LAKERNIK, M.M.; LIDOV, V.P.; ZDANOVICH, P.A.; SYCHEV, A.P.

Processing slags by the electrothermal method. TSvet. met. 36 no.7:19-24 Jl '63. (MIRA 16:8)

(Nonferrous metals—Electrometallurgy) (Slag)

LIDOV, V.P.; MILOVIDOVA, N.V.; ORLOVA, V.K.

Erosion processes of turf-Podzolic soils in the southern Smolensk Province. Pochvovedenie no. 12:79-90 D '65 (MIRA 19:1)

1. Moskovskiy gosudarstvennyy universitet i Vsesoyuznyy gosudarstvennyy proyektno-izyskatel'skiy institut Soyuzgiproleskhoz. Submitted February 22, 1964.

LIDOV, V.P.; MILOVIDOVA, N.V.; ORLOVA, V.K.; ROZANOV, B.G.

Establishing erosion zones in Smolensk Province. Izv. Vses. Geog. ob-va 97 no.5:417-426 S-O '65. (MIRA 18:11)

LIDSKIY, A. T. and TARKOVSKAYA, V. Ya.

"Plaster Cast in the Treatment of Wounds in Rear Base Hospitals", Sverdlovsk, 1941.

LIDSKIY, A.T.

[Infected gunshot fractures (gunshot osteomyelitis)] Infitsirovannye ognestrel'nye perelomy (ognestrel'nyi ostemielit). Sverdlovsk, Medgiz, 1946. 98 p. (MIRA 14:2)
(FRACTURES) (OSTEOMYELITIS)

LIDSKIY, Arkadiy Timofeyevich

"Scientific Work of the Hospital Surgical Clinic of the Sverdlovsk Medical Institute," Vest. Ak. Med. Nauk SSSR, No. 1, 1948.

Academy of Medical Sciences.
Hospital Surgical Clinic, Sverdlovsk Med. Inst.

LIDSKIY, A. T.

Lidskiy, A. T. "Surgerg of ulcerous infections," (From material of the Clinic from 1933-1947), Trudy Gospit, khirurg. kliniki (Sverdl. gos. med. in-t), Vol. IV, 1948, p. 3-13

SO: U - 3850, 16 June 53, (Letopis 'Zhurnal 'nykh Statey, No. 5, 1949)

LIDSKIY, A. T.

Lidskiy, A. T. "Stone formation in the kidneys as a complication in infected fractures caused by fire-arms," Trudy Gospit. khirurg. Kliniki (Sverdl. gos. med. in-t), Vol. IV, 1948, p. 428-37

SO: U-3850, 16 June 53, (Letopsis 'Zhurnal 'nykh Statey, No. 5, 1949)

LIDSKIY, A. T.

USSR/Medicine - Tissue Transplants Aug 51

"Review of T. P. Vinogradova's Book 'Transplants of Humand Cartilage,'" A. T. Lidskiy, Corr Mem, Acad Med Sci

"Khirurgiya" No 8, pp 89, 90

Reviews Vinogradova's book on her work with animals and humans dealing with the possibility of transplanting cartilage taken from fresh corpses. Biopsy performed 2½-10 yrs after the original operation in cases of autotransplants and 2 wks-3 yrs after the original operation in cases of homotransplants showed the viability of the grafts.

203T70

USSR/Medicine - Tissue Transplants (Contd) Aug 51

Book also reports on expts by N. M. Mikhel'son, begun in 1935 and 1st published in 1943, in which he used cartilage taken 2-3 hrs and even 12-18 hrs after death of the donor. Biopsy in these cases, after intervals of 2-3 wks to 3-5 yrs, showed good results. Book was published by Acad Med Sci, 1950.

203T70

LIDSKIY, A. T., Prof.

USSR/Medicine - Burns Jul 51

"Treatment of Burns," Prof A. T. Lidskiy, A. Ye. Norenberg, Dr Med Sci Sverdlovsk

"Sov Med" Vol XV, No 7, pp 12-15

In the open method of treatment, the burn is heated by means of elec lamps and painted with $KMnO_4$, alcoholic soln of brilliant green plus novocain, etc. Treatment with tannin plus alc plus ether forms a closed film. Burn trauma disturbs metabolism, causing acidosis. Contrary to foreign publications, tannin does not produce necrosis of the liver (D. S. Sarkisov). During World War II,

204T43

USSR/Medicine - Burns (Contd 1) Jul 51

bentonite paste was used extensively. One part of tannin plus 1.5 parts of streptocide plus 7.5 parts of bentonite plus 2-3 parts of boiled water form a good mixt (occasionally tannin plus streptocide are replaced by tannoflavin). Salves and plaster of Paris bandages are of limited usefulness and advantage. Filatov's perforated fibrin films are effective in some types of burns, but there may be seepage so that application of a Sollux lamp is necessary. Tissue therapy, if applied, should not be delayed. One must not forget that in cases of extensive burns hypoproteinemia may develop (Yu. Yu. Dzhanelidze). Intravenous injection of dissolved dry plasma by the drip

204T43

LIDSKIY, A. T., Prof.

USSR/Medicine - Burns (Contd 2) Jul 51

method has been successfully applied in authors' clinic. Secondary and late shock must be prevented. Antiseptic effect of penicillin and gramicidin in burns has been overestimated: It is better to rely on cleaning with soap, ether, etc. The authors use swabbing with 0.25% ammonia 30 min after applying 2% pantopon plus scopolamine in the case of small burns. With extensive burns, anestehsia by means of ethyl chloride is required.

204T43

LIDSKIY, A.T.

Controversial problems in the surgery of pulmonary suppurations. Vest. khir. Grekova, Leningr. 71 no.5:31-40 1951. (CIML 21:1)

1. Professor. 2. Sverdlovsk.

LIDSKIY, A. T.

Excision (Surgery)

Principles of modified lobectomy in pulmonary suppurations. A. T. Lidskiy., Khirurgiia, no. 1, 1952.

Monthly List of Russian Accessions, Library of Congress, April 1952. Unclassified.

LIDSKIY, A. T.

Korabel'nikov I.D.

"Traumatic diaphragmatic hernia." Reviewed by Prof. A.T. Lidskiy Khirurgiia No. 4, 1952.

Monthly List of Russian Accessions, Library of Congress, August 1952, Unclassified.

LIDSKIY, A. T.

5869. endemicheskiy zob. kratkiy ocherk patogeneza, klinki, lecheniya, profilaktiki. sverdlovsk. kn. izd., 1954 60s 20sm. 3.000 ekz ir 60k Bibliogr: s 57-59. (55- 908)p 616.44-006.5 -(016.3

SO: Knizhnya Letopis', col. 1, 1955

LIDSKIY, A.T.

