"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

PETUKHOV, Boris Vladimirovich; BABUSHKINA, S.I., red.; KOGAN, V.V., tekhn.red.

[Polyester fiber (terylene, lavsan)]. Poliefirnoe volokno; terilen, lavsan. Moskva, Gos.nauchno-tekhn.izd-vo khim.lit-ry, 1960. 85 p. (MIRA 13:11)

(Rayon)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

PAKSHVER, Aleksandr Bernardovich; GELLER, Boris Emmanuilovich; BABUSHKINA, S.I., red.; KOGAN, V.V., tekhn.red.

[Chemistry and technology of the manufacture of nitron fiber] Khimiia i tekhnologiia proizvodstva volokna nitron. Moskva, Gos.nauchno-tekhn.izd-vo khim.lit-ry, 1960. 147 p.
(Orlon) (MIRA 14:2)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

CHEKMAREV, A.I.; MIKHEL', M.L.; KRONGAUZ, I.A.; VITENBERG, Ye.M.; BABUSHKINA, S.I., red.; KHORAS, L.I., red.

[Packing materials for chemicals] Tara dlia khimicheskikh produktov. Moskva, Nauchno-issl.in-t tekhniko-ekon.issl., 1960. 229 p. (MIRA 13:8)
(Chemicals) (Packing for shipment)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BALABKIN, Petr Ivanovich; BABUSHKINA, S.I., red.; KOGAN, V.V., tekhn.red.

[Manufacture of dipped rubber goods] Proizvodstvo makanykh rezinovykh izdelii. Moskva, Gos.nauchno-tekhn.izd-vo khim. lit-ry, 1960. 230 p. (MIRA 13:9)
(Rubber goods)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

KSENZENKO, Vladimir Ivanovich; STASINEVICH, Dmitriy Sergeyevich; URAZOV, Georgiy Grigor'yevich, akademik, red. [deceased]; BABUSHKINA, S.I., red.; SHPAK, Ye.G., tekhn.red.

[Technology of bromine and iodine] Tekhnologiia broma i ioda. Pod obshchei red. G.G.Urazova. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry, 1960. 302 p. (MIRA 13:3)
(Bromine) (Iodine)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BRAYNES, Yakov Matveyevich; BABUSHKINA, S.I., ved. red.; FEDOTOVA, I.G., tekhn. red.

[Similitude and modeling in chemical and petrochemical processes] Podobie i modelirovanie v khimicheskoi i neftekhimicheskoi tekhnologii. Moskva, Gos.nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry, 1961. 219 p. (MIRA 15:2)
(Chemical models)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

TOPCHIYEV, A.V., akademik, red.; BABUSHKINA, S.I., ved. red.; YENISHERLOVA, O.M., ved. red.; KLEYMENOVA, K.F., ved. red.; LEVINA, Ye.S., ved. red.; MIGAY, L.S., ved. red.; TITSKAYA, B.F., ved. red.; FEDOTOVA, I.G., tekhn. red.

[Reports of the International Petroleum Congress, 5th. New York, 1959] Doklady V Mezhdunarodnogo neftianogo kongressa, New York, 1959. Moskva, Gos. nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry. Vol.3. [Petroleum and gas refining. Petrochemistry] Pererabotka nefti i gaza. Neftekhimiia. 1961. 498 p. (MIRA 14:9)

1. International Petroleum Congress, 5th. New York, 1959.
(Petroleum—Refining) (Petroleum chemicals)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

MARGOLIS, Liya Yakovlevna; BABUSHKINA, S.I., ved. red.; POLOSINA, A.S., tekhn. red.

[Heterogeneous catalytic oxidation of hydrocarbons; synthesis of monomers]Geterogennoe kataliticheskoe okislenie uglevodorodov; sintez monomerov. Moskva, Gostoptekhizdat, 1962. 246 p. (MIRA 15:11)

(Hydrocarbons) (Oxidation) (Catalysts)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

LUK'YANOV, Pavel Izotovich; BASISTOV, Aleksandr Georgiyevich; BABUSHKINA, S.I., ved. red.; YAKOVLEVA, Z.I., tekhn. red.

[Pyrolysis of crude petroleum products]Piroliz neftianogo syr'ia; resursy neftekhimii. Moskva, Gostoptekhizdat, 1962. 273 p. (MIRA 15:10)

(Petroleum--Refining) (Pyrolysis)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

SKOBLO, Aleksandr Ionovich, dots.; TREGUBOVA, Irina Anan'yevna, dots.; YEGOROV, Nikolay Nikolayevich, dots.; BONDARENKO, B.I., kand. tekhn. nauk, retsenzent; BABUSHKINA, S.I., ved. red.; KLEYMENOVA, K.F., ved. red.; POLOSINA, A.S., tekhn. red.

[Processes and equipment of the petroleum refining and petrochemicals industries] Protsessy i apparaty neftepererabatyvaiushchei i neftekhimicheskoi promyshlennosti. Moskva, Gos. nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry, 1962. 652 p. (MIRA 15:2)

(Petroleum—Refining)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BAGIROV, Ismail Tagi ogly; KARDASH, Ita Mordukhovna; BABUSHKINA, S.I., ved. red.; YAKOVLEVA, Z.I., tekhn. red.

[Means for lowering the consumption of power in petroleum refineries; fuel, steam, water, air, electric power]Puti snizheniia energozatrat na neftezavodakh; toplivo, par, voda, vozdukh, elektroenergiia. Moskva, Gostoptekhizdat, 1962. 211 p.
(MIRA 16:1)

(Petroleum--Refining)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

TROSTYANSKAYA, Ye.B.; SHISHKIN, V.A.; SIL'VESTROVICH, S.I.; PANTELEYEV, A.S.; POLUBOYARINOV, D.N.; BALKEVHICH, V.L.; NATANSON, A.K.; KOLACHEV, B.A.; PETROV, D.A.; GOL'DBERG, M.M.; SHAROV, M.Ya., inzh., retsenzent; KITAYGORODSKIY, I.I., doktor tekhn. nauk, prof., retsenzent; LIVANOV, V.A., kand. tekhn. nauk, prof., retsenzent; TROSTYANSKAYA, Ye.B., red.; BABUSHKINA, S., ved. red.; TITSKAYA, B.F., ved. red.; VORONOVA, V.V., tekhn. red.

[New kinds of materials in engineering and industry]Novye materialy v tekhnike. Pod red. Trostianskoi E.B., Kolacheva, B.A., Sil'vestrovicha S.I. Moskva, Gostoptekhizdat, 1962. 656 p. (MIRA 16:2)

(Materials)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

PAPOK, Konstantin Karlovich; RAGOZIN, Nikandr Andreyevich; BABUSHKINA, S.I., ved. red.; KLEYMENOVA, K.F., ved. red.; TITSKAYA, B.F., ved. red.; VORONOVA, V.V., tekhn. red.; TROFIMOV, A.V., tekhn. red.

[Technical dictionary-manual on fuel and oils]Tekhnicheskii slovar'-spravochnik po toplivu i maslam. Izd.3., dop. i perer. Moskva, Gostoptekhizdat, 1963. 767 p. (MIRA 16:3)
(Fuel) (Lubrication and lubricants)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

MAKARENYA, Aleksandr Aleksandrovich; BABUSHKINA, S.I., red.; VLASOVA, N.A., tekhn. red.

