKURYAKOV, A.P. (Moskva)

Deriving periodic solutions for autonomic systems with one degree of freedom in the case of real arbitary roots for the equation of basic amplitudes. Prikl.mat. i mekh. 22 no.4:510-518 Jl-Ag '58. (MIRA 11:11)

(Oscillations)

PROSKURYAKOV, A.P. (Moskva)

Method for introducing a small parameter into the equations of nonlinear oscillations. Prikl.mat. i mekh. 22 no.5:711-713 S-O '58. (MIRA 11:11)
(Oscillations) (Differential equations)

AUTHOR: Proskuryakov, A.P. (Moscow) 40-22-2-13/21

TITLE: Investigation of the Stability of the Solution of a Linear Differential Equation of Second Order With Periodic Coefficients (Issledovaniye ustoychivosti resheniya lineynogo differentsial'nogo uravneniya vtorogo poryadka s periodicheskimi koeffitsiyentami)

PERIODICAL: Prikladnaya matematika i mekhanika, 1958, Vol 22, Nr 2, pp 250-253 (USSR)

ABSTRACT: In the paper the author gives a method for the determination of the characteristic numbers for the solution of a differential equation of second order with periodic coefficients. The differential equation has the form:

$$\frac{d^2x}{d\varphi^2} + A\frac{dx}{d\varphi} + Bx = 0 \quad ,$$

where the coefficient A and B are periodic functions. If the coefficient A is differentiable with respect to the magnitude φ, then the given differential equation can be reduced to an equation of the type of Hill :

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Investigation of the Stability of the Solution of a Linear Differential Equation of Second Order With Periodic Coefficients 40-22-2-13/21

$$\frac{d^2z}{d\varphi^2} + Kz = 0$$

The solution of this differential equation is sought in the form of an infinite series :

$$z = e^{i\nu\varphi} \sum_{k=-\infty}^{+\infty} H_k e^{ik\varphi}$$

The value of ν is obtained from the defining equation :

$$\sin^2 \pi\nu = \pi^2 D(\mu)$$

where $D(\mu)$ represents an infinite determinant, the elements of which depend on the coefficients of the Fourier decomposition of the periodic coefficient K. The most essential part of the paper consists in the solution of this defining equation and in finding that value of ν which possesses the smallest amount.

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