LIDSKIY, A.T., professor, zasluzhennyy deyatel' nauki (Sverdlovsk)

"Diagnosis of acute stomach." Reviewed by Prof. A.T.Lidskii.
Khirurgiia no.5:82-86 My '54. (MLRA 7:7)
(STOMACH--DISEASES)

LIDSKIY, A.T., professor; KAMPEL'MAKHER, Ya.A., kandidat meditsinskikh nauk

Splenectomy as a method of therapy of certain blood diseases; immediate and long-term results. Khirurgiia no.7:21-30 Jl '54. (MLRA 7:10)

1. Iz kafedry gospital'noy khirurgii (zav. zasluzhennyy deyatel' nauki chlen-korrespondent Akademii meditsinskikh nauk SSSR prof. A.T.Lidskiy) Sverdlovskogo meditsinskogo instituta.
(HEMOPOIETIC SYSTEM, diseases,
surg., splenectomy)

LIDSKIY, A.T., professor (Sverdlovsk)

Surgical treatment of thyroid diseases in the Urals. Probl. endokr. i gorm. 1 no.2:32-38 Mr-Ap '55. (MLRA 8:10)

1. Zasluzhennyy edyatel' nauki, chlen-korrespondent Akademii meditsinskikh nauk SSSR, prof. A.T.Lidskiy (Sverdlovsk)
(GOITER,
endemic, surg.)
(HYPERTHYROIDISM, surgery)

LIDSKIY, A.T.

KHVOROV, V.V., doktor meditsinskikh nauk

"Endemic goiter." A.T.Lidskii. Reviewed by V.V.Khvorov.
Probl. endokr. k gorm. Moskva 1 no.3:123-124 My-Je '55.
(GOITER) (LIDSKII, A.T.) (MLRA 8:10)

LIDSKIY, A.T., prof., zasluzhenny deiatel' nauki (Sverdlovsk)

History of strumectomy. Probl.endok. i gorm. 1 no.6:113-116 N-D '55. (MIRA 12:8)

1. Chlen-korrespondent AMN SSSR.
(THYROID GLAND, surgery, hist.)

LIDSKIY, A.T., professor (Sverdlovsk)

Certain arguments for surgery in the acute stage of cholecystitis.
Khirurgiia, Moskva no.5:19-23 My '55. (MLRA 8:9)

1. Zasluzhennyy deyatel' nauki chlen-korrespondent AMN SSSR
(CHOLECYSTITIS, surg.
indic.)

LIDSKIY, A.T., professor (Sverdlovsk)

Endemic goiter. Sov.med. 20 no.8:18-25 Ag '56. (MIRA 9:10)

1. Chlen-korrespondent Akademii meditsinskikh nauk SSSR
(GOITER, epidemiol.
endemic, control in Russia)

LIDSKIY, A.T., professor (Sverdlovsk)

Portal hypertension as a surgical problem. Khirurgiia 32 no.6: 3-13 Je '56. (MLRA 9:10)
(HYPERTENSION, PORTAL, surg. in animals & man)

LIDSKIY, A.T., professor

"Malignant growths of the rectum" by S.A.Kholdin. Reviewed by A.T. Lidskii. Khirurgiia 32 no.12:79-81 D '56. (MIRA 10:2)
(RECTUM--CANCER) (KHOLDIN, S.A.)

LIDSKIY, A.T., prof. (Sverdlovsk)

Thrombophlebitis. Sov.med. 21 no.10:98-103 O '57. (MIRA 11:1)
(THROMBOPHLEBITIS
clin. aspects, diag. & ther.)

LIDSKIY, A.T., professor (Sverdlovsk).

Surgery of thoracic organs. Nauka i zhizn' 24 no.3:14-16 Mr '57. (MLRA 10:5)

1. Zasluzhennyy deyatel' nauki, chlen-korrespondent Akademii meditsinskikh nauk SSSR.
(CHEST--SURGERY)

LIDSKIY, A.T., prof., zasluzhennyy deyatel' nauki

"Emergency surgery for elderly and old people" by P.V.Ryzhov, S.D. Goligorskii. Reviewed by A.T.Lidskii. Khirurgiia 33 no.11:143-145 N '57. (MIRA 11:2)

1. Chlen-korrespondent AMN SSSR
(SURGERY) (AGED--MEDICAL CARE)

LIDSKIY, A.T.

LIDSKIY, A.T.

"Anastomoses and collateral circulation passages" by B.A.Dolgo-Saburov. Reviewed by A.T.Lidskii. Arkh.anat.gist. i embr. 34 no.5:99-101 S-O '57. (MIRA 11:1)
(BLOOD VESSELS) (DOLGO-SABUROV, B.A.)

LIDSKIY, A.T., prof. (Sverdlovsk, Bankovskiy per., d.8, kv.31); SHELOMOVA,
[redacted]d.med.nauk; SHULUTKO, M.L., kand.med.nauk

Some problems in lung surgery. Vest.khir. 79 no. 9:110-120 S '57.
(MIRA 10:11)

1. Iz gospital'noy khirurgicheskoy kliniki (zav. - prof. A.T.Lidskiy)
Sverdlovskogo meditsinskogo instituta i khirurgicheskogo otdeleniya
Sverdlovskogo gortubdispansera.
(LUNGS, surg.
review)

LIDSKIY, A.T., prof.(Sverdlovsk)

The most important diseases of vessels of the lower extremities. Fel'd. i akush. 24 no.7:7-11 Jl '59. (MIRA 12:10)
(EXTREMITIES, LOWER--DISEASES)

LIDSKIY, A.T., prof.

"Proceedings of a conference of the Chelyabinsk Medical Institute devoted to the topic: Primary sutures combined with the use of antibiotics in surgery." Reviewed by A.T. Lidskii. Khirurgiia 35 no.1:140-143 Ja '59. (MIRA 12:2)
(SUTURES) (ANTIBIOTICS)

LIDSKIY, A.T., prof., zasluzhennyy deyatel' nauki

Review of G.V. Golovin's "Means for accelerating the healing of fractures." Khirurgiia 35 no.10:140-144 O '59. (MIRA 12:12)

1. Chlen-korrespondent AMN SSSR.
(FRACTURES)

LIDSKIY, A.T., prof., zasluzhennyy deyatel' nauki (Sverdlovsk)

"Lung cancer" by F.G. Uglov. Reviewed by A.T. Lidskii. Klin.med. 37 no.11:146-148 N '59. (MIRA 13:3)

1. Chlen-korrespondent AMN SSSR.
(LUNGS--CANCER) (UGLOV, F.G.)

LIDSKIY, A.T., prof., zasluzhennyy deyatel' nauki (Sverdlovsk, Bankovskiy per., [redacted] kv. 31)

Studies of the pathology and surgery of the thyroid gland. Vest. khir. 82 no.6:11-19 Je '59. (MIRA 12:8)

1. Chlen-korrespondent AMN SSSR.
(THYROID GLAND--DISEASES)

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000929820(

LIDSKIY, A. T., (Prof.) -- Sverdlovsk

"Principal Points in Complex Treatment of Obliterating Diseases of Peripheral Arteries."

Report submitted for the 27th Congress of Surgeons of the USSR, Moscow, 23-28 May 1960.

LIDSKIY, A.T., prof.

