"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

Bredihin, B. M. An example of a finite homomorphism with a bounded summation function. Uspehi Mat. Nauk (N.S.) 11 (1956), no. 4(70), 119-122. (Russian)

Let G be a semigroup of real numbers ≥ 1 with a finite or countably infinite basis. Let Z be a finite set of n non-zero complex numbers. A finite homomorphism is a homomorphic mapping $\alpha \in G \to \chi(\alpha) \in Z$. (Clearly $\chi(\alpha) = \exp(2\pi i k/n)$ with a $0 \leq k < n$). $\chi(\alpha)$ is called a generalized character if the summation function $\sum_{\alpha \leq x, \alpha \in G} \chi(\alpha)$ is bounded. (The Dirichlet characters are generalized characters of semigroups of positive integers with a basis containing almost all primes.)

It is proved: Let G be a semigroup of rational numbers $r \geq 1$ with a finite basis $r_1, \cdots, r_N$ $(N \geq 2)$ and $\chi(r)$ a finite homomorphism of G. Then there exists a semigroup of rational numbers $G_0 \supset G$ having an infinite basis and an extension $\chi_0(r)$ or $\chi(r)$ to the semigroup G_0 such that $\chi_0(r)$ is a generalized character.

The author remarks that this result can be regarded as a first step in the effort to solve the following problem due to Čudakov: does there exist a generalized character of a semigroup of positive integers which is different from a Dirichlet character?

Š. Schwarz (Bratislava).

Math I-F\W

2

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

AUTHOR: Bredikhin, B.M. SOV/140-58-3-4/34

TITLE: On Power Densities of Certain Subsets of Free Semigroups (O stepennykh plotnostyakh nekotorykh podmnozhestv svobodnykh polugrupp)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1958. Nr 3, pp 24-30 (USSR)

ABSTRACT: The paper is a generalization of the results of Kanold [Ref 1] and Scherk [Ref 2].
Let G be a multiplicative free commutative semigroup with a denumerable system P of generating elements $\omega_1, \omega_2, \ldots$.

Let N be a homomorphism of G on the multiplicative semigroup $\overline{G}$ of the positive numbers, so that in G only for a finite number of elements it holds $N(\alpha) \leq x$, where $N(\alpha)$ is the image, "the norm" of the element $\alpha \in G$.

Let $\nu_G(x) = \sum_{N(\alpha) \leq x, \alpha \in G} 1$. If there exists $\lim_{x \to \infty} (\nu_G(x) / x^{\theta}) = C$, where $\theta > 0$, $C > 0$, then C is called the θ - power density of G. Let on G be

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$$\mu(\alpha) = \begin{cases} 1 & \text{for} \quad \alpha = 1 \\ (-1)^k & \text{for} \quad \alpha = \omega_{i_1} \cdots \omega_{i_k} \\ 0 & \text{for} \quad \omega_i^2 / \alpha \end{cases}$$

Then it is $\sum_{\beta/\alpha} \mu(\beta) = 1$ for $\alpha = 1$ and $= 0$ for $\alpha \neq 1$.

Every element $\alpha \in G$ is representable in the form $\alpha = \beta \gamma^2$, where $\mu(\beta) \neq 0$. Here $\gamma = Q(\alpha)$ is uniquely determined by α.

Let μ and δ be given elements of G. Let g' be the set of those $\alpha \in G$, for which $(\alpha, \mu) = 1$, $Q(\alpha) = 1$. Let g" be the set of the $\alpha \in G$ for which $(\alpha, \mu) = 1$ and $Q(\alpha) = \delta$. Let g''' be the set of the $\alpha \in G$ for which the $(\alpha, \mu) = 1$, $N(Q(\alpha)) \geqslant N(\delta)$. Corresponding to the three cases the author defines $\nu'_{\mu}(x)$, $\nu''_{\mu,\delta}(x)$ and $\nu'''_{\mu,\delta}(x)$.

Theorem : Let for the given homomorphism N exist the power density $C > 0$ of the semigroup G, Then there exist the power densities of g', g" and g''' and are equal to

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$$C' = C_G \prod_{\omega/\mu} \frac{N(\omega)^\theta}{N(\omega)^\theta + 1} ; \quad C'' = C' \frac{1}{N(\delta)^{2\theta}} , \quad (\delta,\mu) = 1 ;$$

$$C''' = C \prod_{\omega/\mu} \frac{N(\omega)^\theta - 1}{N(\omega)^\theta} - C' \sum_{N(\beta)<N(\delta),\,(\beta,\mu)=1} (1 / N(\beta)^{2\theta})$$

(C_G = const and depending on G and N only).

Theorem: Let for given N be $\nu_G(x) = Cx^\theta + R(x)$, $R(x)=O(x^{\theta_1})$, $\theta_1<\theta$. Then it is $\nu'_\mu(x) = C'x^\theta + r(x)$, $\nu''_{\mu,\delta}(x)=C''x^\theta + r(x)$ $[(\delta,\mu) = 1]$, $\nu'''_{\mu,\delta}(x) = C''' x^\theta + r(x)$. Here it is $r(x) = O(x^{\theta/2})$ for $\theta_1<\frac{\theta}{2}$, $= O(x^{\theta/2} \log x)$ for $\theta_1 = \frac{\theta}{2}$, $= O(x^{\theta_1})$ for $\theta_1>\frac{\theta}{2}$.

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On Power Densities of Certain Subsets of Free Semigroups SOV/140-58-3-4/34

There are 5 references, 1 of which is Soviet, 1 English, 1 American, and 2 are German.

ASSOCIATION: Kuybyshevskiy pedagogicheskiy institut imeni V.V.Kuybysheva (Kuybyshev Pedagogical Institute imeni V.V.Kuybyshev)

SUBMITTED: October 11, 1957

Card 4/4

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

AUTHOR: Bredikhin, B.M. (Kuybyshev) SOV/39-46-2-2/6

TITLE: Free Number Semigroups With Power Densities (Svobodnyye chislovyye polugruppy so stepennymi plotnostyami)

PERIODICAL: Matematicheskiy sbornik, 1958, Vol 46, Nr 2, pp 143-158 (USSR)

ABSTRACT: Basing on the investigations of Ayoub [Ref 4] and Breusch [Ref 5] the author gives an elementary proof of the asymptotic law of distribution for number semigroups with given systems of generating elements. Therefore, with the aid of a homomorphism, a so-called free number semigroup is formed, and a generalized notion of density is introduced for it. After the proof of the law of distribution some applications are given (e.g. distribution of zeros of the ζ-functions of free semigroups). The paper contains 6 theorems and 12 lemmas.
There are 15 references, 7 of which are Soviet, 1 Canadian, 2 English, 4 American, and 1 Japanese.

SUBMITTED: April 2, 1957

Card 1/1

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

20-118-5-1/59

AUTHOR: Bredikhin, B.M.

TITLE: Free Numerical Semigroups With Power Densities (Svobodnyye chislovyye polugruppy so stepennymi plotnostyami)

PERIODICAL: Doklady Akademii Nauk, 1958, Vol 118, Nr 5, pp 855-857 (USSR)

ABSTRACT: Let G be a multiplicative semigroup of real numbers $\alpha \geqslant 1$ $(1 \in G)$ which are ordered in the usual way:

$$1 = \alpha_1 < \alpha_2 \leqslant \alpha_3 \leqslant \dots$$

The numbers $\omega_1 \leqslant \omega_2 \leqslant \omega_3 \leqslant \dots$ $(\omega_i \in G,\ \omega_i > 1)$ are called generating elements of G, if for each $\alpha \in G$ it holds $\alpha = \omega_1^{x_1} \omega_2^{x_2} \dots$, where the x_i are integer and positive. G is called a free numerical semigroup, whereby the consideration is restricted to such G which possess no finite points of accumulation.

Let be

$$\nu_G(x) = \sum_{\alpha \leqslant x,\ \alpha \in G} 1 \quad , \quad \tilde{\pi}_G(x) = \sum_{\omega \leqslant x,\ \omega \in G} 1$$

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If $\lim_{x\to\infty} (\nu(x)/x^{\theta}) = C$ exists, where $\theta > 0$, $C > 0$, then C is called the power θ - density of G.

The author considers the determination of the asymptotic behavior of $\pi_G(x)$ in terms of the given asymptotic behavior of $\nu_G(x)$.

Selberg's generalized lemma : Let be

$$\nu_G(x) = C\, x^{\theta} + O\,(x^{\theta_1}) \quad , \quad \theta_1 < \theta \ .$$

Then it is

$$\psi_G(x) \log x + \sum_{\alpha \leq x} \Lambda_G(\alpha)\psi_G\left(\frac{x}{\alpha}\right) = \frac{2}{\theta}\, x^{\theta} \log x + O\,(x^{\theta})$$

where

$$\Lambda_G(\alpha) = \begin{cases} \log \omega & \text{if } \alpha = \omega^x \ (x > 0) \\ 0 & \text{if } \alpha \neq \omega^x \end{cases} \qquad \psi_G(x) = \sum_{\alpha \leq x} \Lambda_G(\alpha)$$

Theorem: If the supposition of the lemma holds for G, then

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Free Numerical Semigroups With Power Densities 20-118-5-1/59

$$\tau_G(x) \sim \frac{1}{\theta} \frac{x^\theta}{\log x}$$

The author calls attention to several special cases of the theorem (distribution of the prime numbers etc). There are 10 references, 6 of which are Soviet.

ASSOCIATION: Kuybyshevskiy pedagogicheskiy institut imeni V.V.Kuybysheva (Kuybyshev Pedagogical Institute imeni V.V. Kuybyshev)

PRESENTED: August 16, 1957, by I.M.Vinogradov,Academician

SUBMITTED: August 14, 1957

Card 3/3

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, B.M.