[D.I.Mendeleyev on the radioactivity and complexity of the elements] D.I.Mendeleev o radioaktivnosti i slozhnosti elementov. Moskva, Gosatomizdat, 1963. 64 p. (MIRA 16:4)
(Periodic law) (Radioactivity)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

DEBI, N.K.[Debie, N.G.], inzh. Laureat Gosudarstvennoy premii; IORGA, Dumitru[translator]; RAPOPORT, I.B., doktor khim. nauk, red.; BABUSHKINA, S.I., ved. red.; YAKOVLEVA, Z.I., tekhn. red.

[Petroleum chemical technology; processes of petroleum chemical synthesis] Neftekhimicheskaia tekhnologiia; protsessy neftekhimicheskogo sinteza. Pod red. I.B. Rapoporta. Moskva, Gostoptekhizdat, 1963. 531 p. Translated from the Rumanian. (MIRA 16:11)
(Petroleum chemicals)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

RAGOZIN, Nikandr Andreyevich; BABUSHKINA, S.I., ved. red.; POLOSINA, A.S., tekhn. red.

[Jet fuels] Reaktivnye topliva. 2., perer. i dop. izd. Moskva, Gostoptekhizdat, 1963. 163 p. (MIRA 16:12)
(Jet planes--Fuel)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

SERGIYENKO, Semen Romanovich; BABUSHKINA, S.I., ved. red.

[High-molecular petroleum compounds] Vysokomolekuliarnye soedineniia nefti. 2. perer. i dop. izd. Moskva, Khimiia, 1964. 540 p. (MIRA 17:8)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

GALKIN, N.P., doktor tekhn. nauk; SUDARIKOV, B.N., kand. khim. nauk; VERYATIN, U.D.; SHISHKOV, Yu.D.; MAYOROV, A.A.; BABUSHKINA, S.I., red.; TARASENKO, V.M., red.

[Uranium technology] Tekhnologiia urana. Moskva, Atomizdat, 1964. 395 p. (MIRA 17:12)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BELOV, Petr Stepanovich; ERIKH, V.N., retsenzent; RAPOPORT, I B., , doktor khim. nauk, prof., retsenzent; BABUSHKINA, S.I., red.

[Fundamentals of the technology of petrochemical synthesis] Osnovy tekhnologii neftekhimicheskogo sinteza. Moskva, Khimiia, 1965. 377 p. (MIRA 18:2)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

ALIYEV, Vagab Safarovich; AL'IMAN, Natal'ya Borisovna; AFANAS'YEV, I.D., red.; BABUSHKINA, S.I., ved. red.

[Petroleum-based synthetic resins] Sinteticheskie smoly iz neftianogo syr'ia. Moskva, Khimiia, 1965. 155 p.
(MIRA 18:3)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

MUSABEKOV, Yusuf Suleymanovich; BABUSHKINA, S.I., red.

[Marcellin Berthelot 1827-1907] Marselen Bertlo 1827-1907. Moskva, Nauka, 1965. 229 p. (MIRA 18:7)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

ISAGULYANTS, Vache Ivanovich; YEGOROVA, Galina Mikhaylovna; BABUSHKINA, S.I., red.

[Petrochemistry; manual for laboratory studies] Khimiia nefti; rukovodstvo k laboratornym zaniatiiam. 2. izd., perer. i dop. Moskva, Khimiia, 1965. 506 p.
(MIRA 18:9)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BAGATUROV, Sergey Aleksandrovich; PLANOVSKIY, A.N., doktor tekhn. nauk, prof., retsenzent; SKOBLO, A.I., dots. retsenzent; TREGUBOVA, I.A., dots., retsenzent; BABUSHKINA, S.I., vedushchiy red.; POLOSINA, A.S., tekhn. red.

[Theory and calculation of distillation and rectification] Teoriia i raschet peregonki i rektifikatsii. Moskva, Gos. nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1961. 435 p. (MIRA 14:10)
(Distillation—Tables, calculations, etc.)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

1. BABUSHKINA, T. A.; EPIFANOV, B.P.; SYROVA-MARKOVA, Yu. I.; SHEIPENDORF, O. M.

2. USSR (600)

4. Iron Ores

7. Report on the work of the first revisory-prospecting party for iron ore. Izv. Glav. upr. geol. fon. no. 2 1947.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

L 12644-65 EWT(1)/EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 RM

ACCESSION NR: AP4044936 S/0181/64/006/009/2663/2666

AUTHORS: Babushkina, T. A.; Baysa, D. F.

TITLE: On the temperature dependence of NQR frequencies and spin-lattice relaxation time in n-dichlorobenzene

SOURCE: Fizika tverdogo tela, v. 6, no. 9, 1964, 2663-2666

TOPIC TAGS: nuclear quadrupole resonance, spin lattice relaxation, temperature dependence, dichlorobenzene

ABSTRACT: It is pointed out that earlier nuclear quadrupole resonance (NQR) studies did not deal with the simultaneous variation of the NQR frequencies and the spin-lattice relaxation time over a wide range of temperatures. The authors therefore measured the temperature dependences of the NQR frequencies in the interval 4.2--300K and the spin-relaxation times in the interval 77--300K for the three phases of n-dichlorobenzene. Earlier investigations dealt only with

Card 1/3

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L 12644-65

ACCESSION NR: AP4044936

2

the α phase and with the kinetics of the $\alpha \rightleftarrows \beta$ transition. The relaxation time and the NQR frequencies were measured by a pulse procedure down to 77K. At lower temperatures, a superregenerator with a special cryostat, described by V. P. Babenko and D. F. Bays (PTE No. 6, 138, 1962) was used. In addition, the temperature dependence of the frequencies of the torsional vibrations of the molecules in the crystal was estimated in accordance with the Bayer theory (H. Bayer, Z. Physik, v. 130, 227, 1951). An attempt was also made to estimate the lifetimes of the torsional levels from the spin-lattice relaxation times. It is concluded that even a modified spin-lattice relaxation time theory in conjunction with the Bayer theory of the temperature dependence of the NQR frequencies cannot explain the experimental facts. "The authors thank A. I. Kitaygorodskiy and A. F. Prikhod'ko for interest in the work." Orig. art. has: 7 formulas and 2 tables.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR,

Card 2/3

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

L 12644-65

ACCESSION NR: AP4044936

Moscow (Institute of Organoelemental Compounds, AN SSSR)

SUBMITTED: 27Mar64 ENCL: 00

SUB CODE: SS, NP NR REF SOV: 007 OTHER: 012

Card 3/3

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

L 55916-65 EWT(1)/EWT(m)/EPF(c)/EWP(j)/EEC(t)/T Pc-4/Pr-4/Pi-4 IJP(c)
WW/GG/RM
ACCESSION NR: AP5018335 UR/0020/64/159/001/0164/0165

AUTHOR: Babushkina, T. A.; Robas, V. I.; Semin, G. K.