Varicose veins. Zdorov'e 6 no.8:14-15 Ag '60. (MIRA 13:8)

1. Chlen-korrespondent AMN SSSR.
(VARIX)

LIDSKIY, A.T.

Obliterating atherosclerosis and the underlying principles of its differential diagnosis and treatment. Khirurgiia 36 no.3:85-93 Mr '60. (MIRA 13:12)

(ARTERIOSCLEROSIS)

LIDSKIY, A.T., prof., zasluzhennyy deyatel' nauki (Sverdlovsk)

Mutual understanding and assistance between surgeons and therapeutists in modern clinical medicine. Klin.med. 38 no.8:43-47 Ag '60. (MIRA 13:11)

1. Chlen-korrespondent AMN SSSR.
(SURGERY) (THERAPEUTICS)

LIDSKIY, A.T., prof. (Sverdlovsk)

Mesenterial pyemia in the modern treatment of surgical infections. Vest.khir. 85 no.10:3-9 O '60. (MIRA 13:12)
(APPENDICITIS) (SEPTICEMIA)

LIDSKIY, A.T., zasl. deyatel' nauki, prof., red.; VINOGRADOV, V.V., red.; ZAKHAROVA, A.I., tekhn. red.

[Differential diagnosis of the principal surgical diseases in tabular form] Differentsial'naia diagnostika vazhneishikh khirurgicheskikh zabolevanii v tablitsakh. Moskva, Medgiz, 1961. 271 p. (MIRA 15:3)

1. Chlen-korrespondent Akademii meditsinskikh nauk SSSR, zaveduyushchiy kafedroy gospital'noy khirurgii Sverdlovskogo meditsinskogo instituta (for Lidskiy).
(DIAGNOSIS, DIFFERENTIAL) (THERAPEUTICS, SURGICAL)

LIDSKIY, A. T., prof.

Treatment of acute cholecystitis. Klin. med. no.6:145-148 '61.
(MIRA 14:12)

1. Zasluzhennyy deyatel' nauki chlen-korrespondent AMN SSSR.

(GALL BLADDER--DISEASES)

LIDSKIY, A.T., zasluzhennyy deyatel' nauki, prof.

"Errors in surgical practice and ways for preventing them" by N.I. Krakovskii and IU.IA.Gritsman. Reviewed by A.T.Lidskii. Sov. med. 25 no.10:155-517 O '61. (MIRA 15:1)

1. Chlen-korrespondent AMN SSSR.
(SURGERY) (KRAKOVSKII, N.I.) (GRITSMAN, IU.IA.)

LIDSKIY, A.T., prof. (Sverdlovsk)

Effective methods of treatment for obliterating diseases of the peripheral vessels under ambulatory conditions. Khirurgiia 37 no.5:3-7 My '61.
(BLOOD VESSELS--DISEASES) (MIRA 14:5)

LIDSKIY, A. T., prof. (Sverdlovsk)

Perforating ulcer and ulcerative hemorrhages as subjects for emergency surgery. Khirurgiia 38 no.7:65-70 Jl '62.
(MIRA 15:7)

(HEMORRHAGE) (PEPTIC ULCER) (MEDICAL EMERGENCIES)

LIDSKIY, A.T.

"Essays on the clinical physiology of blood circulation" by V.V. Parin and F.Z. Meerson. Reviewed by A.T. Lidskii. Khirurgiia 38 no.10:136-138 O '62. (MIRA 15:12)
(PHYSIOLOGY) (BLOOD—CIRCULATION) (PARIN, V.V.)
(MEERSON, F.Z.)

BLINOV, N.I., prof. (Leningrad); GROZDOV, D.M., prof.(Moskva); GOL'DGAMMER, K.K., doktor med.nauk(Moskva); DRACHINSKAYA, Ye.S., prof.(Leningrad); KORNEV, P.G., zasl. deyatel' nauki, prof.(Leningrad); LEVIT, V.S., zasl. deyatel' nauki, prof. [deceased]; LIDSKIY, A.T., zasl. deyatel' nauki prof.(Sverdlovsk); NAPALKOV, P.N., zasl. deyatel' nauki prof.(Leningrad); PETROV, B.A., prof.; PRIOROV, N.N.[deceased]; SAMOTOKIN, B.A., dots.(Leningrad); SEL'TSOVSKIY, P.L., prof.[deceased]; FRUMKIN, A.P., prof. [deceased]; KHOLDIN, S.A., prof.(Leningrad); SHAKHBAZYAN, Ye.S., prof.(Moskva); SHLAPOBERSKIY, V.Ya., prof.(Moskva); YUSEVICH, Ya.S., prof.(Leningrad); VISHNEVSKIY, A.A., prof., red.; GOL'DGAMMER, K.K., red.; BEL'CHIKOVA, Yu.S., tekhn. red.

[Specialized surgery; manual for physicians in three volumes] Chastnaia khirurgiia; rukovodstvo dlia vrachei v trekh tomakh. Pod red. A.A.Vishnevskogo i V.S.Levita. Moskva, Medgiz. Vol.2.[Abdominal cavity and its organs, spinal cord, spine, pelvis, urogenital system] Briushnaia polost' i ee organy, spinnoi mozg, pozvonochnik taz, mochepolovaia sistema] 1963. 717 p. (MIRA 16:3)

1. Deystvitel'nyy chlen Akademii meditsinskikh nauk (for Kornev, Priorov). 2. Chlen-korrespondent Akademii meditsinskikh nauk (for Lidskiy, Petrov, Kholdin).

(SURGERY)

LIDSKIY, Arkadiy Timofeyevich, prof., zasl. deyatel' nauki;
BREGADZE, I.L., red.; KOKIN, N.M., tekhn. red.

[Surgical diseases of the liver and the biliary tract system]
Khirurgicheskie zabolevaniia pecheni i zhelchevyvodiashchei
sistemy. Moskva, Medgiz, 1963. 495 p. (MIRA 16:12)

1. Chlen-korrespondent AMN SSSR (for Lidskiy).
(LIVER—DISEASES) (BILIARY TRACT—DISEASES)

LIDSKIY, A.T. (Sverdlovsk)

Book review. Grud. khir. 6 no.2:111-112 Mr-Ap '64. (MIRA 18:4)

LIDSKIY, A.T., zasluzhennyy deyatel' nauki, prof. (Sverdlovsk)

Review of the book "Malignant tumors; vol. 3." Vest. khir. 92 no.5:131-137 My '64. (MIRA 18:1)

LIDSKIY, A.T., prof. (Sverdlovsk)

Review of P.M. Medvedev's monograph "Elephantiasis of the extremities and the genital organs." Vest. khir. 93 no.11: 142-144 N '64. (MIRA 18:6)

1. Chlen-korrespondent AMN SSSR.

GUBERGRITS, A.Ya., prof.; KRAKOVSKIY, N.I., prof.; IVANOV, S.S., dotsent;
LIDSKIY, A.T., prof., zasluzhennyy deyatel' nauki

Reviews and bibliography. Sov. med. 28 no.8:152-157 Ag '65.
(MIRA 18:9)

1. Chlen-korrespondent AMN SSSR (for Lidskiy).

LIDSKIY, B.I.