Ordered semigroups with finite and infinite rare systems of generating elements. Uch.zap.Kuib.gos.ped.inst. no.29:3-12 '59. (MIRA 14:8)

(Groups, Theory of)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, B.M.

Inversion of certain theorems dealing with the power-law densities of ordered semigroups. Uch.zap.Kuib.gos.ped.inst. no.29:13-20 '59. (MIRA 14:8)

(Groups, Theory of)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

16(1)

AUTHOR: Bredikhin, B.M. SOV/41-11-2-2/17

TITLE: Natural Densities of Some Number Semigroups

PERIODICAL: Ukrainskiy matematicheskiy zhurnal, 1959, Vol 11, Nr 2, pp 137-145 (USSR)

ABSTRACT: The author generalizes the Kanold-Scherk theorem on the density of some sets of natural numbers to semigroups of real numbers. Let G be a multiplicative semigroup of positive real numbers $\alpha \geqslant 1$ ($1 \in G$) with the infinite base $\omega_1, \omega_2, \ldots, \omega_i, \ldots$ ($\omega_i > 1$) without finite accumulation points. For arbitrary $x > 0$ the function $\nu(x) = \sum_{\alpha \leqslant x, \alpha \in G} 1$ gives the number of points of G belonging to the interval $[1, x]$. If there exists $\lim_{x \to \infty} \frac{\nu(x)}{x} = C$, then C is called the natural density of G. Let γ^2 be the greatest quadratic divisor of α. Then $\gamma = Q(\alpha)$ is a unique function. Let μ and δ be two numbers of G. The author considers the number sets

g' - set of numbers $\alpha \in G$ for which $(\alpha, \mu) = 1$, $Q(\alpha) = 1$,
g'' - set of numbers $\alpha \in G$ for which $(\alpha, \mu) = 1$, $Q(\alpha) = \delta$,
g''' - set of numbers $\alpha \in G$ for which $(\alpha, \mu) = 1$, $Q(\alpha) \geqslant \delta$.

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Natural Densities of Some Number Semigroups SOV/41-11-2-2/17

Let $\nu'_{\mu}(x)$, $\nu''_{\mu\delta}(x)$, $\nu'''_{\mu\delta}(x)$ be the corresponding ν-functions. Theorem: Let C be the natural density of G . Then there exist the natural densities of g', g'', g''' and they are equal to:

$$C_g \cdot \prod_{\omega \setminus \mu} \frac{\omega}{\omega+1}, \quad C_g \cdot \frac{1}{\delta^2} \prod_{\omega \setminus \mu} \frac{\omega}{\omega+1}, \quad C \prod_{\omega \setminus \mu} \frac{\omega-1}{\omega} - C_g \cdot \prod_{\omega \setminus \mu} \frac{\omega}{\omega+1} \cdot \sum_{\beta < \delta, (\beta, \mu)=1} \frac{1}{\beta^2},$$

Where C_g is a constant depending only on G.

In the second theorem from $\nu(x) = Cx + O(\sqrt{x})$ it is concluded: $\nu'_{\mu}(x) = C_g \prod_{\omega \setminus \mu} \frac{\omega}{\omega+1} x + O(\sqrt{x} \log x)$, and similarly for $\nu''_{\mu\delta}$, $\nu'''_{\mu\delta}$. There are 3 non-Soviet references, of which 2 are German, and 1 English.

SUBMITTED: March 22, 1957 (Kuybyshev)

Card 2/2

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, B.M.

Remainder in an asymptotic formula for the function $G(x)$.
Izv. vys. ucheb. zav. mat. no. 6:40-49 '60. (MIRA 14:1)

1. Kuybyshevskiy pedagogicheskiy institut.
(Groups, Theory of)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, B.M. (Kuybyshev)

Elementary solution of inverse problems on bases of free semigroups. Mat.sbor. 50 no.2:221-232 F '60. (MIRA 13:6)

(Numbers, Theory of) (Groups, Theory of)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, B.M.

Algebraic analogs of some additive problems. Usp. mat. nauk 16 no.4:137-139 Jl-Ag '61. (MIRA 14:8)
(Numbers, Theory of)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

PULKIN, S.P., prof., glav. red.; BREDIKHIN, B.M., dots., red.
YEGOROV, I.P., prof., red.; MURZAYEV, Ye.A., dots., red.;
SHTRAUS, A.V., prof., red.; SHCHERBAKOV, A.I., tekhn.red.

[Transactions of the Conference of Mathematics of Pedagogical Institutes in regions of the Volga Valley] Trudy vtoroy nauchnoy konferentsii matematicheskikh kafedr pedagogicheskikh institutov Povolzh'ya. Kuibyshev, Kuibyshevskii gos. pedagog. in-t im. V.V.Kuibysheva. No.1. [Theoretical reports. Reports on the methodology of teaching mathematical sciences in pedagogical institutes] Teoreticheskie doklady. Doklady po metodike prepodavaniia matematicheskikh distsiplin v pedagogicheskom institute. 1962. 234 p. (MIRA 16:4)

1. Nauchnaya konferentsiya matematicheskikh kafedr pedagogicheskikh institutov Povolzh'ya, 2d, Ul'yanovsk, 1961.
(Mathematics--Study and teaching)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, B.M.

Binary additive problems with prime numbers. Dokl. AN SSSR 142. no.4:766-768 F '62. (MIRA 15:2)

1. Kuybyshevskiy pedagogicheskiy institut im. V.V.Kuybysheva. Predstavleno akademikom P.S.Novikovym.
(Numbers, Prime)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, B.M.

More accurate evaluation of the remainder term in Hardy-Littlewood problems. Vest. LGU 17 no.19:133-137 '62.

(Numbers, Prime) (Series) (MIRA 15:10)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, B.M.

Binary additive problems of an indefinite type. Part 1. Izv. AN SSSR. Ser. mat. 27 no.2:439-462 Mr-Ap '63. (MIRA 16:4)
(Numbers, Theory of)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, B.M.

Binary additive problems of the indefinite type. Part 2. Izv. AN SSSR Ser. mat. 27 no.3:577-612 My-Je '63. (MIRA 16:6)

(Numbers, Theory of)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, B.M.

Binary additive problems of the indeterminate type. Part 3. Additive problem of divisors. Izv. AN SSSR. Ser. mat. 27 no.4:777-794 Jl-Ag '63. (MIRA 16:8)

(Numbers, Theory of)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, B.M.

Use of the dispersion method in binary additive problems. Dokl. AN SSSR 149 no.1:9-11 Mr '63. (MIRA 16:2)

1. Kuybyshevskiy pedagogicheskiy institut im. V.V.Kuybysheva. Predstavleno akademikom I.M.Vinogradovym.
(Forms, Binary)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, B.M.

Binary additive problems of indefinite type. Part 4. Izv. AN SSSR. Ser. mat. 28 no.6:1409-1440 N-D '64. (MIRA 18:2)

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L 3962-66 EWT(d)/T IJP(c)

ACC NR: AP5028171 SOURCE CODE: UR/0042/65/020/002/0089/0130

AUTHOR: Bredikhin, B. M. 44,55

ORG: none

25
B

TITLE: Dispersion method and binary additive problems of a definite type

SOURCE: Uspekhi matematicheskikh nauk, v. 20, no. 2, 1965, 89-130

TOPIC TAGS: binary logic, 16, 44,55 number theory, ergodic theory, algebra, dispersion equation, algebraic logic

Abstract: Of great interest in analytic number theory is the study of binary equations (binary problems) of definite and indefinite types:

$$\alpha + \beta = n, \quad (1.1.1)$$

$$\alpha - \beta = l. \quad (1.1.2)$$

In these equations the variables α and β range over certain sequences of natural numbers, l is a given nonzero integer, and n is a sufficiently large natural number ($n \to \infty$), $\beta < n$. A problem which occurs for equations (1.1.1) and (1.1.2) is that of finding the asymptotic form for the number of solutions which they possess. This article sets forth the fundamental concepts of the dispersion method as applied to the solution of definite-type binary additive problems. Employed for the solution is a variant

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of the dispersion method using the construction of the expected number of solutions to certain equations.

Section 2 of the article deals with fundamental dispersion method equations and special sums. Section 3 derives the asymptotic form of equation (1.1.1), given $\alpha = p$ and $\beta = xy$ (p being a prime number and x and y independently ranging over the natural numbers). Section 4, dealing with an additive divisor problem, solves equation (1.1.), given $\alpha = x_1 x_2 \ldots x_k$ and $\beta = xy$ ($k \geqslant 2$ being a constant, and $x_1, x_2, \ldots, x_k$, x and y independently ranging over the natural numbers). Section 5 considers a generalized Hardy-Littlewood equation obtained from equation (1.1.1), given $\alpha = p$ and $\beta = \varphi(\xi, \eta)$, where p is a prime number and $\varphi(\xi, \eta)$ is a given binary quadratic form with a discriminant other than a perfect square.