42
41
B

TITLE: Nuclear quadrupole resonance in polymers

SOURCE: AN SSSR. Doklady, v. 159, no. 1, 1964, 164-165

TOPIC TAGS: polymer, crystal structure, nuclear resonance

ABSTRACT: A formula proposed by G. K. Semin was used to calculate the nuclear quadrupole resonance frequencies of Cl^{35} in chlorine-containing chain polymers (e.g. polyvinylidene chloride). The same formulas were also used to determine the structure of the polymer fragment of the polymerization product of trichloropropene ($Cl_3C-CH=CH_2$). The authors suggest that a study of the shape of the lines, relaxation times, and their temperature variations will provide the possibility of drawing conclusions on the nature and degree of order of polymer crystals, as well as the forms of thermal motions of polymer molecules.

Orig. art. has: 6 formulas.

Card 1/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

L 55916-65

ACCESSION NR: AP5018335

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Heteroorganic Compounds, Academy of Sciences SSSR)

SUBMITTED: 09Jan64 ENCL: 00 SUB CODE: NP, OC

NR REF SOV: 001 OTHER: 000 JPRS

Card 2/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSHKINA, T.A.; KHOTSYANOVA, T.L.; SELIN, G.K.

Crystal structure and nuclear quadrupole resonance spectra of Br^{79} and I^{127} in hexabromo and hexaiodobenzene. Zhur. strukt. khim. 6 no.2:307-308 Mr-Ap '65. (MIRA 18:7)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

L 45201-65 EPF(c)/EEC(t)/EWT(1) Pi-4 IJP(c) GG/WW

ACCESSION NR: AP5006911 S/0181/65/007/003/0924/0925

30
26
B

AUTHOR: Babushkina, T. A.; Robas, V. I.; Safin, I. A.; Semin, G. K.

TITLE: Investigation of the features of phase transitions in the molecular crystal $Cl_2C(NO_2)_2$ by the method of nuclear quadrupole resonance 21

SOURCE: Fizika tverdogo tela, v. 7, no. 3, 1965, 924-925

TOPIC TAGS: nuclear quadrupole resonance, molecular crystal, phase transition, relaxation time, frequency shift

ABSTRACT: An investigation of the NQR spectrum of Cl^{35} in the molecular crystal $Cl_2C(NO_2)_2$ has established the existence of slow phase transitions, making it possible to measure the NQR frequencies and the spin-lattice relaxation times for all phases at liquid nitrogen temperature. Three crystallographically different phases were observed to form in succession during the course of the experiment. The NQR frequencies, the widths of the resonance lines, and the relaxation times are listed in a table. A pronounced dependence of the shift of NQR frequency of different phases on the spin-lattice relaxation time is observed at 77K. The change in the width of the resonance lines in transitions between phases is ascribed to differ-

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"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

L 45201-65
ACCESSION NR: AP5006911

ence in thermal vibrations of the molecules of the crystal in the lattices of the corresponding phases. "The authors thank A. I. Kitaygorodskiy and B. M. Kozyreva for interest in the work and A. A. Faynzil'berg for supplying the sample of $Cl_2C(NO_2)_2$." orig. art. has: 1 table.

ASSOCIATION: Kazanskiy fiziko-tekhnicheskiy institut AN SSSR (Kazan' Physico-technical Institute, AN SSSR)

SUBMITTED: 09Oct64 ENCL: 00 SUB CODE: SS, NP

NR REF SOV: 000 OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

L 9567-66 EWT(m)/EWP(j) RM

ACC NR: AP5027435 SOURCE CODE: UR/0181/65/007/011/3428/3429

AUTHOR: Babushkina, T. A.

ORG: Institute of Hetero-organic Compounds AN SSSR, Moscow (Institut elementoorganicheskikh soyedineniy AN SSSR)

TITLE: Phase transition in iodobenzene

SOURCE: Fizika tverdogo tela, v. 7, no. 11, 1965, 3428-3429

TOPIC TAGS: phase transition, nuclear resonance, iodinated organic compound, benzene, iodine, isotope

ABSTRACT: A detailed analysis of the I^{127} nuclear quadrupole resonance frequencies as a function of temperature for the $\pm 1/2 \leftrightarrow \pm 3/2$ transition in iodobenzene shows a phase transition near 110°K. This phase may exist down to 93°K when the compound is being cooled from 200°K. The low-temperature phase has two nuclear quadrupole resonance lines with frequencies which behave anomalously with respect to temperature. These frequencies increase with temperature between 77 and 100°K and then drop sharply, disappearing at 110°K. This type of anomalous behavior has been observed previously in molecular crystals only in $TiBr_4$, and in this case was explained by the negative coefficient of nuclear quadrupole resonance frequency from pressure. For iodobenzene, the phenomenon is kinetic, depending on the prehistory of the specimen.

Card 1/2

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L 9567-66

ACC NR: AP5027435

3

Prehistory is defined as multiple repetition of the phase transition up to the melting point of the compound. The position of the maximum is constant with respect to temperature (~97°K). I consider it my duty to thank A. I. Kitaygorodskiy for his interest in the work. Orig. art. has: 1 figure.

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SUB CODE: 20,07/ SUBM DATE: 05Apr65/ ORIG REF: 002/ OTH REF: 002

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Card 2/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

L 8148-66

ACC NR: AP5027696 SOURCE CODE: UR/0062/65/000/010/1913/1914

AUTHOR: Zakharkin, L. I.; Okhlobystin, O. Yu.; Semin, G. K.; Babushkina, T. A.

ORG: Institute of Organometallic Compounds, Academy of Sciences SSSR (Institut elementoorganicheskikh soyedineniy, Akademii nauk SSSR)

TITLE: Exchange of hydrogen for chlorine in the barene-CCl_4 or -$CHCl_3$ system by the action of aluminum chloride

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 10, 1965, 1913-1914

TOPIC TAGS: organoboron compound, chemical reaction, halogenation, exchange reaction, chlorinated organic compound

ABSTRACT: When a solution of barene in carbon tetrachloride or chloroform was boiled in the presence of aluminum trichloride, the hydrogen atoms of the barene were readily substituted by chlorine atoms to form mono-, di- and trichlorobarenes. Similar exchange of hydrogen for chlorine occurred in vinylbarene and methylbarene. Probable mechanism for these exchanges is discussed. Orig. art. has: 2 equations.

SUB CODE: OC/ SUBM DATE: 21Jul65/ ORIG REF: 001/ OTH REF: 002

nw

Card 1/1

UDC: 541.124+661.718.4

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

VEYSEYSKAYA, N.D.; BABUSHKINA, T.V.; BAKHAYEV, A.K.; GRISHUTIN, Yu.P.

Effect of aldehydes on the rate of polymerization of butadiene and methyl styrene. Kauch. i rez. 24 no.8:51 '65. (MIRA 18:10)

1. Karagandinskiy zavod sinteticheskogo kauchuka.

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

KOGAN, D.A.;KONSTANTINOVA, G.N.;BABUSHKINA, V.G.

Pancreatic function in hypertension. Klin. med., Moskva 30 no.2:77 Feb 1952. (CLML 22:1)

1. Professor for Kogan. 2. Of the Department of Physiotherapy, Middle-Asiatic Institute for the Advanced Training of Physicians (Director -- D. S. Pulatov), Tashkent.