[Practical manual on the treatment of internal diseases] Prakticheskoe posobie po lekarstvennoy terapii vnutrennikh bolesnei. Kiev, Gos. meditsinskoe izd-vo, USSR, 1957. 422 p. (MLRA 10:6)
(MEDICINE)

MALIOVANOV, D.I., kand.tekhn.nauk, otv.red.; LIDSKIY, B.N., red.; PRUZHINER, V.L., red.; CHEREMNYKH, M.I., red.; CHECHKOV, L.V., red.izd-va; SHKLYAR, S.Ya., tekhn.red.

[Mechanization of drifting in mine construction] Mekhanizatsiia gornoprokhodcheskikh rabot pri stroitel'stve shakht. Moskva, Ugletekhizdat, 1959. 293 p. (MIRA 12:6)
(Coal mining machinery)

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R00092982OC

KRASOVSKIY, N.N. (Sverdlovsk); LIDSKIY, E.A. (Sverdlovsk)

Analytical design of controllers for systems with random properties. Part 1. Stating the problem, method for solution. Avtom. i telem. 22 no.9:1145-1150 S '61. (MIRA 14:9)
(Automatic control)

29242
S/103/61/022/010/001/018
D274/D301

16.8000 (1103,1329,1132)

AUTHOR: Krasovskiy, N. N., and Lidskiy, E. A.

TITLE: Analytical design of controllers for random systems II. Optimum-control equations. Approximate method of solution

PERIODICAL: Avtomatika i telemekhanika, v. 22, no. 10, 1961, 1273-1278

TEXT: Optimum-control equations are derived on the basis of the general method of the authors in part I of the article, (Ref. 1: Avtomatika i telemekhanika, v. 22, no. 9, 1961). The concepts and notations are the same as in part I. In Ref. 1 (Op. cit.), rules were formulated which govern the search for the optimum-control law ξ^0 which minimizes the integral performance-criterion

$$I_\xi = \int_0^\infty M\{\omega[x(t), \xi(t)] / x_0, \eta_0, t_0 = 0\} dt = \min_\xi \quad (1.1)$$

of the stochastic control-system

Card 1/5

29242
S/103/61/022/010/001/018
D274/D301

Analytical design of...

$$\frac{dx_i}{dt} = \varphi_i [x_1, \ldots, x_n, \eta(t), \xi] \quad (1.2)$$

$$\xi = \xi [x_1, \ldots, x_n, \eta] \quad (1.3)$$

4

By these rules, ξ^o is determined from the condition

$$\left[\frac{dM(v^0)}{dt} + \omega\right]_{\xi^0} = \min_\xi \left[\frac{dM(v^0)}{dt} + \omega\right]_\xi = 0, \quad (1.4)$$

where v^o is a positive-definite, optimum Lyapunov-function. The partial differential equations are derived which are a consequence of of Eq. (1.4). These equations yield

$$\sum_{i=1}^{n} \frac{\partial v(x, \eta)}{\partial x_i} \varphi_i(x, \xi, \eta) + \int_{-\infty}^{\infty} v(x, \beta)\, d_\beta q(\eta, \beta) - q(\eta)\, v(x, \eta) + \frac{\lambda}{2} \sum_{i,j=1}^{n} \frac{\partial^2 v(x, \eta)}{\partial x_i \partial x_j} k_{ij} \mu_i \mu_j \sigma_i \sigma_j + \omega[x, \xi, \eta] = 0 \quad (1.8)$$

Card 2/5

and

$$\sum_{i=1}^{n} \frac{\partial v(x,\eta)}{\partial x_i} \frac{\partial \varphi_i(x,\xi,\eta)}{\partial \xi} + \frac{\lambda}{2} \sum_{i,j=1}^{n} \frac{\partial^2 v(x,\eta)}{\partial x_i \partial x_j} k_{ij} \sigma_i \sigma_j \frac{\partial (\mu_i \mu_j)}{\partial \xi} + \frac{\partial \omega}{\partial \xi} = 0 \qquad (1.9)$$

The optimum functions v^o and ξ^o are determined by equations (1.8) and (1.9), whereby the conditions of the problem are satisfied by that solution of the equations, for which v^o is a positive definite form. In general, the solution of Eqs. (1.8) and (1.9) is very cumbersome. Hence, the following approximate method is proposed: Instead of system (1.2)(1.3), the auxiliary system

$$\frac{dx_i}{dt} = \psi_i[x, \eta, \vartheta], \ \xi = \xi(x, \eta, \vartheta) \qquad (2.1)$$

is considered, where the parameter ϑ is introduced, so that for $\vartheta = 0$, the functional

$$\int_0^\infty \varepsilon(x, \xi, \vartheta)\, dt$$

can be readily minimized, and that for ϑ varying from zero to unity, the functions ψ and ε pass continuously into the functions φ_i and ω. By differentiating Eqs. (1.8) and (1.9) with respect to ϑ, equations can be obtained which describe the variation in the solutions ϑ^o and ξ^o with varying ϑ. In particular, v^o and ξ^o can be sought in the form of expansions:

$$\bar{v}^0 = \sum_k a_k(\vartheta)\zeta_k(x,\eta), \quad \xi^0 = \sum_k b_k(\vartheta)\zeta_k(x,\eta) \tag{2.2}$$

in terms of a system of functions $\zeta_k(x, \eta)$ which satisfies Eqs. (1.8) and (1.9) in approximating finite combinations of Eq. (2.2), (in the mean-square approximation, for example). The conditions of such an approximation yield the equations for the change in the coefficients a_k and b_k with respect to ϑ. This method is also convenient by the fact that, proceeding from the stable solution of the problem for $\vartheta = 0$, and varying continuously the parameters of the problem and the solution with ϑ, it is possible to obtain that branch of the solution to Eqs. (1.8) and (1.9) which also gives (for each ϑ) the solutions ensuring the passage of the trajectory of the transient process along the pre-assigned motion $z_o(t)$ $(x(t) = 0)$. An example is given involving the choice of a con-

29242
S/103/61/022/010/001/018
D274/D301

Analytical design of...

troller for a second-order system. There are 4 Soviet-bloc references.