The author, in his remarks at the end of the article, discusses the algebraic difficulty of obtaining the asymptotic form for a generalized Hardy-Littlewood equation and expresses the hope that the further development of Yu. V. LINNIK's "ergodic" theorem results in connection with the study of the ergodic properties of rational unimodular substitutions will make it possible to overcome this difficulty. Orig. art. has 191 formulas. [JPRS]

SUB CODE: MA / SUBM DATE: 18Sep64 / ORIG REF: 027 / OTH REF: 023

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

ACC NR: AP7007049

SOURCE CODE: UR/0020/66/168/005/0975/0977

AUTHOR: Bredikhin, B. M.; Linnik, Yu. V. (Academician)

ORG: Leningrad Branch, Mathematics Institute im. V. A. Steklov, AN SSSR (Leningradskoye otdeleniye Matematicheskogo instituta AN SSSR)

TITLE: Asymptotic behavior in the general Hardy-Littlewood problem

SOURCE: AN SSSR, Doklady, v. 168, no. 5, 1966, 975-977

TOPIC TAGS: asymptotic property, mathematics

ABSTRACT: A method is given for finding the asymptotic behavior of the solutions of $p + \varphi(\xi, \eta) = \eta$, a real generalization of the Hardy-Littlewood equation, where p is any prime number, and $\varphi(\xi, \eta) = a\xi^2 + b\xi\eta + c\eta^2$ is a given positive quadratic form with a discriminant which is different from a complete square. Orig. art. has: 14 formulas. [JPRS: 38,417]

SUB CODE: 12

Card 1/1

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

ACC NR: AP7008924

SOURCE CODE: UR/0039/66/071/002/0145/0161

BREDIKHIN, B. M. (Kuybyshev) and LINNIK, Yu. V. (Leningrad)

"Asymptotic Behavior and Ergodic Properties of the Solutions to the Generalized Hardy-Littlewood Equation"

Moscow, Matematicheskiy Sbornik (Mathematics Collection), Vol. 71, No. 2, 1966, pp 145-161.

Abstract: In two previous papers a way was found to study the asymptotic behavior of the solutions to certain Diophantine equations based on ergodic ideas associated with the "trajectory" of these solutions. When the forms are primitive, one can use the relationship between the quadratic forms and the ideals. A trajectory is related to a given ideal and mapped, preserving the norm of the ideal. Multiplication of the resulting patterns yields ideals which belong to certain classes of a genus. The ideals are points on the trajectory. A distinction is made between a good and bad trajectory; it is good if the residence time of each of its points in each class of ideals is inversely proportional to the number of classes of ideals in the given genus. This makes it possible to determine those solutions of equation

$$a_k + N_\rho(\mathfrak{a}) = n$$

corresponding to integral ideals $\mathfrak{a}$ belonging to the class of ideals of the given genus and to find the asymptotic behavior of these solutions. Unfortunately,

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ACC NR: AP7008924

the latter can be found at present only for a few cases.

In this paper only the generalized Hardy-Littlewood problem is considered. A method is given for finding the asymptotic behavior of the solutions to the equation

$$p + \varphi(\xi, \eta) = n,$$

where p passes through simple numbers, and $\varphi(\xi, \eta) = a\xi^2 + b\xi\eta + c\eta^2$, is a given positive quadratic form with a discriminant different from a perfect square. The treatment is limited to primitive forms with negative discriminants of a quadratic field.

Orig. art. has: 3 formulas. [JPRS: 39,848]

ORG: none

TOPIC TAGS: asymptotic property, asymptotic solution

SUB CODE: 12

Card 2/2

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, B.P.; SOLOD, B.A., master; CHERTKOV, I.Ye., pomoshchnik mastera; SHAMANOV, L.G., prepododavatel'; KVASHIN, V.V., prepodavatel'.

"Design and repair of diesel locomotives" by A.A.Poido, I.G. Kokoshinskii. Reviewed by:B.P.Bredikhin and others. Mlek.i tepl.tiaga 3 no.9:p.3 of cover S '59. (MIRA 13:2)

1. Priyemshchik Glavnogo upravleniya lokomotivnogo khozyaystva Ministerstva putey soobshcheniya (for Bredikhin). 2. Depo Rtishchevo II, Privolzhskaya doroga (for Bredikhin, Solod, Chertkov). 3. Shkola mashinistov, stantsiya Penza, Kuybyshevskaya doroga (for Shamanov, Kvashin).
(United States--Diesel locomotives)
(Poido, A.A.) (Kokoshinskii, I.G.)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

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BREDIKHIN, F.A.; DUBYAGO, A.D.; ORLOV, S.V., redaktor; GUROV, K.P., redaktor; PETROVSKIY, I.G., akademik, redaktor; ANDREYEV, N.N., akademik, redaktor; BYKOV, K.M., akademik, redaktor; KAZANSKIY, B.A., akademik, redaktor; OPARIN, A.I., akademik, redaktor; SHMIDT, O.Yu., akademik, redaktor; SHCHERBAKOV, D.I., akademik, redaktor; YUDIN, P.F., akademik, redaktor; KOSHTOYANTS, Kh.S., redaktor; SAMARIN, A.M., redaktor; MAKSIMOV, A.A., LEBEDEV, D.M., doktor geograficheskikh nauk, redaktor; FIGUROVSKIY, N.A., doktor khimicheskikh nauk, redaktor; KUZNETSOV, I.V., kandidat filosofskikh nauk, redaktor; OZNOBISHIN, D.V., kandidat istoricheskikh nauk, redaktor; ZELENKOVA, Ye.V., tekhnich. red.

[Studies on meteors] Etiudy o meteorakh. Stat'ia i kommentarii A.D.Dubiago. Red. S.V.Orlova. Moskva, Izd-vo Akademii nauk SSSR, 1954. 606 p. (MLRA 7:12)

1. Chlen-korresp. AN SSSR (for Orlov, Koshtoyants, Samarin, Maksimov)
(Meteors)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

USSR/Diseases of Farm Animals - Diseases Caused by Viruses and Rickettsiae. R-2

Abs Jour : Ref Zhur - Biol., No 10, 1958, 45400

Author : Bredikhin, G.P.

Inst : Stavropol' Agricultural Institute.

Title : The Effect of Different Chemical Factors on the Causative Agent of Paratyphoid in Sheep.

Orig Pub : Sb. nauchno-issled. rabot stud. Stavropol'sk. s.-kh. in-t, 1956, vyp. 4, 139-141.

Abstract : It has been demonstrated that 24-hour cultures of the causative agent of paratyphoid in sheep, if exposed, in test tubes, to the action of a 5% emulsion of creolin, perish after 5 min.; the same result is produced by a 5% solution of NaOH after 10 min. In seedings effected from test-objects 1 cm. thick, prepared from sheep dung, infected

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USSR/Diseases of Farm Animals - Diseases Caused by Viruses and Rickettsiae. R-2

Abs Jour : Ref Zhur - Biol., No 10, 1958, 45400

with a washing of the 24-hour culture of Salmonella ovis, and exposed to the action of the above-mentioned disinfectants for 24 hours, a growth of the culture concerned was observed. In test-objects 0.2-0.3 cm. thick, the same solutions heated to 80°C. were killing the causative agent of paratyphoid after a 25-30 min. exposure. Hexachloran [hexachlorocyclohexane $C_6H_6Cl_6$] powder (10%) and hot water (90%) had no deadly effect on Salmonella ovis.

Card 2/2

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BREDIKHIN, I.S.; KLISHEYKO, V.A.; VORONA, I.D.; GONCHAR, A.G.

Digging prospecting trenches with a D-254 plow-type trench digger. Razved.i okh.nedr 28 no.3:19-21 Mr '62. (MIRA 15:4)

1. Yuzhno-Yakutskaya kompleksnaya ekspeditsiya Yakutskogo geologicheskogo upravleniya.
(Prospecting--Equipment and supplies)
(Excavating machinery)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, M.A.

Some remarks on V.Lohmann's paper "On the statistics and structures of globular clusters." Astron.zhur. 42 no.2:467-468 Mr-Ap '65. (MIRA 18:4)

1. Gosudarstvennyy astronomicheskiy institut im. P.K.Shternberga.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, N.

Increase the role of public participation in improving the establishment of technical standards. Sots. trud 8 no.2:68-72 F '63. (MIRA 16:2)

1. Zaveduyushchiy otdelom truda i zarabotnoy platy TSentral'nogo komiteta professional'nogo soyuza rabochikh mashinostroyeniya.
(Machinery industry—Production standards)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, N.M.

Enlist wider cooperation of workers in the management of industrial production. Mashinostroitel' no.12:1-2 D '64. (MIRA 18:2)

1. Zaveduyushchiy otdelom truda i zarabotnoy platy TSentral'nogo komiteta professional'nogo soyuza rabochikh mashinostroyeniya.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, N.P., inzh.-ekonomist

Method of calculating working capital for incompleted production. Trudy MIIT no.119:196-201 '59. (MIRA 12:11)
(Railroads--Finance)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

L 22447-65

ACCESSION NR: AR4046207 S/0299/64/000/016/M020/M021

SOURCE: Ref. zh. Biologiya. Svodny*y tom, Abs. 16M127

AUTHOR: Bredikhin, T. F.

TITLE: Experimental homotransplantation of ovaries

CITED SOURCE: Sb. tr. Kurskogo med. in-ta, vy*p. 18, 1963, 90-96

TOPIC TAGS: rabbit, homotransplantation, ovary, eye, corpus luteum, autotransplantation, histology, morphology

TRANSLATION: After preliminary removal of their ovaries, 12 female rabbits received ovary transplants in the anterior chamber of both eyes (ovary autotransplantation was performed on a control female rabbit after bilateral castration). In 20-25 days part of the transplants accreted and acquired the coloring of normal ovaries (with absence of ovulation). Histomorphological investigations showed that after 10 days ovary stroma displayed proliferative activity and had accreted with the iris and cornea; glandular tissue was well preserved along the periphery, the cortical layer contained

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L 22447-65
ACCESSION NR: AR4046207

a large number of primordial follicles, and the graafian follicles in different degrees underwent dystrophic changes and connective tissue replacement. The picture was less favorable for transplantation of ovaries with a developed corpus luteum. Structural characteristics were most markedly displayed in ovaries at rest transplanted to pregnant rabbits, but on the basis of histological preservation they were inferior to those transplanted to young or adult female rabbits. In an experiment with autotransplantation (control) the ovaries after 180 days were well preserved with a well developed corpus luteum and a small number of primordial follicles.