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

KOGAN, D. A.; KONSTANTINOVA, G. N.; BABUSKHINA, V. G.

Blood - Pressure

Pancreatic function in hypertension. Klin. med. 30, no. 2, February 1952.

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

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BUKHANOV, Ya.G.,prof.; BABUSHKINA, V.T.

Use of placental blood in the prevention of blood loss in placental stage and early postpartum. Sov.med. 22 no.3:100-102 Mr '58. (MIRA 11:4)

1. Iz kafedry akusherstva i ginekologii (zav. - prof. Ya.G.Bukhanov) Stalingradskogo meditsinskogo instituta.

(PLACENTA
placental blood, intramusc. inject., in prev. of postpartum blood loss (Rus))
(LABOR, hemorrh.
in 3rd state & postpartum, prev. with intramusc. inject. of placental blood (Rus))

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSHKINA, V.V.

Spectroscopic study of structure of various complex compounds.
Izv. AN SSSR. Ser. fiz. 22 no.9:1131-1135 S '58. (MIRA 11:10)

1. Institut fizicheskoy khimii AN SSSR.
(Complex compounds--Spectra)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

S/169/62/000/002/072/072
D228/D301

AUTHOR: Babushkinov, M. S.

TITLE: Magnetic disturbances in 1957-1959. From observations of the magnetic observatory of L'vovskiy universitet (L'vov University)

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 2, 1962, 32, abstract 2G213 (Mezhdunar. geofiz. god. Inform. byul., no. 3, 1961, 92-102)

TEXT: Statistical data are cited about the magnetic storms, coil-like disturbances, and pulsations recorded by the L'vovskaya magnitnaya observatoriya (L'vov Magnetic Observatory) during the IGY. The principle of the division of magnetic storms according to categories is pointed out, and their yearly distribution is given together with that for the months in each year. Then the distribution of active magnetic-storm periods in the course of 24 hours is indicated. The annual and diurnal variation for coil-like disturbances and pulsations is also denoted in addition to their total

Card 1/2

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"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

Magnetic disturbances in ... S/169/62/000/002/072/072
D228/D301

number in each year. The distribution of the total number of disturbed hours during the days of each year is given. [Abstracter's note: Complete translation.]

Card 2/2

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"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

L 16822-63 EWT(d)/BDS

ACESSION NR: AP3004212 S/0193/63/000/006/0076/0077

AUTHOR: Babushko, O. G. 50

TITLE: Second All-Russian Conference on the Technology of Group Machining of Parts (March, 1963)

SOURCE: Byulleten' tekhniko-ekonomicheskoy informatsii, no. 6, 1963, 76-77

TOPIC TAGS: group machining method, machine plant , machine part

ABSTRACT: In March, 1963 the State Committee of the Soviet of Ministers for Coordinating Scientific-Research Work held a Second All-Russian Conference together with the Leningrad Sovnarkhoz. 500 people attended, including supervisors, managers, chief engineers, chief technicians, designers, scientists, specialists, and representatives of various economic councils. Reports were given on the results of group methods applied to machining parts in various plants, scientific principles of developing group technology, development and introduction of these methods in various machine and tool plants, and the use of computers and automatic controlled machines for group machining of small scale production. In the RSFSR the 750 plants

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L 16822-63

ACCESSION NR: AP3004212

which have adopted these group methods use 30,000 units of equipment and have 700 continuous group production lines. Annual savings effected by these methods amount to 7,300,000 rubles. The group machining methods have been adopted most extensively in the Leningrad, Moscow, Volgo-Vyatskiy, Severo-Kavkazskiy, and Sredne-Volzhskiy sovnarkhozes. The conference made plans for further development of these methods and their introduction into more plants to increase mass production. Orig. art. has: no figures, tables, or formulas.

ASSOCIATION: None

SUBMITTED: 00 DATE ACQ: 02Aug63. ENCL: 00

SUB CODE: AD NO REF SOV: 000 OTHER: 000

Card 2/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSHKO, O.G.

Activity of information services of the Central Chernozem Economic Council. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekh.inform. no.12:85-86 '63. (MIRA 17:3)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

S/035/62/000/012/012/064
A001/A101

AUTHOR: Babushnikov, M. S.

TITLE: Geomagnetic disturbance during the ascending branch of the current 11-year solar activity cycle

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 12, 1962, 58, abstract 12A419 ("Tsirkulyar. Astron. observ. L'vovsk. un-ta", 1960, no. 35 - 36, 91 - 92)

TEXT: Information is given on the number of magnetic storms of various intensities based on the data of the L'vov Magnetic Observatory for 1952 - 1958. It is noted that the minimum of magnetic disturbance set in in 1954, i.e., simultaneously with the minimum of sunspot-forming activity of the Sun.

A. O.

[Abstracter's note: Complete translation]

Card 1/1

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSHNIKOV, M.S.

Secular variations of the geomagnetic field at Odessa during the period 1896 - 1960. Geofiz. i astron. no.8:13-20 '65. (MIRA 19:1)

1. Institut geologicheskikh nauk AN Belorusskoy SSR.

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSHYAN, N. B.

"Investigation of the Thermodynamic Properties of Liquid Freon-113 Within a Wide Range of Temperature and Pressure." Cand Tech Sci, Moscow Power Engineering Inst, Moscow, 1953. (RZhKhim, No 18, Sep 54)

SO: Sum 432, 29 Mar 55

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSKA, I. (Prague)

Conference on basic problems of numerical mathematics. Cas pro pest mat 90 no.1:128 F '65.

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

DIBAK, O.; BUCKO, A.; KORTUS, J.; KOTULIAK, V.; technicka spolupraca: SPUSTOVA, D.; CHOBOTOVA, M.; BABUSIK, I.

Protective diets and metabolism of some elements in subjects exposed to fluorine ions. Bratisl. Lek. Listy 43 no.2:77-88 '62.

1. Z Ustavu pre vyskum vyzivy l'udu v Bratislave, riaditel' MUDr. A. Bucko, C. Sc.

(FLUORINE toxicol) (ALUMINUM metab) (CALCIUM metab) (PHOSPHORUS metab) (DIETS)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

KORTUS, J.; DIBAK, O.; KOTULIAK, V.; Technicka spolupraca: SPUSTOVA, D.; CHOBOTOVA, M.; BABUSIK, I.

Effect of various nutritional factors and fluorine ions on aluminum retention in bony tissue of rats. Cesk. gastroent. vyz. 17 no.4:202-212 Je '63.

1. Fyziologicke oddelenie Ustavu pre vyskum vyzivy ludu v Bratislave, riaditel MUDr. A. Bucko, CSc.
(DIET) (BONE AND BONES) (ALUMINUM)
(FLUORINE) (VITAMIN D)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

KORTUS,J.; DIBAK,O.; KOTULIAK, V. Technicka spolupraca: HRADSKA, M.; BABUSIK,I.