SUBMITTED: March 18, 1961

4

Card 5/5

31261
S/103/61/022/011/001/014
D271/D306

16.4000 (1031)

AUTHORS: Krasovskiy, N.N., and Lidskiy, E. A. (Sverdlovsk)

TITLE: Analytical design of controllers in a system with chance properties. III. Optimum control in linear systems. Minimum mean-square error

PERIODICAL: Avtomatika i telemekhanika, v. 22, no. 11, 1961, 1425-1431

TEXT: The authors aim at determining an optimum control law for linear stochastic control systems and analyze conditions, in which a solution is possible. It is assumed that the automatic control system is defined by a linear motion equation in terms of usual coordinates, a variable $\eta(t)$ describing chance properties of the system which is of a Markov character, and of a random pulse function representing interference. Transients are evaluated by a minimizing integral, and the problem is, therefore, that of finding a control law which would ensure a probable asymptotic motion stability of X = 0. The method used is based on Lyapunov's optimal

Card 1/4

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000929820(

31261
S/103/61/022/011/001/014
D271/D306

Analytical design of ...

functions ν^0; one of the conditions which ν^0 must satisfy is the Silvester criterion. Two cases are considered: A) When the variable $\eta(t)$ can assume a finite number of values, B) When the function $q(\eta, \beta)$ /‾Abstractor's note: Not defined in the present paper_7 has a density $p(\eta, \beta)$. The function ν^0 is of the form $\nu^0 = \sum_{i,j=1}^{n} b_{ij}(\eta) x_i x_j$. The coefficients $b_{ij}(\eta)$ are determined by a system of algebraic equations in the case A),and in the case B) a system of integral equations can be obtained which extends to stochastic systems the equations first derived by A. M. Lyetov (Ref. 4: Avtomatika i telemekhanika, v. 21, no. 4, 5, 6, 1960 and v. 22, no. 4, 1961). The method for approximate solution was previously described by the authors. It is illustrated in the case of the system defined by a linear motion equation. A parameter ϑ is introduced; $\vartheta = 0$ when there are n independently controlled channels, and $\vartheta = 1$ when only one control affects all coordinates. When $\vartheta = 0$, the optimal func-

4

Card 2/4

tion is of the form $v^0 = \sum_{i=1}^{n} b_{ii}x_i^2$. When $\vartheta > 0$, a system of differential equations is obtained of the form:

$$\frac{\partial b_{ij}^{(1)}}{\partial \vartheta} = \varphi_{ij}^{(1)}\left(b_{11}^{(m)}, \ldots, b_{nn}^{(m)}, \vartheta\right) \quad (i=1,\ldots,n; j=1; m=1,\ldots,k) \quad (4.6)$$

These equations must be integrated in the interval $0 \leqslant \vartheta \leqslant 1$ taking into account the initial conditions, at $\vartheta = 0$. The question whether the integration is possible is equivalent to the problem of existence of an optimum solution. Assuming the existence of a permissible control signal it is proved than an optimum control also exists. The existence of a permissible signal ensures the convergence of the integral of the mean-square error if the system is linear. The proof of the possibility of finding optimum control is based on

Analytical design of ...

31261
S/103/61/022/011/001/014
D271/D306

auxiliary systems with the parameter ϑ; it is assumed that interference depends only on mismatch. An equation is derived in which the left-hand is a function of the mathematical expectation of optimal function and the right-hand side is a quadratic expression. There are 5 Soviet-bloc references.

4

SUBMITTED: March 18, 1961

Card 4/4

26728
S/040/61/025/003/005/026
D208/D304

16.6100 16.8000 (1031,1344)

AUTHORS: Krasovskiy, N.N., and Lidskiy, E.A. (Sverdlovsk)

TITLE: Analytic construction of regulators in stochastic systems with integrals on the velocity of change of the regulating influence

PERIODICAL: Akademiya nauk SSR. Otdeleniye tekhnicheskikh nauk. Prikladnaya matematika i mekhanika, v. 25, no. 3, 1961, 420 - 432

TEXT: A regular system is considered, in which the transition process may be written in stochastic differential equations of perturbed motion

$$\frac{dx_i}{dt} = f_i\,[x_1, \ldots, x_n, \xi, \eta(t)] \quad (i = 1, \ldots, n) \quad (1.1)$$

where x_i are the deviations of the actual values of the coordina-

Card 1/9

26728
S/040/61/025/003/005/026
D208/D304

Analytic construction of ...

tes of the regulated vector quantity from the original (unperturbed) value $x_i = 0$ $(i = 1, \ldots, n)$ ξ is the regulating influence. Since the system is subject to random change, the random variable $\eta(t)$ is included in the arguments of the function. It is assumed that f_i are known continuous functions satisfying the Lipshits conditions [Abstradtor's note: Conditions not stated] in some region G of the space (x, ξ, η), $f_i(0, \ldots, 0, \eta(t)) = 0$, and the variable $\eta(t)$ describes the Markov random process [Abstractor's note: Process not stated]. The correct formulation of ξ in the regulator is obtained from

$$J = \int_0^\infty M\{\omega[x_1(t), \ldots, x_n(t), \xi(t), \dot{\xi}(t)]\}\, dt = \min \qquad (1.2)$$

where M denotes the expectation of the random quantity, which is a given non-negative function of the arguments. The equation of the optimum regulator is of the form

Card 2/9

$$\dot{\xi} = [x_1, \ldots, x_n, \xi, \eta]. \qquad (1.3)$$

The realization of the random variable $\eta(t)$ is a power function $\eta^{(p)}(t)$. If η in (1.3) is chosen then for each realization and initial condition $(x_{io}, \xi_o, t = t_o)$, (1.1) and (1.3) have a continuous realization $x^{(p)}(x_o, \xi_o, t_o, t, \eta^{(p)})$, $\xi^{(p)}(x_o, \xi_o, t_o, t, \eta^{(p)})$ of $x(t)$, $\xi(t)$. If the random process takes place in the space $(x_1, \ldots, x_n, \xi, \eta)$, then it is described as the Markov random process. Let $\{x(t), \xi(t), \eta(t)\}/x_o, \xi_o, \eta_o, t_o$ denote a Markov random vector-function with initial conditions x_i, x_{io}, $\xi = \xi_o$, $\eta = \eta_o$ at $t = t_o$, and giving for $t \geqslant t_o$ a solution of (1.1) and (1.3). It is assumed that f_i and ξ are continuous in the space (x, ξ) and that the region G is given by $\{-\infty < x_i < \infty$ $(i = 1, \ldots, n)$, $-\infty$

$< \xi < \infty$, $\eta_1 \leqslant \eta \leqslant \eta_2$. J_ξ is given by

$$J_\xi[x_0, \xi_0, \eta_0] = \int_0^\infty M\{\omega[x(t), \xi(t), \dot{\xi}(t)] / x_0, \xi_0, \eta_0, t_0 = 0\} dt \qquad (2.3)$$

The problem consists of determining $\xi^0[x, \xi, \eta]$, satisfying a) (2.1.) The unperturbed motion $x = 0$, $\xi = 0$ with $\xi = \xi^0$ must be asymptotic to the probability relative to any initial perturbation. b) Condition (2.2.). For any initial conditions (2.3.) must be the final condition and

$$J_{\xi^0}[x_0, \xi_0, \eta_0] = \min_\xi J_\xi[x_0, \xi_0, \eta_0] \qquad (2.4)$$

must hold. The problem is solved by means of the optimum Lyapunov function v^0 which is required to satisfy the following conditions: Condition 3.1.

$$v^0(x, \xi, \eta) \geqslant w(x, \xi) > 0 \text{ for } \{x, \xi\} \neq 0$$

$$w(x, \xi) \rightarrow \infty \text{ for } \{x, \xi\} \rightarrow \infty;$$

Condition 3.2. $\left(\frac{dM\{v^0\}}{dt}\right) = -\omega[x_1, \ldots, x_n, \xi, \zeta^0];$ (3.1)