SUB CODE: LS ENCL: 00

Card 2/2

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, T.F.

Effectiveness of transplantation of the thyroid gland into the anterior chamber of the eye. Biul. eksp. biol. i med. 3[i.e.53] no.3:92-96 Mr '62. (MIRA 15:4)

1. Iz kafedry fakul'tetskoy khirurgii (zav. - doktor med.nauk prof. M.G.Ruditskiy) Kurskogo meditsinskogo instituta (dir. - prof. A.V.Savel'yev) i kafedry gistologii (zav. - chlen-korrespondent AMN SSSR prof. A. A.Voytkevich) Voronezhskogo meditsinskogo instituta (dir. - prof. N.I.Odnoralov). Predstavlena deystvitel'nym chlenom AMN SSSR V.V.Parinym.

(THYROID GLAND--TRANSPLANTATION) (EYE--SURGERY)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, V.I., elektrosvarshchik

Improved design of a holder for the A-547 semiautomatic machines. Stroi.truboprov. 8 no.7:29 Jl '63. (MIRA 17:2)

1. Stroitel'no-montazhnoye upravleniye No.3 Svarochno-montazhnogo tresta, Kuybyshev.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

AUTHOR: Bredikhin, V.I., Kanivchenko, I.T. 113-58-7-17/25

TITLE: An Arbor with a Floating Reamer for the Machining of Cylinder Linings (Opravka s plavayushchey razvertkoy dlya obrabotki gil'z)

PERIODICAL: Avtomobil'naya promyshlennost', 1958, Nr 7, p 35 (USSR)

ABSTRACT: Finishing of the bores is a difficult operation in the mechanical machining of the cylinder linings of diesel engines. The authors suggest a new design of an arbor with a floating reamer (Figure). In addition to an increased accuracy, the waste quota would be reduced. There is 1 diagram.

ASSOCIATION: Zavod "Krasnyy dvigatel'" (The "Krasnyy dvigatel'" Plant)

1. Cylinder liners--Machining 2. Cutting tools--Equipment

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHIN, V.S.

Devote attention to increasing the knowledge of factory workers doing construction work. Sakh. prom. 32 no. 7:75 Jy '58.
(MIRA 11:8)

(Sugar industry)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

Breilihina, A. A. On the absolute convergence of Fourier series of almost periodic functions. Doklady Akad Nauk SSSR (N.S.) 111 (1956), 1163–1166. (Russian)

Generalising Sidon's Theorem on gap Fourier series the author proves the following theorem. If $\sum_{k=-\infty}^{\infty} A_k e^{i\lambda_k x}$ ($-\lambda_{-k}=\lambda_k>0$ for $k>0$) is the Fourier expansion of the almost periodic function $f(x)$ and if $\lambda_{k+1}/\lambda_k>\theta>1$ ($k>0$), then $\sum_{-\infty}^{\infty} |A_k|<C(\theta) \sup |f(x)|$. A theorem for the case $\lambda_{k+1}/\lambda_k<\alpha<1$ is also proved. If $\{\mu_k\}_{k=-\infty}^{\infty}$ is a sequence with $-\mu_{-k}=\mu_k$ for $k>0$, $\mu_k \uparrow \infty$ ($k>0$) of which the sequence $\{\lambda_k\}$ of the theorem is a sub-sequence, then the best approximation of $f(x)$ by trigonometric polynomials with exponents μ_k, $|\mu_k|\leq n$, is of the order of magnitude $\sum_{|\lambda_k|>n} |A_k|$. *W. H. J. Fuchs* (Ithaca, N.Y.).

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHINA, A. I.

USSR

Characteristic changes of the nutrient metabolism of cotton plants and their resistance against Verticillium dahliae under the influence of external factors. G. Ya. Gubanov and A. I. Bredikhina. *Doklady Akad. Nauk Uzbek. S.S.R.* 1953, [redacted] *Zhur. Khim.* 1954, No. 28991. Cotton plants grown on a soil strongly contaminated with *V. dahliae* showed after irrigation a retarded nutrient metabolism and lower resistance against the mold. The largest no. of sick plants, mold-resistant (35.8%) as well as non-resistant plants (90.7%), was found following an excessive irrigation. Depending on the no. of irrigations the amts. of starch (I) and of phenol-tannins (II) in stalks were changed. By decreasing the no. of irrigations the amt. of I was increased while that of II was decreased. These changes were more pronounced in less mold-resistant varieties of cotton. No particular changes were found in the concns. of mono- and disaccharides. Addn. of NH_4NO_3 to the soil increased the no. of mold-sick plants, especially when the addn. was done before fruit bearing. The relatively larger amt. of I and smaller amt. of II have been found in the exptl. variants, the plants of which were affected by the mold to a small extent only.

E. Wierbicki

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

GUBANOV, G. Ya.; BREDIKHINA, A. I.

Physiology of wilt-infected cotton plants. Uzb. biol. zhur. no5.:35-38 '60. (MIRA 13:11)

1. Laboratoriya fiziologii Instituta selektsii i semenovodsta khlopchatnika Akademii sel'skokhozyaystvennykh nauk UzSSR.
(Cotton wilt)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

GUBANOV, G.Ya.; BREDIKHINA, A.I.

Growth of fungi Fusarium vasinfectum Ath. and Verticillium dehliae Kleb. in the presence in the nutrient medium of various phenol substances and glycosides. Uzb. biol. zhur. 8 no.2:22-25 '64. (MIRA 17:8)

1. Nauchno-issledovatel'skiy institut selektsii i semenovodstva khlopchatnika.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

DENISOV, V.I.; KRUTEL', A.T.; PODLESSKAYA, Ye.M.; BREDIKHINA, A.M.; SUCHALKINA, Z.P.; VERESHCHAGINA, N.M.; DENISOVA, T.F.; PIROGOV, V.I., red.; KUZIN, N., tekhn.red.

[Economy of Belgorod Province; a statistical manual] Narodnoe khoziaistvo Belgorodskoi oblasti; statisticheskii sbornik. Orel, Gosstatizdat, 1959. 253 p. (MIRA 13:6)

1. Belgorodskaya oblast'. Statisticheskoye upravleniye. 2. Nachal'nik Statisticheskogo upravleniya Belgorodskoy oblasti (for Pirogov).
(Belgorod Province--Statistics)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

AYZENMAN, B.Ye. [Aizenman, B.IU.]; SHVAYGER, M.O. [Shvaiher, M.O.]; MANDRIK, T.P. [Mandryk, T.P.]; BREDIKHINA, A.N. [Bredikhina, A.M.]; KIPRIANOVA, Ye.A. [Kiprianova, O.A.]

Comparison of certain methods for the initial selection of antineoplastic substances in vitro. Mikrobiol. zhur. 25 no.3:33-38 '63. (MIRA 17:1)

1. Institut mikrobiologii AN UkrSSR.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

AYZENMAN, B.Ye. [Aizenman, B.IU.]; SHVAYGER, M.O.; MANDRIK, T.P.; BREDIKHINA, A.N. [Bredikhina, A.M.]; ORISHCHUK, L.F. [Oryshchuk, L.F.]; KOLESOVA, E.A. [Kolesova O.A.]; MISHENKOVA, Ye.L. [Mishenkova, O.L.]; GALKINA, T.A. [Halkina, T.O.]; ZAKHAROVA, I.Ya.; RASHBA, Ye.Ya. [Rashba, O.IA.]; LAUSHNIK, G.M. [Laushnyk, H.M.]; PREOBRAZHENSKAYA, N.Ye. [Preobrazhens'ka, N.IU.]

Effect of substances of bacterial origin on Ehrlich's carcinoma. Mikrobiol. zhur. 27 no.6:61-67 '65. (MIRA 19:1)

1. Institut mikrobiologii i virusologii AN UkrSSR.

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHINA, A. P.

GUBANOV, G. YA., AND BREDIKHINA, A. P.

Characteristic Changes in the Metabolism and Resistance to Verticilliosis of Cotton Due to Outside Factors
Dokl. AN UzSSR, No 11, 1953, pp 33-36

The authors studied the effect of watering and distribution of fertilizers in the soil on the ability of cotton to resist verticilliosis (Verticillium dahliae Kleb.) and on the metabolism of the plants. It was discovered that the resistance to the disease was due to the relatively restricted irrigation and the amount of nitrogen in the plant food up to the time of fruit bearing. An increase in the starch research in the stalks and an increase in the phenol-tannin content resulted. (RZhBiol, No 2, 1955)

SO: Sum. No. 639, 2 Sep 55

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

PAVLENKO, Fedor Andrianovich; kand.sel'skokhoz.nauk; BREDIKHINA, L., red.;PROKOF'YEVA, L., tekhn.red.

[Propagation of poplars] Razmnozhenie topolei. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1960. 62 p. (MIRA 14:3)

(Poplar)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHINA, L. N. Cand Agricult Sci

Dissertation: "Growth and Productivity of Protective Forest Plantings with Predominance of Oak in the Mariupol' Meliorative District." 28/6/50

Moscow Forestry Inst

SO Vecheryaya Moskva
Sum 71

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHINA, L. N.

BREDIKHINA, L. N. -- "Growth and Productivity of Shelter Belt Plantings with Predominance of Oak at the Mariupol' Agricultural-Forestry Land Reclamation Experimental Area." *(Dissertations for Degrees in Science and Engineering Defended at USSR Higher Educational Institutions) Higher Education USSR, Saratov Agricultural Inst, Saratov, 1955.