Calcium and phosphorus metabolism in fluoridated rats under the influence of large doses of vitamins and calcium. Cesk. hyg. 10 no.1:1-9 F '65

1. Fyziologicke oddelenie Ustavu pre vyskum vyzivy ludu, Bratislava.

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

MUNGYEROVA, G.; BAHUSIKOVA, O.; KALAFUT, F.; JACZ, K.

The effect of some cytostatics on multiform glioblastomas in tissue cultures. Neoplasma (Bratisl) 12 no.3:289-295 '65.

1. Department of Experimental Cytology, Institute of Experimental Medicine of Slovak Academy of Sciences, Department of Neurosurgery, Regional National Health Institute, Bratislava, Czechoslovakia.

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSKA, IVO

Babuška, Ivo. The plane problem of elasticity. Časopis Pěst. Mat. 77, 227–240 (1952). (Czech)

This is an expository article on the plane problem of the classical (linear) mathematical theory of elasticity, with emphasis on modern function-theoretic and integral-equation methods, and especially on the work of the Russian school. The presentation is in the main descriptive and brief, without proofs or references, but within these limitations it is precise, and emphasises conditions of validity.

A. Erdélyi (Pasadena, Calif.).

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSKA, I.

"Contribution to the Theoretical Solution of Internal Tension in Welding and Some Experimental Results." p. 181 (SVARACSKY SBORNIK. Vol 2, No. 1/2, 1953; Bratislava, Czech.)

So: Monthly List of East European Accessions, (EEAL), LC, vol. 4, No. 4, April 1955, Uncl..

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUŠKA, IVO.

Babuška, Ivo. Bemerkung zur gewissen Lösung des bi- harmonischen Problems. Časopis Pěst. Mat. 79 41-63 (1954). (Czech. Russian and German summaries) 1 - F/W

If $\Delta u(x, y)$ satisfies in a domain [illegible] the [illegible] harmonic equation $\Delta^2 u$ [illegible]

[illegible] parts form a complete orthonormal system of harmonic functions in Ω, in the L_2-sense. If Δu is square integrable, it can be expanded in terms of the Re (ψ_n). The author discusses the computation of the coefficients of the expansion in terms of given boundary values of u and the normal derivative $\partial u/\partial \nu$ and the subsequent expressions for $\varphi(z)$ and $\chi(z)$. He shows that the formulas obtained by formal computation hold under rather general interpretation of the concept of boundary value and a wide assumption about the nature of the boundary of Ω.

C. Loewner

LFH

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BARUSKA, I.; MEJZLIK, L.

Stresses in the structure of a dam erected on an elastic bed. p. 231.

Vol. 4, no. 8, Aug. 1954
VODNI HOSPODARSTVI
Praha, Czechoslovakia

Source: East European Accession List. Library of Congress
Vol. 5, No.8, August 1956

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSKA, I.; REJCHRT, L.

Stresses in the structure of a dam erected on an elastic bed. p. 258.

Vol. 4, no. 9, Sept. 1954
VODNI HOSPODARSTVI
Praha, Czechoslovakia

Source: East European Accession List. Library of Congress
Vol. 5, No. 8, August 1956

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUŠKA, IVO

Babuška, Ivo. Über eine symmetrische Lösung von vollständig regulären Systemen linearer Gleichungen und ihre Applikation auf die statische Lösung von Rahmentragwerken. Časopis Pěst. Mat. 80 (1955), 60–88. (Czech. Russian and German summaries)

C. V. Klouček [Distribution of deformation (a new method of structural analysis), Prague, 1949; MR 11, 60] proposed an iterative "method of distributed deformations" for solving certain linear algebraic equation systems arising in the static solution of structural frameworks. The present author gives a well-organized mathematical exposition of the method, with proofs and several numerical examples.

The systems considered have symmetric matrices A with $a_{ii}=\alpha_i\sum_{j(j\neq i)}|a_{ij}|$, where all $\alpha_i>\alpha>1$. For infinite systems also $0<k<a_{i,i}<K<\infty$. The author calls such

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"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

Babuška, Ivo.

systems "completely regular". He represents such a matrix by a graph. Each unknown x_i is represented by a point P_i, and two points P_i, P_j are joined by a line if $a_{ij} \neq 0$. A "closed" system has a simple closed curve in its graph; all others are "open". A complicated closed algorithm with quotients and differences is given for the solution of a finite, completely regular, open system S: $Ax=b$ with only one non-zero component in b. Klouček's method is then developed for any finite, completely regular, closed system S with the same type of b. The essence of the method is to replace S by an equivalent infinite, completely regular, open system S^*, and to find the solution x_n^* of the nth finite segment S_n^* of S^* by the above algorithm. As $n \to \infty$, x_n^* converges to the solution of S. *G. E. Forsythe.*

2/2

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

HAMUSKA, I.

Solution of partial differential equations by means of the lattice method. p. 331. CASOPIS PRO PESTOVANI MATEMATIKY Vol. 80, no. 3, Aug. 1955
Czechoslovakia

SOURCE: EAST EUROPEAN ACCESSIONS LIST VOL.5, no. 7, July 1956.

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

[illegible], I.

The plane biharmonic problem in a [illegible] with [illegible] points. [illegible]

CASOPIS PRO PESTOVANI MATEMATIKY vol. 80, no. [illegible], Nov. 195[illegible]

Czechoslovakia

so. EAST EUROPEAN ACCESSIONS LIST vol. 5, no. [illegible] July 1956

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSKA, IVO

3

Babuška, Ivo; Rektorys, Karel; and Vyčichlo, František. Matematická theorie rovinné pružnosti. [The mathematical theory of plane elasticity.] Naklad Českoslov Akad. Věd, Prague, 1955. 527 pp.

The book is devoted to the application of the theory of functions of a complex variable to solving plane problems of the classical mathematical theory of elasticity (for static problems without the effect of body forces). From the mathematical point of view it deals with the special method of solving a biharmonic equation for given boundary conditions. The book gives and further develops some of the results of N. I. Muskelishvili and collaborators. An original contribution is the axiomatic construction of the fundamentals of plane elasticity, the accuracy and generality of the mathematical procedures and some new numerical methods of solution. However, the book does not exhaust the whole subject; for example, it does not deal with the mixed boundary value problem or estimations of the errors of numerical solutions. The authors plan to deal with these questions and other methods of solving the plane problem of the mathematical theory of elasticity in further volumes.

The whole book is written in a modern mathematical style of the type: definition - theorem - proof, supple-

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APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUŠKA, Ivo and REKTORYS, Karel ...

mented by brief and comprehensive explanations.

The book is divided into four chapters and a mathematical supplement

The first chapter is devoted to fundamental concepts. These basic concepts of the plane problem are introduced directly by definition in the plane, not — as is usual in the literature — by specialisation from the spatial problem to plane stress and plane deformation. Thus it directly gives definitions of a plane body, vector and tensor, stress in a plane, deformation etc.; the concept of equilibrium and Hooke's law is also given by definition. The basic concepts are discussed and a derivation given of the fundamental equations for the static case. The authors avoided the procedure usual up to now in the mathematical theory of elasticity, when mathematical and physical considerations alternate. Thus basically they give the axiomatic construction of the fundamentals of plane elasticity.