Condition 3.3. $\left(\frac{dM\{v^0\}}{dt}\right)_{\xi^0} + \omega[x_1, \ldots, x_n, \xi, \xi^0] = \min_{\xi} \left[\left(\frac{dM\{v^0\}}{dt}\right)_{\xi} + \omega[x_1, \ldots, x_n, \xi, \xi]\right];$ (3.2)

Condition 3.4.: $v^0(x, \xi, \eta)$ may have an infinitely small upper bound, and $v^0[x, \xi, \eta] \rightarrow 0$ as $\omega[x, \xi, \eta] \rightarrow 0$. The solutions for v^0 and ξ^0 are given by

$$\sum_{i=1}^{n} \frac{\partial v^0(x, \xi, \eta)}{\partial x_i} f_i[x, \xi, \eta] + \frac{\partial v^0(x, \xi, \eta)}{\partial \xi} \zeta^0[x, \xi, \eta] + \sum_{k=1}^{m} v^0(x, \xi, \beta_k) q(\eta, \beta_k) - q(\eta) v^0(x, \xi, \eta) + \omega[x, \xi, \zeta^0] = 0 \quad (4.7)$$

$$\frac{\partial v^{\circ}(x, \xi, \eta)}{\partial \xi} + \frac{\partial \omega [x, \xi, \zeta^{\circ}]}{\partial \zeta} = 0 \qquad (4.8)$$

where q = 1-p has its usual significance in the probability theory. These equations may be solved by approximation methods. The problem of choice of parameters of the linear system minimizing the quadratic criterion of quality is then discussed. From the works of N.G. Chetayev (Ref. 2: Ustoychivost' dvizheniya (Stability of Motion), Gostekhizdat M., 1956), A.A. Krasovskiy and A.A. Fel'dbaum (Ref. 14: Vychislitel'nyye ustroystva v avtomaticheskykh sistemakh (Calculating Structure in Automatic Systems) Fizmatgiz, 1959) and J. Bertram and R. Kalman the following equations are obtained

$$\sum_{i=1}^{2} \frac{\partial v^{\circ}(x, \xi, \eta_l)}{\partial x_i}\left[\sum_{j=1}^{2} a_{ij}(\eta_l) x_j + m_i \xi\right] + p_{lk}[v^{\circ}(x, \xi, \eta_k) - v^{\circ}(x, \xi, \eta_l)] - -\frac{1}{4}\left[\frac{\partial v^{\circ}(x, \xi, \eta_l)}{\partial \xi}\right]^2 = -x_1^2 - x_2^2 - \xi^2 \quad (l = 1,2;\ k \neq l) \qquad (6.6)$$

(6.6)

$$v^0(x_1, x_2, \xi, \eta_l) = \sum_{i,j=1}^{2} [b_{ij}(\eta_l) x_i x_j + b_i(\eta_l) x_i \xi] + c(\eta_l) \xi^2 \quad (l = 1, 2) \tag{6.7}$$

By substituting the right-hand side of (6.7) in (6.6) and equating coefficients of like powers of x_i and ξ, the equations for b_{ij}, b_i and c may be obtained as required. The problem of the existence of an optimum control law for the case

$$P[\eta_i \longrightarrow \eta_j \text{ after time } \Delta t] = p_{ij} \Delta t + o(\Delta t) \quad (i \neq j). \tag{6.3}$$

This is the question of the existence of a solution v^0 of the system (6.6). A regularization law $\xi = \zeta(q)$ is said to be possible if by this law the system

$$\frac{dx_i}{dt} = \sum_{j=1}^{2} a_{ij}(\eta) x_j + m_i \xi \quad (j = 1, 2) \tag{6.1}$$

Card 7/9

approaches the probability asymptotically, and the integral of (6.3) has a finite value for any initial conditions. The problem of the existence (and optimum properties) of a control is investigated by F.M. Kirillova. In the case where a possible control exists, the existence of an optimum control is investigated by considering the system

$$\frac{dx_i}{dt} = \vartheta\left[\sum_{j=1}^{2} a_{ij}(\eta)\, x_j + m_i \xi\right] - (1 - \vartheta)x_i \quad (i = 1, 2;\ 0 \leqslant \vartheta \leqslant 1), \tag{7.1}$$

and

$$\dot{\xi} = \zeta[x_1, x_2, \xi, \eta; \vartheta]. \tag{7.2}$$

It is required that for every $\vartheta \in [0, 1]$ the system is asymptotic to the probability and that

$$J_\zeta[x_{10}, x_{20}, \xi_0, \eta_0, \vartheta] =$$

26728
S/040/61/025/003/005/026
D208/D304

Analytic construction of ...

$$= \int_0^\infty M \{[x_1^2(t) + x_2^2(t) + \xi^2(t) + \xi^2(t)]/x_{10}, x_{20}, \xi_0, \eta_0, t_0 = 0\} dt = \min \quad (7.3)$$

The optimum condition is found to be $\vartheta = 1$. There are 15 references: 13 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: R. Bellman, Dinamic programming and stochastic control processes. Inform. and Control, vol. 5, p 228-239, 1958; R.E. Kalman a. I.E. Bertram, Control System Analysis and Design Via the "Second Method" of Lyapunov. Paper Amer. Soc. Mech. Engr., no. 2, 1959.

SUBMITTED: March 7, 1961

Card 9/9

LIDSKIY, E.A. (Sverdlovsk)

Stabilization of stochastic systems. Prikl. mat. i mekh. 25 no.5:824-835 S-O '61. (MIRA 14:10)
(Automatic control)

LIDSKIY, E. A.

"Stability of solutions of a stochastic system,"

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

16.8000

36034
S/040/62/026/002/006/025
D299/D301

AUTHOR: Lidskiy, E.A. (Sverdlovsk)

TITLE: On analytic design of controllers in random systems

PERIODICAL: Prikladnaya matematika i mekhanika, v. 26, no. 2, 1962, 259 - 266

TEXT: The design of an optimal controller in a stochastic linear system is considered with a mean-square error integral criterion. The optimal Lyapunov function is constructed by the small-parameter method. This work is a continuation of A.M. Letov (Ref. 3: Analiticheskoye konstruirovaniye regulyatorov, part I-IV. Avt. i telemekh., 1960, 4-6, and 1961, no. 4) and N.N. Krasovskiy and E.A. Lidskiy (Ref. 4: Analiticheskoye konstruirovaniye regulyatorov v sistemakh so sluchaynymi svoystvami, part I-III. Avt. i telemkh. 1961, no. 9-11). The transient process is described by

$$\frac{dx}{dt} = A(\eta)x + c(\eta)\xi \qquad (1.1)$$

where x and c are n-dimensional vectors, (t) - a random quality,
Card 1/3

S/040/62/026/002/006/025
D299/D301

On analytic design of controllers ...