SO: Knizhnaya Letopis' No. 31, 30 July 1955.

*For the Degree of Candidate in Agricultural Sciences.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHINA, N.D. (Moskva)

Spontaneous evacuation of a calculus from the bladder. Sov. med. 23 no.3:126 Mr '59. (MIRA 12:4)
(BLADDER, calculi,
spontaneous passage (Rus))

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

24940

5.4130

S/192/61/002/004/003/004
D217/D306

AUTHORS: Akishin, P.A., Rambidi, N.G. and Bredikhina, T.N.

TITLE: Electronographic investigation of the structure of ferrocene molecules

PERIODICAL: Zhurnal strukturnoy khimii, v. 2, no. 4, 1961, 476

TEXT: At the Laboratory for the Electronographic Investigation of Molecules of the Chemical Faculty of the MGU, a systematic investigation into the structure of the molecules of electron-saturated compounds is being carried out. In this short report, the preliminary results of the study of the geometry of ferrocene molecules in vapors are given. The sandwich structure of ferrocene molecules has been reliably proved to exist both by X-ray crystal study and by an electronographic investigation of ferrocene in vapors. The aim of this investigation was to obtain more accurate data on the geometrical parameters of the

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S/192/61/002/004/003/004
D217/D306

Electronographic investigation...

ferrocene molecule and on the nature of the relative movement of the cyclo-pentadiene groups. Nine series of electronographs (2 plates in each series) were produced and treated. A more accurate method was used for interpreting the experimentally obtained sector-micro-photometric distribution of the dispersion intensity. The following parameters were found for ferrocene molecules: r (C - H) = 1.12 ± 0.02 Å; r (C - C) = 1.42 ± 0.01 Å; r (Fe - C) = 2.07 ± 0.01 Å. The analysis of the experimentally obtained data confirms the free revolution of the cyclo-pentadiene groups around an axis perpendicular to the plane of the rings. A detailed explanation of the results of the investigation and of the refined method of interpretation of the electronographs will be published shortly. There are 5 references: 1 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publication read as follows: F. Eiland, R. Pepinsky, J. Amer. Chem. Soc., 74, 4971 (1952). J.D. Dunitz, L.E. Orgel, A. Rich, Acta Crystallogr. 9, 373 (1965). E.A.

Card 2/3

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

24940

Electronographic investigation... S/192/61/002/004/003/004
D217/D306

Seibold, L.E. Sutton, J. Chem. Phys., 23, 1967 (1955).

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im M.V. Lomonosova (Moscow State University imeni M.V. Lomonosov)

SUBMITTED: December 14, 1960

X

Card 3/3

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHINA, T.N.

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PHASE I BOOK EXPLOITATION SOV/6246

Soveshchaniye po tseolitam. 1st, Leningrad, 1961.

Sinteticheskiye tseolity; polucheniye, issledovaniye i primeneniye (Synthetic Zeolites: Production, Investigation, and Use). Moscow, Izd-vo AN SSSR, 1962. 286 p. (Series: Its: Doklady) Errata slip inserted. 2500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk. Komisiya po tseolitam.

Resp. Eds.: M. M. Dubinin, Academician and V. V. Serpinskiy, Doctor of Chemical Sciences; Ed.: Ye. G. Zhukovskaya; Tech. Ed.: S. P. Golub'.

PURPOSE: This book is intended for scientists and engineers engaged in the production of synthetic zeolites (molecular sieves), and for chemists in general.

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Synthetic Zeolites: (Cont.) SOV/6246

COVERAGE: The book is a collection of reports presented at the First Conference on Zeolites, held in Leningrad 16 through 19 March 1961 at the Leningrad Technological Institute imeni Lensovet, and is purportedly the first monograph on this subject. The reports are grouped into 3 subject areas: 1) theoretical problems of adsorption on various types of zeolites and methods for their investigation, 2) the production of zeolites, and 3) application of zeolites. No personalities are mentioned. References follow individual articles.

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Foreword 3

Dubinin, M. M. Introduction 5

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

14

Synthetic Zeolites: (Cont.) SOV/6246

Misin, M. S., L. M. Maksimova, V. A. Litvinova, and L. B. Khandros. Production and Adsorption Properties of NaA, NaP, CaA and CaP Zeolites 135

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Mirskiy, Ya. V., M. G. Mitrofanov, and T. N. Bredikhina. Ion Exchange of Na for Ca in Type A Synthetic Zeolite 167

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APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHINA, V. I.

Dissertation: "An Antigen From Monieziae and the Possibility of Using It for Diagnostic and Prophylactic Purposes in Monieziosis of Sheep." Cand Vet Sci, Moscow Fur and Pelt Inst, 24 May 54. Vechernyaya Moskva, Moscow, 13 May 54.

SO: SUM 284, 26 Nov 1954

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHINA, V.I., kand.veterinarnykh nauk

New methods for the immunobiological diagnosis of monieziasis in sheep. Trudy VIGIS 7:146-184 '59. (MIRA 13:11)
(Sheep--Diseases and pests) (Worms, Intestinal and parasitic)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

MOLDAVSKIY, D.D.; BREDIKHINA, V.I., kand.veterinarynykh nauk

Use Siberian land sensibly. Zemledelie 24 no.4:20-24 Ap '62. (MIRA 15:4)

1. Glavnyy agronom upravleniya sovkhozov Vostochnoy Sibiri (for Moldavskiy).

(Siberia—Agriculture)

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C111/C222

AUTHOR: Bredikhina, Ye.A.

TITLE: Some Problems in Summation of Fourier Series of Almost Periodic Functions

PERIODICAL: Uspekhi matematicheskikh nauk, 1960, Vol.15, No.5, pp.143-150

TEXT: Let Q be the class of uniformly almost-periodic functions the Fourier exponents of which have no finite accumulation points. Let

(1) $f(x) \sim \sum_{k=-\infty}^{\infty} A_{\lambda_k} e^{i\lambda_k x}$ $(\lambda_0 = 0;\ \lambda_{-k} = -\lambda_k;\ \lambda_k < \lambda_{k+1}$ for $k=0,1,\ldots,$

$\lim_{k\to\infty} \lambda_k = \infty;\ |A_{\lambda_k}| + |A_{-\lambda_k}| > 0$ for $k \neq 0)$.

Let $\varphi_\mu(t)$, $-\infty < t < \infty$, be an even real continuous function;

(2) $\varphi_\mu(0) = 1$,

(3) $\varphi_\mu(t) = 0$ for $|t| \geq \mu$;

(4) $\psi_\mu(t) \in L(-\infty, \infty)$,

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Some Problems in Summation of Fourier Series of Almost Periodic Functions

where $\psi_\mu(u) = \frac{1}{2\pi}\int_{-\infty}^{\infty}\varphi_\mu(t)e^{-int}dt$. Let $\sigma_\mu(x,f) = \sum_{|\lambda_k|\le\mu} A_{\lambda_k}\varphi_\mu(\lambda_k)e^{i\lambda_k x}$.

Lemma: For $f(x)\in Q$ it holds

(5) $$\sigma_\mu(x,f) = \int_{-\infty}^{\infty} f(x+u)\psi_\mu(u)du$$

Theorem 1: If $\int_{-\infty}^{\infty}|\psi_\mu(u)|\,du = O(1)$ for $\mu\to\infty$ and $\lim_{\mu\to\infty}\varphi_\mu(t) = 1$ for a fixed t, then it holds $\lim_{\mu\to\infty}\sigma_\mu(x,f) = f(x)$ for every $f(x)\in Q$ uniformly on the whole number line.

Theorem 2: If

(11) $$u\,\psi_\mu(u)\in L(-\infty,\infty),$$

then for every $f(x)\in Q$ it holds

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C111/C222

Some Problems in Summation of Fourier Series of Almost Periodic Functions

(12) $$|f(x)-\sigma_\mu(x,f)|\leq C(\mu)\,\omega_f\left(\frac{1}{\mu}\right),$$

where $C(\mu) = 2\int_0^\infty |\psi_\mu(u)|\,du + 2\mu\int_0^\infty u|\psi_\mu(u)|\,du$, $\omega_f(\delta) = \sup_{|x-y|\leq\delta} |f(x)-f(y)|$.

Conclusion 1: From $f(x)\in Q$, $u\,\psi_\mu(u)\in L(-\infty,\infty)$, $\lim_{\mu\to\infty} C(\mu)\,\omega_f\left(\frac{1}{\mu}\right) = 0$ it follows uniformly on the whole axis $\lim_{\mu\to\infty} \sigma_\mu(x,f) = f(x)$.

Conclusion 2: If $\int_0^\infty |\psi_\mu(u)|\,du = O(1)$, $\mu\int_0^\infty u|\psi_\mu(u)|\,du = O(1)$ for $\mu\to\infty$, then it holds $|f(x)-\sigma_\mu(x,f)|\leq C\,\omega_f\left(\frac{1}{\mu}\right)$, where C is an absolute constant, for every $f(x)\in Q$.

Let $f(x)$ belong to the class $Q^{(p)}$ if $f(x)\in Q$ and if $f(x)$ has p uniformly

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C111/C222

Some Problems in Summation of Fourier Series of Almost Periodic Functions

continuous derivatives. Let $\omega_f^{(r)}(\delta) = \sup_{|x-y|\leq\delta} |f^{(r)}(x)-f^{(r)}(y)|$, $r=1,2,\ldots,p$.