The second chapter gives the formulation of the problem of plane elasticity. The complex functions of stress are introduced by a procedure similar to that used by Muskelishvili and their characteristics are studied in simply and multiply connected, limited and infinite bodies. The formulation and proof is given of the unique-

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"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUŠKA, Ivo and REKTORYS, Karel

ness of the solution of the first problem (the components of external stress or that of the principal vector are given on the boundary) and of the second problem of elasticity (the components of displacement given on the boundary).

The third chapter is devoted to methods for solving the problems formulated in the second chapter, by means of complex functions of stress. Only two of the greater number of possible formulations of the problem are dealt with — those using the integral equations of Muskelishvili and Lauricella-Shermann. Greater attention is paid to the equation of Lauricella-Shermann which is used both for proving the existence and uniqueness of the solution

and for the general solution of the first problem for a circle, half-plane and the exterior of a circle. Their properties are also used for a new formulation of Saint-Venant's principle. Some new numerical methods for solving the problem of plane elasticity are proposed, consisting in a combination of the method of the functions of a complex variable and the method of the minimum of a quadratic functional. This method is used for solving the second boundary value problem for an annulus and for calculating the stress in a crane hook. At the end of the chapter the possibility is shown of transforming the Lauricella-Shermann equation for multiply connected bodies into a system of integral equations and the ad-

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"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUŠKA, Ivo and REKTORYS, Karel...

vantages of this procedure for numerical calculation is proved.

The fourth chapter gives a solution of the plane problem of elasticity by means of the method of conformal mapping for bodies which can be conformally mapped onto a circle. The corresponding integral equations are given and an approximative solution carried out for a square compressed by two (isolated) point forces.

The mathematical supplement deals briefly with some selected topics of the theory of the functions of a complex variable and also that of integral equations the results of which are used in the preceding chapters.

František Kroupa (Praha).

4/4

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

On the planar biharmonic problem in region with corner points.

1-FW

Babuška, Ivo. Über das ebene biharmonische Problem in Gebieten mit Winkelpunkten. Časopis Pěst. Mat. 80 (1955), 448–453. (Czech. Russian and German summaries)

An extension of the results of an earlier article [same Časopis 79 (1954), 41–63; MR 16, 1109] to domains with piecewise smooth boundaries.

CC 1/1

Harmonic functions 14

Complex functions 14

Analytic functions 14

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

A Solution of the Biharmonic Problem in an Infinite Band. I. Numerical Results and Applications

5346:

Babuška, Ivo. Eine Lösung des biharmonischen Problems im unendlichen Streifen. I. Numerische Ergebnisse und Anwendungen. Apl. Mat. 1 (1956), 34–43. (Czech. Russian and German summaries)

Verfasser betrachtet im offenen Streifen Q aller Punkte (x, y) mit $|y|<\pi/2$, das Anfangswertproblem der biharmonischen Differentialgleichung

$$\Delta\Delta U(x,y)=\frac{\partial^4 U}{\partial x^4}+2\frac{\partial^4 U}{\partial x^2\partial y^2}+\frac{\partial^4 U}{\partial y^4}=0$$

unter den Bedingungen

$$\left|\frac{\partial U(x,y)}{\partial x}\right|<C(1+x^2)^{n/2},\quad \left|\frac{\partial U(x,y)}{\partial y}\right|<C(1+x^2)^{n/2},\ n<\infty \quad (C<\infty),$$

und gewinnt den Satz: sind $f'(x)$ und $g(x)$ stetige Funktionen, welche den Bedingungen

$$|f'(x)|<C(1+x^2)^{n/2},\quad |g(x)|<C(1+x^2)^{n/2}$$

genügen, so existiert genau eine Lösung $U(x, y)$ des biharmonischen Anfangswertproblems im Sinne der angegebenen Definition; für $U(x, y)$ gilt auf der Streifengrenze $y=\pm\pi/2$

$$U\left(x,\pm\frac{\pi}{2}\right)=f(x);\ \frac{\partial U}{\partial y}\left(x,\pm\frac{\pi}{2}\right)=\pm g(x).$$

$U(x, y)$ wird durch die uneigentlichen Integrale

$$U(x,y)=\int_{-\infty}^{+\infty} f(\xi)G_1(\xi-x,y)d\xi+\int_{-\infty}^{+\infty} g(\xi)G_2(\xi-x,y)d\xi;$$

$$-\infty<x<\infty;\ -\frac{\pi}{2}<y<\frac{\pi}{2}$$

dargestellt. Die uneigentlichen Integrale existieren im gewöhnlichen Sinne und die Greenschen Einflußfunktionen $G_i(x, y)$, $i=1, 2$, ergeben sich gemäß

$$G_i(x,y)=\frac{\partial^2 H_i(x,y)}{\partial x^2},\ i=1,2,$$

wobei die Funktionen $H_i(x, y)$ Lösungen des biharmonischen Anfangswertproblems darstellen, welche den Bedingungen

$$H_1\left(x,\pm\frac{\pi}{2}\right)=\begin{cases}0, & x<0\\ x, & x\geq 0\end{cases},\quad \frac{\partial H_1}{\partial y}\left(x,\pm\frac{\pi}{2}\right)=0,$$

$$H_2\left(x,\pm\frac{\pi}{2}\right)=0,\quad \frac{\partial H_2}{\partial y}\left(x,\pm\frac{\pi}{2}\right)=\begin{cases}0, & x<0\\ x, & x\geq 0\end{cases}$$

genügen. Die Greenschen Einflußfelder G_i werden physikalisch gedeutet und numerisch ausgewertet.

M. Pinl (Cologne)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSKA, I.

The state of stress in a nonhomogeneous foundation. p. 361

(Institute of Virology - Czechoslovak Academy of Science) Vol. 2, No. 5, 1957

SO: Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 5 May 1958

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSKA, I; [redacted]

TECHNOLOGY

Periodical ACTA TECHNICA. Vol. 3, no. 5, 1958. In German.

BABUSKA, I.; MEJZLIK, L. Evaluating possibilities of using high layers in the construction of gravity dams. In German. p. 353.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, no. 3, March, 1959. Uncl.

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"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

CZECHOSLOVAKIA / Chemical Technology. Chemical Products and Their Application. Ceramics. Glass. Binding Materials. Concrete. - Binding Materials. Concrete and Other Silicate Building Materials. H-13d

Abs Jour: Ref Zhur-Khimiya, No 23, 1958, 78519.

Author : Babuska, Ivo.
Inst : Not given.
Title : Concerning the Rheological Properties of Concrete.

Orig Pub: Stavob. casop., 1958, 6, No 1, 28-42.