$A(\eta)$ - a matrix of type $//a_{ij}//_1^n$; the scalar $\xi(x, \eta)$ represents the controller action. The Markov process $\eta(t)$ is described by means of the functions $q(\alpha)$, $q(\alpha, \beta)$. The controller $\xi(x, \eta)$ is called optimal for system (1.1) if it minimizes the mean of the integral mean-square error. ξ is constructed by the method of Lyapunov functions, based on dynamic-programming techniques, as applied to the stochastic system (1.1). The concepts and notations of Ref. 4 (Op.cit.) are used. Lyapunov's function v and the optimum controller ξ are determined in the form of series in the small parameter μ, viz.:

$$v(x, \eta, \mu) = \sum_{k=0}^{\infty} \mu^k v_k, \quad \xi(x, \eta, \mu) = \sum_{k=0}^{\infty} \mu^k \xi_k \qquad (1.3)$$

(thereby it becomes unnecessary to solve a system of quadratic integral equations for the coefficients of the series). Now the problem reduces to the successive calculation of the coefficients v_k and ξ_k from linear systems. The convergence of the thereby obtained series, to $v(x, \eta)$ and $\xi(x, \eta)$ is proved. Two cases are conside-
Card 2/3

On analytic design of controllers ... S/040/62/026/002/006/025
D299/D301

red: $q(\alpha) = \mu r(\alpha)$, $q(\alpha, \beta) = \mu r(\alpha, \beta)$, (1.4)

where μ is a small parameter, and

$$dx/dt = Ax + \mu R(\eta)x + c\xi, \qquad (1.5)$$

where $\mu R(\eta)x$ denotes the terms which depend on $\eta(t)$ and R is a matrix. The obtained results are formulated as a theorem: If the coefficients A and c of system (1.1) are continuous on the interval $\eta_1 \leq \eta \leq \eta_2$ and the following conditions hold: 1) The vectors $c(\eta)$, $A(\eta)c(\eta)$, ..., $A^{n-1}(\eta)c(\eta)$ are linearly independent; 2) Either the transition probabilities $\eta = d \rightarrow \eta = \beta$ are small, or the right-hand sides of (1.1) can be expressed in the form (1.5), then Lyapunov's function v and the optimum controller ξ can be expressed by the series (1.3). The coefficients of the series are found by solving a system of algebraic- or of integral equations. There are 12 references: 10 Soviet-bloc and 2 non-Soviet-bloc (in translation).

Card 3/3

LIDSKIY, E.A.

Stability of solutions to a slowly varying stochastic system.
Sib. mat. zhur. 4 no.5:1128-1136 S-O '63. (MIRA 16:12)

LIDSKIY, E.A. (Sverdlovsk)

Optimum control of systems with random properties. Prikl. mat. i mekh. 27 no.1:33-45 Ja-F '63. (MIRA 16:11)

...ifferentsial'nyye uravneniya, v. 1, no. 1, ...

TOPIC TAGS: ... system

ABSTRACT: A study is made of the stability of the motion described by the linear differential equation

$$\frac{dx}{dt} = Ax(t) + Bx(t + \eta). \quad (1)$$

... x(t) is an n-dimensional vector in phase space, A and B are con-

L 46191-66 EWT(d)/EWP(1) IJP(c)

ACC NR: AR6000??? SOURCE CODE: UR/0124/65/000/009/A010/A010

8

AUTHOR: Lidskiy, E. A.

B

TITLE: Stability of solutions in stochastic systems

SOURCE: Ref. zh. Mekhanika, Abs. 9A94

REF SOURCE: Tr. Mezhvuz. konferentsii po prikl. teorii ustoychivosti dvizheniya i analit. mekhan., 1962. Kazan', 1964, 99-102

TOPIC TAGS: stability criterion, stochastic process, matrix element

ABSTRACT: The equation of the following form is considered:

$$\dot{x} = A(t, \eta)x \qquad (1)$$

where x is an n-dimensional vector, $A(t, \eta)$ is the matrix $\|a_{ij}\|_1^n$, bounded and continuous together with its first and second derivatives with respect to η; $\eta(t)$ is a stochastic function. If, for any fixed $\eta = \alpha$, the solution of (1) satisfies the conditions of asymptotic stability for unsteady determinate systems, then it is required to show boundedness imposed on the properties of the stochastic function $\eta(t)$. This, combined with the previous assumptions, can become sufficient for asymptotic stability of the solution of (1) in probability. The author, by fixing the magnitude $\eta = \alpha$, constructs the function $V(t,x,\alpha)$ in a positive definite

Card 1/2

L 46191-66

ACC NR: AR6000700

quadratic form (obtained after the Lyapunov function for the system (1)), considers $\eta(t)$ as a random quantity, and determines the conditions under which the negativity of the derivitive is satisfied. The conclusions are applied to the case of linear stochastic differential equations (1), and conditions of asymptotic stability in probability are given. S. V. Kalinin [Translation of abstract]

SUB CODE: 12

Card 2/2

LIDSKIY, V.B. (Moskva)

Fourier expansion of a non-self-conjugate elliptic operator in terms of main functions. Mat. sbor. 57 no.2:137-150 Je '62. (MIRA 15:6)

(Fourier series) (Operators (Mathematics)) and product of symmetric matrices. Doklady Akad. Nauk SSSR (N.S.) 75, 769–772 (1950). (Russian)

Let *A* and *B* be real symmetric matrices with character-

LIDSKIY, V. B.

Dissertation: -- "Spectral Theory Problems Connected With a System of Differential Equations of the Second Order." Cand Phys-Math Sci, Moscow Order of Lenin State U imeni M. V. Lomonosov, 11 Jun 54. (Vechernyaya Moskva, Moscow, 2 Jun 54)

SO: Sum 318, 23 Dec. 1954

LIDSKIY, V.B.

Number of solutions with integrated square for a system of differential equations $-y'' + P(t)y = \lambda y$. Dokl.AN SSSR 95 no.2:217-220 Mr '54. (MLRA 7:3)

(Differential equations, Linear)

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R000929820(

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R00092982O(

[illegible]

circle [illegible] the [illegible]

[illegible]

had been g[illegible]
review], and M. Mors[illegible] (Math. Ann. 103 (1930), [illegible]

F. V. Atkinson (Canberra)

Gel'fand, I.M. and Lidskii, V.B.

Yakubovič, V. A. Questions of the stability of solutions of a system of two linear differential equations of canonical form with periodic coefficients. Mat. Sb. N.S. 37(79) (1955), 21-68. (Russian)

The author gives proofs and a detailed account of results already announced by him [Dokl. Akad. Nauk SSSR (N.S.) 78 (1951), 221-224; MR 13, 237]. The first half of the paper deals essentially with the case $k=1$ of the problem considered by Gel'fand and Lidskiĭ (second preceding review, which see for notation). The present treatment uses different methods, and is considerably more detailed; also Lebesgue integrability is required of $H(t)$ in place of piecewise continuity. A long footnote (pp. 42 4[illegible]) suggests a method [illegible] beyond the case [illegible] [illegible] on $H(t)$ in order that the system should belong to a particular region of stability or instability; criteria are deduced regarding the stability [illegible] where

4

Gel'fand, [illegible]

[illegible]

bility criteria for [illegible]
intended for numerical application [illegible]
with a section on the [illegible]
conditions, too involved to reproduce for the [illegible]
instability zones on the real [illegible]
parametric case $H(t) = H_2(t)$ to be separat[illegible] by the
eigen-values of the periodic and s[illegible]
conditions, [illegible]

[illegible]

LIDSKIY, V.B.