Theorem 3: If there holds

(15) $$|f(x)-\sigma_\mu(x,f)| \leq C_1 \omega_f\left(\frac{1}{\mu}\right)$$

for every $f(x) \in Q$, where C_1 is an absolute constant, then it holds uniformly on the whole axis $\lim_{\mu\to\infty} \sigma_\mu^{(r)}(x,f) = f^{(r)}(x)$ $(r=0,1,\ldots,p)$ for every $f(x) \in Q^{(p)}$.

Conclusions: If $\int_0^\infty |\psi_\mu(u)|\,du = O(1)$, $\mu \int_0^\infty u\,|\psi_\mu(u)|\,du = O(1)$ for $\mu\to\infty$,

then it holds uniformly on the whole axis $\lim_{\mu\to\infty} \sigma_\mu^{(r)}(x,f) = f^{(r)}(x)$,

$r=0,1,\ldots,p$, for $f(x) \in Q^{(p)}$.

Theorem 4: If

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C111/C222

Some Problems in Summation of Fourier Series of Almost Periodic Functions

(15') $$\|f(x)-\sigma_\mu(x,f)\| \leq C_1(\mu)\omega_f\left(\frac{1}{\mu}\right)$$

for every $f(x) \in Q$, where $C_1 = C_1(\mu) = \text{const}$, then for $f(x) \in Q^{(p)}$ it holds

(16) $$\left\|f(x)-\sum_{|\lambda_k|\leq\mu} A_{\lambda_k}\eta_k^{(p)}(\mu)e^{i\lambda_k x}\right\| \leq \frac{C_1^{p+1}(\mu)}{\mu^p}\omega_f^{(p)}\left(\frac{1}{\mu}\right),$$

where $\eta_k^{(p)}(\mu) = \sum_{l=1}^{p+1}(-1)^{l+1}C_{p+1}^{l}\varphi_\mu^{l}(\lambda_k)$.

There are 3 references: 2 Soviet and 1 English.

SUBMITTED: March 16, 1959

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

Bredihina, E. A. Some estimates of best approximations of almost-periodic functions. Dokl. Akad. Nauk SSSR (N.S.) 103 (1955), 751-754. (Russian)

The author considers the best approximation of almost periodic functions $f(x)$ whose sequence of Fourier exponents, Λ_0, is a sub-sequence of a given sequence

$$\Lambda=\{\lambda_0=0,\ \lambda_1=-\lambda_{-1},\ \lambda_2=-\lambda_2\cdots\},\ \lambda_k\to\infty,$$

by trigonometric polynomials $P_\mu(x)=\sum c_k e^{i\lambda_k x}(\lambda_k\in\Lambda,\ |\lambda_k|<\mu)$. It is proved that the best approximation by $P_\mu(x)$ to $f(x)$ is $O(\omega(1/\mu))$, $\omega(\delta)$ modulus of continuity of $f(x)$. This remains true, if the Fourier exponents of P_μ are chosen from Λ_0 only.

In the case of real-valued gap series

$$\sum(a_k e^{i\lambda_{m_k}x}+b_k e^{-i\lambda_{m_k}x}),\ \lambda_{m_{k+1}}/\lambda_{m_k}\geqq c>8,$$

it is proved that the best approximation by $P_\mu(x)$ is of the same order of magnitude as

$$\sum_{|\lambda_{m_k}|>\mu}(|a_k|+|b_k|)$$

and that it is asymptotically equal to this sum, if the gaps increase sufficiently rapidly. *W. H. J. Fuchs.*

Kuybyshev Aviation Institute

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHINA, Ye. A.

BREDIKHINA, Ye.A.: "Some problems of the best approximations of almost periodic functions." Leningrad Order of Lenin State U imeni A. A. Zhdanov. Leningrad, 1956. (DISSERTATION FOR THE DEGREE OF CANDIDATE IN PHYSICOMATHEMATICAL SCIENCE)

So: Knizhnaya letopis' No 15, 1956. Moscow

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDEKHINA, Ye.A. BREDEKHINA E.A.

CARD 1/2 PG - 610

SUBJECT USSR/MATHEMATICS/Fourier series
AUTHOR BREDECHINA E.A.
TITLE On the absolute convergence of Fourier series of almost periodic functions.
PERIODICAL Doklady Akad.Nauk 111, 1163-1166 (1956)
reviewed 2/1957

The following theorems are proved:

1. The Fourier series $\sum_{k=-\infty}^{\infty} A_{\lambda_k} e^{i\lambda_k x}$ $(k \neq 0;\ \lambda_{-k} = -\lambda_k;\ \lambda_k > 0;\ \lambda_{k+1} > \lambda_k$ for $k > 0;\ \lambda_k \to \infty$ for $k \to \infty)$ of an almost periodic function $f(x)$ converges absolutely if $\frac{\lambda_{k+1}}{\lambda_k} \geqslant \theta > 1$ $(k=1,2,\ldots)$. Here

$$\sum_{k=-\infty}^{\infty} |A_{\lambda_k}| < C(\theta) \sup_x |f(x)| ,$$

where $C(\theta)$ is a constant depending only on θ.

2. The Fourier series $\sum_{k=-\infty}^{\infty} |A_{\lambda_k} e^{i\lambda_k x}$ $(k \neq 0;\ \lambda_{-k} = -\lambda_k;\ \lambda_k > 0,\ \lambda_k > \lambda_{k+1}$ for [illegible] for $k \to \infty)$ of the almost periodic function $f(x)$ converges

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHINA, YE. A.

20-1-3/42

AUTHOR: BREDIKHINA, YE.A.

TITLE: On Best Approximations of Almost Periodic Functions by Entire Functions of Finite Degree (O nailuchshikh priblizheniyakh pochti-periodicheskikh funktsiy tselymi funktsiyami Konechnoy stepeni)

PERIODICAL: Doklady Akad.Nauk SSSR, 1957,Vol.117,Nr 1,pp.17-20 (USSR)

ABSTRACT: Let B_λ be the class of the entire functions of degree $\leqslant \lambda$ which are bounded on the real axis. Let f(z) be defined on the real axis and bounded. Let $E_\lambda(f) = \inf_{F(z)\in B_\lambda} \left\{\sup_x |f(x)-F(x)|\right\}$

The almost periodic function f(x) is said to belong to the class Λ, if its Fourier series has the form

$$\sum_{k=-\infty}^{\infty} A_k e^{i\lambda_k x} \quad (\lambda_0=0\ ;\ \lambda_k > 0,\ \frac{\lambda_{k+1}}{\lambda_k} = q_k \geqslant \theta > 1 \text{ for } k > 0;\ \lambda_k = -\lambda_k).$$

Let $R_\lambda(f) = \sup_x \left|f(x) - \sum_{|\lambda_k|<\lambda} A_k e^{i\lambda_k x}\right|$, $\alpha_\lambda(f) = \sum_{|\lambda_k|>\lambda} |A_k|$

Theorem: If $f(x)\in\Lambda$, then $R_\lambda(f) \leqslant C(\theta) E_\lambda(f)$ where $C(\theta)$ is a

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constant only depending on θ.

Theorem: If there exists such a non-negative numerical order $\{x_l\}$ $(l = 0,1,2,\ldots;\ |x_l| < |x_{l+1}|;\ \lim_{l\to\infty} \frac{l}{|x_l|} > \frac{\lambda}{\pi})$, that for a certain function $F_0(z) \in B_\lambda$ there holds the equation $\mathrm{Re}\left\{f(x_l) - F_0(x_l)\right\} = (-1)^l L_l$ where $L_l \geqslant L > 0$, then it is $E_\lambda(f) \geqslant L$.

Theorem: If $f(x) \in \Lambda$, $\theta > 3$ and $\arg A_{-k} = -\arg A_k$, then $\alpha_\lambda(f) \leqslant \frac{1}{\cos\frac{\pi}{\theta-1}} \cdot E_\lambda(f)$. - 8 Soviet references are quoted.

ASSOCIATION: Kuybyshev Institute of Aviation (Kuybyshevskiy aviatsionnyy institut)
PRESENTED: By V. I. Smirnov, Academician, May 20, 1957
SUBMITTED: May 15, 1957
AVAILABLE: Library of Congress

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APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

AUTHOR: Bredikhina, Ye.A. SOV/20-123-2-2/50

TITLE: Fourier Series as a Device for the Approximation of Almost-Periodic Functions (Ryady Fur'ye kak apparat priblizheniya pochti-periodicheskikh funktsiy)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 1, pp 219-222 (USSR)

ABSTRACT: Let

$$(1) \qquad f(x) \sim \sum_{k=-\infty}^{\infty} A_k e^{i\Lambda_k x}$$

($\Lambda_0 = 0$; $\Lambda_k < \Lambda_{k+1}$ for $k = 0, 1, 2, \ldots$, $\lim_{k\to\infty} \Lambda_k = \infty$, $\Lambda_k = -\Lambda_{\bar{k}}$, $|A_k| + |A_{-k}| \neq 0$ for $k \neq 0$). Let $L = L(f)$ denote the sequence $\{\Lambda_k\}$; $R_\lambda(f) = \sup_x \left| f(x) - \sum_{|\Lambda_k| \leq \lambda} A_k e^{i\Lambda_k x} \right|$; $\alpha_\lambda(f) = \sum_{|\Lambda_k| > \lambda} |A_k|$;

$E_\lambda(f) = \inf_{F(z) \in B_\lambda} \left\{ \sup_x |f(x) - F(x)| \right\}$, where B_λ denotes the class of entire functions of degree $\leq \lambda$ bounded on the real axis. Let $l = \{\lambda_k\}$ be an increasing sequence of positive numbers and

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$N_l(\lambda) = \sum_{\lambda_k \leq \lambda} 1$. Let the sequence l belong to the class A if there exists an $a > 0$ so that $\lambda_{k+1} - \lambda_k > a$ $(k=1,2,\ldots)$. Let A_σ be the class of all sequences l for which $l = \bigcup_{j=1}^{r} l^{(j)}$, where $l^{(j)} \in A$. Let Π be the class of all lacunary sequences l. Let Π_σ be the class of those l for which $l = \bigcup_{j=1}^{r} l^{(j)}$, where $l^{(j)} \in \Pi$.