Abstract: The derivation of equations connecting the creeping (C) with the relaxation (R) is presented. It is shown that only one function of R corresponds to each function of C, and vice versa. The necessary conditions under which

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On Schwarz's Algorithm in Partial Differential Equations of Mathematical Physics

Babuška, Ivo, Über Schwarzsche Algorithmen in partiellen Differentialgleichungen der mathematischen Physik. Czechoslovak Math. J. 8 (83) (1958), 328-343. (Russian. German summary)

2

1-FW

This paper is concerned with the convergence question of the Schwarz algorithm for partial differential equations. For problems for union or intersection of two regions, and for general positive definite self-adjoint problems, the convergence proof of the Schwarz alternating algorithm is reduced to the following general result. Let H_1, H_2 be two closed linear subspaces of a Hilbert space H. Let P_1, P_2 denote the orthogonal projections of H onto H_1, H_2, respectively, and let P be the projection onto $H_1 \cap H_2$. Then

$$\lim_{n\to\infty} \|(P_2P_1)^n x - Px\| = 0$$

for all $x \in H$. {This general theorem was first proved by J. von Neumann [*Functional operators. II. The geometry of orthogonal spaces*, Princeton Univ. Press, 1950; MR 11, 599; p. 55] and later independently by N. Wiener [Comment. Math. Helv. 29 (1955), 97-111; MR 16, 921].}

Ky Fan (Notre Dame, Ind.)

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BABUSKA, I.

16(1) PHASE I BOOK EXPLOITATION SOV/2660

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

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

Sponsoring Agency: Akademiya nauk SSSR. Matematicheskiy institut.

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

PURPOSE: This book is intended for mathematicians and physicists.

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

Kalmár, L. (Hungary). On one hypothesis applicable in the study of so-called non-solvable arithmetic problems 227

Mostowski, A. (Poland). Remarks on the proofs of the existence of standard models 232

Kalmár, L. (Hungary). Economy of relays in logical machines 236

Moysil, G. (Rumania). Applications of three-valued logic to automatic mechanisms 236

Section on Computational Mathematics

Babuška, I. (Czechoslovakia). On the numerical solution of a biharmonic problem on a semistrip 237

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"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSKA, I

"Linear theory of internal friction. In Russian."

APLIKACE MATEMATIKY, Praha, Czechoslovakia, Vol. 4, no. 3, 1959

Monthly list of East Europe Accessions (EEAI), LC, Vol. 8, No. 6, Sept 59
Unclas

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"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSKA, I

"Differential equations of probabilities"

APLIKACE MATEMATIKY, Praha, Czechoslovakia, Vol. 4, no. 3, 1959

Monthly list of East Europe Accessions (EEAI), LC, Vol. 8, No. 6, Sept 59
Unclas

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"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSKA, I

"Nonlinear theory of internal friction. In Russian."

APLIKACE MATEMATIKY, Praha, Czechoslovakia, Vol. 4, no. 4, 1959

Monthly list of East Europe Accessions (EEAI), LC, Vol. 8, No. 6, Sept 59
Unclas

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"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSKA, I.; FIEDLER, M.

Systems of linear equations applied to structural frames. In German. p. 441

APLIKACE MATEMATIKY (Ceskoslovenska akademie ved. Matematicky ustav)
Praha, Czechoslovakia

Vol. 4, no. 6, 1959

Monthly list of East European Accessions (EEAI) LC. VOL. 9, no. 1 January 1960

Uncl.

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"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSKA, Ivao, Ing. Dr., C.Sc.; MEJZLIK, Ladislav, Doz.Ing., C.Sc.; Vitasek, Emil, Dipl. Math.

Some problems in artificial cooling of concrete in dams. Acta techn Cz 5 no.1:34-67 '60. (EEAI 9:6)

1. Institut fur Mathematic der Tschechoslowakischen Akademie der Wissenschaften, Praha (for Babuska and Vitasek). 2 Forschungsinstitut fur Technologie und Mechanisierung des Bauwesens, Brno (for Mejzlik)
(Dams) (Concrete)

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B020/B067

167300

AUTHOR: Babuska, Ivo

TITLE: Linear Theory of Internal Friction. A. Theory of Periodically Oscillating Systems With One Degree of Freedom. II Part

PERIODICAL: Aplikace Matematiky, 1960, Vol. 5, No. 5, pp. 371-380

TEXT: In one of the author's earlier papers (Ref. 1) the general determination of the linear operators of internal friction is described and their properties are studied. In the present paper a special group of such operators is dealt with, which are described as holomorphically realizable operators. In Ref. 1 the problem of forced oscillations of internal friction is expressed and solved by general linear operators, whereas in the present paper the existence and the fundamental properties of the holomorphically realizable operators are proved. It is proved that the operator of internal friction expressing the Sorokin hypothesis, can be holomorphically realized and expressed by the function $\Psi(z) = (1+i\beta)$.

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Linear Theory of Internal Friction. A. Theory of Periodically Oscillating Systems With One Degree of Freedom. II Part

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Furthermore, it is proved that the inequality $\mathrm{Im}\,\Psi(0)>0$ must be fulfilled for the holomorphic realization of the operator of internal friction by the holomorphic function $\psi(z)$ on K_1. In the Sorokin hypothesis the coefficient of internal friction does not depend on the frequency but only on the amplitude which indicates that every holomorphically realizable operator contains the frequency-independent component of internal friction. Furthermore, the differential equation of oscillations with one degree of freedom was analyzed in the presence of internal friction which is determined by a holomorphically realizable operator. It is shown that the problem of the forced oscillations can be solved by means of the analytical theory of differential equations in the complex plane within the circle of unit radius. There are 3 Soviet references.

SUBMITTED: November 21, 1959

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"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSKA, I.

Z/002/60/000/005/004/006
A205/A126

AUTHOR: None given

TITLE: Dissertation

PERIODICAL: Věstník Československé akademie věd, no. 5, 1960, 565

TEXT: The Československá akademie věd, Matematický ústav (Czechoslovak Academy of Science, Mathematical Institute) granted the title of a Doctor of Science to Doctor Engineer Ivo Babuška, on the grounds of a successful defense of his dissertation "Stability of Definitive Areas in Respect to Basic Theories of Partial Equations, Especially in Connection With the Theory of Elasticity". The paper deals with problems connected with the influence of small changes in definitive areas on the solution of self-adjoined partial differential equations of the elliptic type. It also illuminates the connection of the stability theory with the approximation theory, numerical methods, etc.

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BABUSKA, Ivo

Eduard Cech, academician; obituary. Aplikace mat 5 no.6: 476-477 '60.

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"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSKA, I.; PRAGER, M.

Reissnerian algorithms in the theory of elasticity. Bul Ac Pol Tech 8 no.8:411-417 '60. (EEAI 10:6)

1. Institute of Mathematics, Czechoslowak Academy of Sciences, Prague, VSSR, Presented by W.Olszak.
(Elasticity) (Plates)

APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

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BABUSKA, Ivo, (Praha, Czechoslovakia)

Note on the theory of the rail. Archiw mech 12 no.3:305-311 '60.

1. Mathematical Institute, Czechoslovak Academy of Sciences.

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"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

39040
S/124/62/000/007/003/027
D234/D308

24.4100

AUTHORS: Babuška, I. and Koloushek, V.