SUBJECT USSR/MATHEMATICS/Differential equations CARD 1/1 PG - 120

AUTHOR LIDSKIJ V.B., NEJGAUS M.G.

TITLE On stability criteria of a system of differential equations with periodic coefficients.

PERIODICAL Priklad. Mat. Mech. 19, 625-627 (1955) reviewed 7/1956

The authors consider the system of k differential equations

(1) $$y'' + (n^2 E_k + \lambda Q(t))y = 0,$$

where $Q(t)$ is a real symmetric periodic matrix: $Q(t+\pi) = Q(t)$, E_k - unit matrix, n - integer, $y(t)$ a vector $(y_1(t),\dots y_n(t))$, λ - real parameter.

Starting from Krejn's theorem on the monotone motion of the multiplicators on the unit circle (Doklad Akad. Nauk 73, 445-448 (1950)) the authors establish the following criterion:

Let $Q(t)$ be of constant sign and n different from zero. If now

$$\int_0^{\pi} |\sin n\xi| \cdot |Q(\xi+t)| \, d\xi < 2n \qquad 0 \leq t \leq \pi,$$

then all solutions of (1) are bounded for $|t| \to \infty$.

INSTITUTION: Moscow.

LIDSKIY, V.B.

USSR/Mathematics - Oscillating theorems

Card 1/2 Pub. 22 - 6/54

Authors : Lidskiy, V. B.

Title : Oscillating theorems for the canonical system of differential equations

Periodical : Dok. AN SSSR 102/5, 877-880, June 11, 1955

Abstract : A proof is presented for the theorems dealing with oscillating solutions of the canonical differential equations expressed in the matrix form: $\frac{d}{dt} = Y\ IH(t)Y$ where the I is a constant matrix of the type $I = \left(-\begin{matrix} 0 & E_k \\ E_k & 0 \end{matrix}\right)$ the E_k is a singular matrix of the K order; the matrix H(t) is $H(t) = \begin{pmatrix} h_1(t) & h_2(t) \\ h_3(t) & h_4(t) \end{pmatrix}$ and the matrix $Y(t) = \begin{pmatrix} y_1(t) & y_2(t) \\ y_3(t) & y_4(t) \end{pmatrix}$ in which

Institution : ....

Presented by : Academician A. N. Kolmogorov, March 8, 1955

Card: 2/2 Pub. 22 - 6/54

Periodical : Dok. AN SSSR 102/5, 877-880, June 11, 1955

Abstract : $h_s(t)$ and $y_s(t)$ are quadratic matrics of the order K(S=1,2,3,4). Three references: 1 USA and 2 USSR (1930-1955).

~~LIDSKIY, V.B.~~ LIDSKIY, V.B.

CARD 1/2 PG - 666

SUBJECT USSR/MATHEMATICS/Functional analysis
AUTHOR LIDSKIJ V.B.
TITLE On the completeness of the system of eigenfunctions and the associated functions of a non-selfadjoint differential operator.
PERIODICAL Doklady Akad.Nauk 110, 172-175 (1956)
reviewed 3/1957

Let be given a non-selfadjoint differential operator

$$Ly = y'' + p(x)y$$

in the Hilbert space $\mathcal{L}_2$ of the functions being integrable with square on the real axis. Let the complex function p(x) be representable in the form

$$p(x) = q(x) + r(x).$$

Here let q(x) be a real function such that

$$\lim_{|x|\to\infty} q(x) = +\infty$$

and let r(x) be a complex function the modul of which increases slowlier than q(x). Let the functions q(x) and r(x) be bounded and summable on the finite interval of the real axis.
By aid of a theorem due to Kel'dyš (Doklady Akad.Nauk 77, No.1 (1951)) as his principal result the author proves the following theorem: Let for any α,

LIDSKIY, V.B.

SUBJECT USSR/MATHEMATICS/Functional analysis CARD 1/2 PG - 875
AUTHOR LIDSKIJ V.B.
TITLE A theorem on the spectrum of a perturbed differential operator.
PERIODICAL Doklady Akad.Nauk 112, 994-997 (1957)
reviewed 6/1957

The author considers the differential operator

$$Lu = -\Delta u + p_1(x)u,$$

where Δ is the Laplace operator, $x(x_1,x_2,\dots,x_n)$ is a point of the E_n and $p_1(x)$ is a continuous complex function. Let the region of definition $D(L)$ be a linear manifold which lies dense in the Hilbert space L_2 of the complex functions the square of which is integrable over the whole E_n. Let L be closed and have the resolvent R_λ with the region of regularity $\mathfrak{G}$. Besides the perturbed differential operator

$$\tilde{L}u = -\Delta u + (p_1(x)+p_2(x))u$$

Doklady Akad.Nauk 112, 994-997 (1957) CARD 2/2 PG - 875

is considered, where $p_2(x)$ is a continuous function and

$$\lim_{|x| \to \infty} p_2(x) = 0.$$

Furthermore let $D(\tilde{L}) \equiv D(L)$.

Theorem: $\tilde{L}u$ has a resolvent R_λ; this resolvent is regular in $\mathfrak{G}$ with the exception of at most countably many points which have no accumulation point in $\mathfrak{G}$. These points are poles of $\tilde{R}_\lambda$.

INSTITUTION: Physical-Technical Institute, Moscow.

LIDSKIY, V. B.

PA - 2907

AUTHOR: LIDSKIY, V.B.

TITLE: On the Conditions for Total Continuity of the Resolvent of a non-selfadjoined Differential Operator. (Usloviya polnoy nepreryvnosti rezolventy nesamosopryazhennogo differentsial'nogo operatora, Russian)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 1, pp 28 - 31 (U.S.S.R.)
Reviewed: 6 / 1957
Received: 5 / 1957

ABSTRACT: In the present paper the differential equation -y" + p(x)y = y is investigated with p(x) denoting the complex function q(x) + ir(x). In this case q(x) and r(x) denote real functions, which are infinitely summable in every arbitrary interval of the real axis. In connection with this equation the operator Ly = -y" + p(x)y in the HILBERT space $L_2(-\infty, +\infty)$ is investigated. The domain of definition D of the operator L is formed by the functions $y(x) \in L_2(-\infty, +\infty)$, which, together with their derivatives, are absolutely continuous in every finite interval. Besides, the equation $-y" + p(x)y \in L_2(-\infty, +\infty)$ must hold. The present paper furnishes the conditions imposed on the function p(x), so that the operator L has a totally continuous resolvent and therefore a discrete spectrum. The paper consists of the proof of the following three theorems:

Card 1/3