Principal theorem: Let $0 < \lambda < \mu$. Then for every almost-periodic function f(x), the Fourier coefficients of which have no finite accumulation points, there holds the inequality $R_\lambda(f) \leq \phi(\lambda,\mu) E_\lambda(f)$, where $\phi(\lambda,\mu) = 1 + \frac{4}{\pi} + 2\left[N_L(\mu) - N_L(\lambda)\right] + \frac{2}{\pi} \ln \frac{\mu+\lambda}{\mu-\lambda}$.

Theorem: Let the sequence L(f) have the property: It exists a function $\varphi(\lambda)$ non-negative for $\lambda > \lambda_0$ so that $N_L\left(\lambda + \frac{\lambda}{e^{\varphi(\lambda)}}\right) - N_L(\lambda) = O\left[1 + \varphi(\lambda)\right]$. Then $R_\lambda(f) \leq \phi(\lambda) E_\lambda(f)$, where $\phi(\lambda) = O\left[1 + \varphi(\lambda)\right]$.

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Theorem: If $L(f) \in A_\sigma$, then $R_\lambda(f) \leq \phi(\lambda) E_\lambda(f)$, $\phi(\lambda) = O(\ln \lambda)$.

Theorem: If $L(f) \in \Pi_\sigma$, then $R_\lambda(f) = O(E_\lambda(f))$.

Theorem: The Fourier series (1) of the almost-periodic function $f(x)$ converges uniformly if there exists a number sequence $\{\mu_n\}$ satisfying the following conditions: 1) $\mu_n > \Lambda_n$ for $n > n_0$,

2) $\lim\limits_{n\to\infty} E_{\Lambda_n}(f)\left[N_L(\mu_n) - N_L(\Lambda_n)\right] = 0$, 3) $\lim\limits_{n\to\infty} E_{\Lambda_n}(f) \ln \dfrac{\mu_n + \Lambda_n}{\mu_n - \Lambda_n} = 0$.

Theorem: Let the sequence $L(f)$ have the property: There exists $a > 0$, $m \geq 0$ so that $N_L\left(\Lambda_n + \dfrac{a}{\Lambda_n^m}\right) - N_L(\Lambda_n) = O(\ln \Lambda_n)$. Then (1) converges uniformly if $\lim\limits_{\delta\to 0} \omega_f(\delta) \ln \delta = 0$, where $\omega_f(\delta) = \sup\limits_{|x-y| \leq \delta} |f(x) - f(y)|$.

Theorem: If $L(f) \in \Pi_\sigma$, then there hold the ordering relations $E_\lambda(f) \sim R_\lambda(f) \sim \alpha_\lambda(f)$.

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Fourier Series as a Device for the Approximation of Almost-Periodic Functions SOV/20-123-2-2/50

Theorem: If $L(f) \in \Pi_\sigma$, then (1) converges absolutely. If here $A_0 = 0$, then $\sum_{k=-\infty}^{\infty} |A_k| \leq C_L \sup |f(x)|$, where C_L = const depends only on $L(f)$.
Two further theorems of the paper result as special cases.
There are 7 references, 6 of which are Soviet, and 1 Polish.

ASSOCIATION: Kuybyshevskiy aviatsionnyy institut (Kuybyshev Aviation Institute)

PRESENTED: May 30, 1958, by V.I.Smirnov, Academician

SUBMITTED: May 28, 1958

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHINA, YE. A. (Assist. Prof.)

"About the Summing of Fourier Series of Almost Periodic Functions."

report presented at the 13th Scientific Technical Conference of the Kuybyshev Aviation Institute, March 1959.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

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C111/C222

16.4200

AUTHOR: Bredikhina, Ye.A.

TITLE: On the Summation of Fourier Series of Almost Periodic Functions

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1960, No. 5, pp. 33 - 39

TEXT: Let Q be the class of uniform almost periodic functions the Fourier exponents of which have no finite accumulation points. Let

$$f(x) \sim \sum_{k=-\infty}^{\infty} A_k e^{i\Lambda_k x}, \quad (\Lambda_0 = 0, \Lambda_{-k} = -\Lambda_k, \Lambda_k < \Lambda_{k+1} \text{ for } k \geq 0,$$

$$\lim_{k\to\infty} \Lambda_k = \infty)$$

be the Fourier series of the $f(x) \in Q$. Let $\mu > 0$, $\theta > 1$ and

$$\tau_\mu(f,x) = \sum_{|\Lambda_k|<\mu} \left(1 - \frac{|\Lambda_k|}{\mu}\right) A_k e^{i\Lambda_k x}$$

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On the Summation of Fourier Series of Almost Periodic Functions

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$$\sigma_{\mu,\theta}(f,x) = \sum_{|\Lambda_k|\le\mu} A_k e^{i\Lambda_k x} + \frac{\theta}{\theta-1} \sum_{\mu<|\Lambda_k|<\theta\mu} \left(1 - \frac{|\Lambda_k|}{\theta\mu}\right) A_k e^{i\Lambda_k x}$$

$$P_\mu(f,x) = \sum_{|\Lambda_k|<\mu} \cos \frac{\Lambda_k \pi}{2\mu} A_k e^{i\Lambda_k x}$$

$$\overline{E}_\mu(f) = \operatorname*{Inf}_{c_k} \left\{ \operatorname*{Sup}_x \left| f(x) - \sum_{|\Lambda_k|\le\mu} c_k e^{i\Lambda_k x} \right| \right\}$$

where c_k are arbitrary complex coefficients.

Theorem 1 : If $f(x) \in Q$ then the sums $\tau_\mu(f,x)$ converge uniformly to $f(x)$.

Theorem 2 : If $f(x) \in Q$ and $f(x) \in \mathrm{Lip}_M \alpha (\alpha < 1)$ then it holds

$$|f(x) - \tau_\mu(f,x)| \le \frac{MC(\alpha)}{\mu^\alpha},$$

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On the Summation of Fourier Series of Almost Periodic Functions

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where $C(\alpha)$ depends only on α.
Theorem 3 : If $f(x) \in Q$ and $f(x) \in Lip_M 1$ then for $\mu \geqslant \mu_0 > 1$ it holds

$$(8) \quad |f(x) - \tau_\mu(f,x)| \leqslant \frac{C \ln \mu}{\mu},$$

where C = const does not depend on μ.
Theorem 4 : If $f(x) \in Q$, then it holds

$$(9) \quad |f(x) - \sigma_{\mu,\theta}(f,x)| \leqslant \overline{E}_\mu(f) \left(1 + \frac{4}{\pi} + \frac{2}{\pi} \ln \frac{\theta + 1}{\theta - 1}\right).$$

Theorem 5 : If $f(x) \in Q$ then it holds

$$(14) \quad |f(x) - p_\mu(f,x)| \leq C_1 \overline{E}_\mu(f) + \omega_f\left(\frac{\pi}{2\mu}\right),$$

where C_1 is an absolute constant.
The author mentions S.N. Bernshteyn.

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APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

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On the Summation of Fourier Series of Almost Periodic Functions

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There are 8 references : 4 Soviet, 2 English, 1 German and 1 French.

ASSOCIATION: Kuybyshevskiy aviatsionnyy institut (Kuybyshev Aviation Institute)

SUBMITTED: November 11, 1958

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APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206820012-0

BREDIKHINA, Ye.A.(Kuybyshev)

Some evaluations of the deviations of partial sums of Fourier's series from the quasiperiodic functions. Mat.sbor. 50 no.3: 369-382 Mr '60. (MIRA 13:6)
(Fourier's series)

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S/020/60/131/04/01/073

AUTHOR: Bredekhina, Ye.A.

TITLE: Some Problems Bearing on the Approximation of Almost Periodic Functions With a Bounded Spectrum

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol.131, No.4, pp 721-724.

TEXT: Let S be the class of uniform almost periodic functions

$$(1) \qquad f(x) \sim \sum_{k=-\infty}^{\infty} A_k e^{i\Lambda_k x},$$

where $\Lambda_0 = 0$; $\Lambda_{k+1} < \Lambda_k$ for $k > 0$; $\lim_{k\to\infty} \Lambda_k = 0$; $\Lambda_{-k} = -\Lambda_k$; $A_0 = 0$; $|A_k| + |A_{-k}| > 0$ for $k \neq 0$. Let $L = L(f)$ denote the sequence $\{\Lambda_k\}(k=1,2,\ldots)$. Let $f(x) \in S_n$ if $f(x) \in S$ and if there exist functions $f_0(x), f_1(x), \ldots, f_n(x)$ with the property that $f_0(x) = f(x)$, $f'_{m+1}(x) = f_m(x)$ $(m=0,1,\ldots,n-1)$, $f_m(x) \in S$ $(m=0,1,\ldots,n)$. Let $R_\varepsilon(f) = \sup_x \left| f(x) - \sum_{|\Lambda_k|>\varepsilon} A_k e^{i\Lambda_k x} \right|$, $e_\varepsilon(f) = \inf_{c_k} \left\{ \sup_x \left| f(x) - \sum_{|\Lambda_k|>\varepsilon} c_k e^{i\Lambda_k x} \right| \right\}$, $E_\varepsilon(f) = \inf_{F(x)\in Q_\varepsilon} \left\{ \sup_x |f(x) - F(x)| \right\}$, where Q_ε

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Some Problems Bearing on the Approximation of Almost Periodic Functions With a Bounded Spectrum S/020/60/131/04/01/073

is the class of almost periodic functions the Fourier exponents $\{\lambda_k\}$ of which satisfy the condition $|\lambda_k| > \varepsilon$. Let further

$$\Omega_f(N) = \begin{cases} \sup\limits_{|T| \geqslant N} \left\{ \sup\limits_x \left| \frac{1}{T} \int\limits_0^T f(x+t)dt \right| \right\}, & N > 0 \\ \sup |f(x)|, & N = 0. \end{cases}$$

Theorem 1: If $f(x) \in S$, then

(2) $$e_\varepsilon(f) \leq C_0 \Omega_f \left(\frac{1}{\varepsilon} \right),$$

where C_0 is an absolute constant.

Theorem 2: If $f(x) \in S_n$, then

(7) $$e_\varepsilon(f) \leq C_n \varepsilon^n \Omega_{f_n} \left(\frac{1}{\varepsilon} \right),$$

where C_n is a constant depending only on n.

Theorem 3: Let $0 < \eta < \varepsilon$; $f(x) \in S$. Then

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Some Problems Bearing on the Approximation of Almost Periodic Functions With a Bounded Spectrum S/020/60/131/04/01/073

(8) $R_\varepsilon(f) \leq 2E_\varepsilon(f)\left\{1+\frac{2}{\pi}+N_L(\eta)-N_L(\varepsilon)+\frac{1}{\pi}\ln\frac{\varepsilon+\eta}{\varepsilon-\eta}\right.$,

where $N_L(\varepsilon) = \sum_{\Lambda_k \geq \varepsilon} 1.$

As an application of these estimations three further theorems contain convergence criteria for the series (1), e.g.:

Theorem 5: Let exist a constant A so that

(13) $\left|\int_0^u f(x+t)dt\right| < A.$

Then (1) converges uniformly if

(14) $\Lambda_n \ln\frac{\Lambda_n+\Lambda_{n+1}}{\Lambda_n-\Lambda_{n+1}} = O(1).$

A result of B.M.Levitan is generalized. There are 5 Soviet references.

ASSOCIATION: Kuybyshevskiy aviatsionnyy institut (Kuybyshev Aviation Institute)

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BREDIKHINA, Ye.A.

S.N.Bernstein's theorem on the best approximation of continuous functions by entire functions of given degrees. Izv. vys. ucheb. zav.; mat. no.6:3-7 '61. (MIRA 15:3)

1. Kuybyshevskiy aviatsionnyy institut.
(Functional analysis) (Approximate computation) (Functions, Entire)

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31911
S/039/62/056/001/003/003
B112/B138

16.4200 16.4100

AUTHOR: Bredikhina, Ye. A. (Kuybyshev)

TITLE: Approximation of almost-periodic functions with a bounded spectrum

PERIODICAL: Matematicheskiy sbornik, v. 56(98), no. 1, 1962, 59-76

TEXT: The author considers almost-periodic functions $f(x) \sim \sum_{k=-\infty}^{\infty} A_k e^{i\Lambda_k x}$ ($\Lambda_0 = 0$, $0 < \Lambda_{k+1} < \Lambda_k$ for $k > 0$, $\lim_{k\to\infty} \Lambda_k = 0$, $\Lambda_{-k} = -\Lambda_k$, $A_0 = 0$, $|A_k| + |A_{-k}| > 0$ for $k \neq 0$). These functions constitute the class S. An almost-periodic function $f(x)$ is said to belong to the class S_n ($n = 1,2,\ldots$) if there are functions $f_0(x), f_1(x),\ldots,f_n(x)$ for which the relations $f_0(x) = f(x)$, $f'_{m+1}(x) = f_m(x)$ ($m = 0,1,\ldots,n-1$), $f_m(x) \in S$ ($m = 0,1,\ldots,n$) are valid. The approximation of functions of S by means of functions of

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S_n is investigated. Some estimates are derived. One of these estimates shows that, unlike the case of a 2π-periodic function or of an almost-periodic function whose Fourier exponents have an unambiguous limit point at infinity, the descending order of the optimal approximation of the functions $f(x) \in S$ is determinated not by the differential properties, but by the integral properties of $f(x)$. Another result derived in this paper is analogous to the inverse theorems of S. N. Bernshteyn. B. M. Levitan (Izv. AN SSSR, seriya matem., 16 (1952), 325-352) is referred to. There are 8 references: 7 Soviet and 1 non-Soviet.

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BREDIKHINA, Ye.A.

Simultaneous approximation of almost periodic functions and their derivatives. Dokl.AN SSSR 145 no.1:17-20 Jl '62. (MIRA 15:7)

1. Kuybyshevskiy aviatsionnyy institut. Predstavleno akademikom V.I.Smirnovym.

(Functions, Periodic)

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BREDIKHINA, Ye.A. (Kuybyshev)

Summation of Fourier series of almost periodical functions with bounded spectra. Izv. vys. ucheb. zav.; mat. no.5:6-11 '63. (MIRA 16:11)

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BREDIKHINA, Ye.A.

Approximation of almost periodic functions. Sib. mat zhur. 5 no.4: 768-773 Jl-Ag'64 (MIRA 17:8)

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L 22589-65 EWT(d) IJP(c)

ACCESSION NR: AP5004993 S/0199/64/005/004/0768/0773

AUTHOR: Bredikhina, Ye. A.

13
B

TITLE: Approximation of almost-periodic functions 16

SOURCE: Sibirskiy matematicheskiy zhurnal, v. 5, no. 4, 1964, 768-773

TOPIC TAGS: function theory, approximation calculation

Abstract: Given Q a class of uniform, almost-periodic functions; T a class of trigonometric polynomials

$$T(x,q) = \sum_{k=-N}^{N} c_k e^{i\frac{2\pi}{q}kx},$$

where q is a real number; B_σ is a class of whole functions of degree $\leq \sigma$ bounded on the real axis; Q_σ and T_σ are the intersections of classes Q and T respectively with class B_σ.

The Fourier series for the function $f(x) \in Q$ has the following form:

$$f(x) \sim \sum_k A_k e^{i\lambda_k x} (\lambda_{-k} = -\lambda_k;\ \lambda_k > 0 \text{ for } k > 0.$$

The author denotes by $L = L(f)$ the aggregate of absolute values of

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the exponents of the Fourier function f(x) and sets $A_\sigma(f) = \operatorname{Inf}_{\varphi \in B_\sigma} \{\operatorname{Sup}_x |f(x) - \varphi(x)|\}$,

$$E_\sigma(f) = \operatorname{Inf}_{\varphi \in Q_\sigma} (\operatorname{Sup}_x |f(x) - \varphi(x)|), \quad \overline{E}_\sigma(f) = \operatorname{Inf}_{\varphi \in T_\sigma} (\operatorname{Sup}_x |f(x) - \varphi(x)|),$$

$$R_\sigma(f) = \operatorname{Sup}_x |f(x) - f_\sigma(x)|,$$

where $f_\sigma(x) \in B_\sigma$ is a uniform, almost periodic function with a Fourier series $f_\sigma(x) \sim \sum_{|\lambda_k| \leq \sigma} A_k e^{i\lambda_k x}$. Any $\sigma > 0$ is called "an isolated point from the right" for the set L(f), provided that there is an $\varepsilon > 0$ such that the interval $(\sigma, \sigma + \varepsilon)$ does not contain points of the set L(f).

The paper gives a method for obtaining evaluations of the form

$$R_\sigma(f) \leqslant \Phi(\sigma, L) A_\sigma(f),$$

where σ is a point for the set L(f) isolated from the right and $\Phi(\sigma, L)$ is a function of σ, which is determined by the nature of the

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the set L(f) in the right-hand neighborhood of the point σ. In particular, a class $Q_1 \subset Q$ of functions f(x) in which

$$E_{\sigma_k}(f) = O[A_{\sigma_k}(f)],$$

where $\{\sigma_k\}$ ($\lim_{k\to\infty} \sigma_k = \infty$), is an increasing sequence of points isolated from the right for the set L(f).

On the other hand, the author isolates a class $Q_2 \subset Q$ of functions f(x) in which, for any $\sigma > 0$, the following equation holds:

$$E_\sigma(f) = A_\sigma(f).$$

This equation extends the theorem of S.N. Bernshteyn to the almost-periodic case. Orig. art. has 13 formulas.

ASSOCIATION: none

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BREDIKHINA, Ye.A.

Convergence of Fourier series of almost periodic Stepanov functions. Usp. mat. nauk 19 no.6:133-137 N-D '64 (MIRA 18:2)

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L 21318-65 EWT(d) IJP(c)

S/0038/64/028/004/0757/0772

ACCESSION NR: AP5004471

AUTHOR: Bredikhina, Ye. A.

TITLE: Problem of the simultaneous approximation of functions and their derivatives

SOURCE: AN SSSR. Izvestiya. Seriya matematicheskaya, v. 28, no. 4, 1964, 757-772

TOPIC TAGS: integral calculus, function theory

Abstract: In this work is studied the problem of an approximation of a uniform, nearly-periodic function and its first r derivatives by integral functions of the exponential type. Orig. art. has 38 formulas.

ASSOCIATION: none

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BREDIKHINA, Ye.A. (g. Kuybyshev)

Approximation of almost periodic functions by class Q functions.
Izv. vys. ucheb. zav.; mat. no.4:17-23 '65. (MIRA 18:9)

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