TITLE: Linear theory of internal absorption during vibrations of elastic systems

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 7, 1962, 15, abstract 7A120 (Tr. Mosk. in-ta inzh. zh.-d. transp., 1961, no. 131, 57-88)

TEXT: The authors consider stabilized forced vibrations of systems with one degree of freedom. The notion of linear normalized space of continuous periodic functions of a given period is introduced. A linear operator A is defined, called the operator of internal absorption which represents one linear space (C_1) on another (L_1^2). The problem of forced vibrations is formulated as follows: Let A be an operator of internal absorption representing C_1 on $L_1^{(2)}$. Let $f(t) \in L_1^{(2)}$. It is required to find a function $y(t) \in C_1$ satisfying

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the equation $m\ddot{y}(t) + k(1 - \psi A)y(t) = f(t)$, where m is the mass, k the restoring factor, ψ the coefficient of absorption. For this problem, theorems of existence and uniqueness are proved. The solution is obtained in the form of an infinite system of algebraic equations. The effect of the choice of the operator of internal absorption is analyzed. It is shown that this effect is the smaller the closer the vibrations are to harmonic vibrations. The formulation and solution of the problem in the complex form is considered. The second part of the paper is concerned with aperiodic motion which precedes the stabilized vibrations having a regular hysteresis loop. It is proposed to treat this process as periodic, with an indefinitely large period. As in the case of stabilized vibrations, the concept of a linear normalized space L_2 is introduced. Operator B denotes an operator giving a transformation of the function f(x) $\in L_2$ in the form $Bf(x) = -\frac{1}{\pi}\int_{-\infty}^{+\infty} f(\xi)d\xi/(\xi - x)$, where the Cauchy

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Linear theory of ...

integral is to be understood in the sense of its main value. With the aid of this operator, the solution of the problem of non-stabilized forced damped vibrations is reduced to Fourier integrals. To conclude, the possibility of generalization of the linear theory described here is shown and the linear theory of self-excited vibrations is considered. [Abstracter's note: Complete translation.]

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24.4 200 1103, 1327, 1121 also 2807

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D242/D301

AUTHORS: Babuška, Ivo and Vitásek, Emil (Prague)

TITLE: The Wiener-Hopf technique in the theory of difference equations

PERIODICAL: Archiwum mechaniki stosowanej, v. 13, no. 1, 1961, 3-21

TEXT: In this paper, the results of I. Babuska's work (Ref. 1: The Fourier Transform in the Theory of Difference Equations and its Applications, Arch. Mech. Stos., 11 (1959) 349-381) is extended to the solution of the Wiener-Hopf problem in the one-dimensional case. The problem is defined as follows: M denotes the set of all integers; R denotes the linear space of all bounded complex functions defined on M; R_+ denotes the subspace such that $f(n) = 0$ for $n < 0$; $f_+(n) = 0$ and $f_{--}(n) = f(n)$ if $n < 0$; $f_+(n) = f(n)$ and $f_{--}(n) = 0$ if $n \geqslant 0$; Given a function $a \in R$ such that to every integer $p \geqslant 0$ there exists a constant C_p with $|a(n)(|n|^P + 1)| \leqslant C_p$ for all $n \in M$ (2.2)

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Then the map A of the space R into R defined by the relation

$$(Af)(n) = \sum_{l=-\infty}^{\infty} f(l)a(n-l) \qquad (2.3)$$

is called the convolution map and the set of all functions $a \in R$ having the properties described is denoted by $\hat{R}$. The map A_+ is defined by $(A_+f) = (Af)_+$; then the Wiener-Hopf A_+ problem is the problem of finding a function $g \in R_+$ such that $A_+g = f$, where $f \in R_+$ is given. If $a \in \hat{R}$ has index 0, this problem has just one solution

$$g = \mathcal{F}^{-1}\left\{\frac{1}{\mathcal{F}c}\mathcal{F}\left([\mathcal{F}^{-1}(\mathcal{F}d \cdot \mathcal{F}f)]_+\right)\right\}, \qquad (5.1)$$

where

$$\mathcal{F}c = e^{\mathcal{F}([\mathcal{F}^{-1}(\ln \mathcal{F}a)]_+)}, \quad \mathcal{F}d = e^{-\mathcal{F}([\mathcal{F}^{-1}(\ln \mathcal{F}a)]_-)}, \qquad (5.2)$$

where $\mathcal{F}$ is the Fourier transform operator such that

$$\mathcal{F}g = \sum_{n=-\infty}^{\infty} g(n)e^{inx}$$

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The Wiener-Hopf technique... P/033/61/013/001/001/009
D242/D301

and $a \in R$ has an index equal to zero, if a) $\mathcal{F}a \neq 0$ for all x, b) $(\lg \mathcal{F}a)(\pi) - (\lg \mathcal{F}a)(-\pi) = 0$ where a single branch of lg is taken in the whole interval. If $\mathcal{F}a$ is a real-valued function and if there is $(\mathcal{F}a)(x) \neq 0$ for all x, then a has index 0. The use of the theorem is demonstrated by the solution of two problems: the first is that of an inelastic network on an elastic support of the Winkler type; the second is the relaxation of Poisson's problem for an infinite strip with mixed boundary conditions. There are 2 figures and 9 references: 8 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: B. Noble, Method Based on the Wiener-Hopf Technique for the Solution of Partial Differential Equations, Pergamon-Press, London, New-York, Paris, Los-Angeles, 1958.

ASSOCIATION: Mathematical Institute of the Czechoslovak Academy of Sciences

SUBMITTED: August 1, 1960

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APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9"

"APPROVED FOR RELEASE: 06/06/2000 CIA-RDP86-00513R000102920008-9

BABUSKA, Ivo (Praha, Czechoslovakia)

Random solution of the rail problem. Archiw mech 13 no.3: 367-375 '61.

1. Mathematical Institute, Czechoslovak Academy of Sciences.

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29459
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D250/D302

16.3100

AUTHORS: Babuška, Ivo, and Vitásek, Emil (Prague)

TITLE: The Wiener-Hopf technique in the theory of difference equations (II)

PERIODICAL: Archiwum mechaniki stosowanej, v. 13, no. 4, 1961, 457-468

TEXT: The authors extend the discussion of their previous work (Ref. 1: Wiener-Hopf technique in the theory of difference equations (I), Arch. Mech. stos. 1, 13 (1961) 3-21) to two dimensions. The problem is defined as follows: M_2 denotes the set of all mesh points in the two-dimensional Euclidean space, and R_2 the set of all appropriately bounded complex functions defined on M_2. Let $D \subset M_2$. $R_2^{(D)}$ will indicate a subspace of the space R_2 of functions f, for which

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$$f(r) = 0 \text{ for all } r \in M_2 - D \tag{2.2}$$

Let $f \in R_2$. The function $f^{(D)} \in R_2^{(D)}$ is made to correspond the function f, according to the rule

$$f^{(D)}(r) = f(r) \text{ for all } r \in D \tag{2.3}$$

Let $\hat{R}_2$ be the set of all functions $a \in R_2$, for which the following holds: For every integer $p \geqslant 0$ there exists a constant $C_p \geqslant 0$, such that

$$|a(r_1, r_2)| \leqslant \frac{C_p}{(1+|r_1|^p)(1+|r_2|^p)} \tag{2.4}$$

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for all $r \in M_2$. Further let $a \in \widehat{R}_2$. Then a mapping A defined by the rule

$$(Af)(r_1,r_2) = \sum_{s_1=-\infty}^{\infty} \sum_{s_2=-\infty}^{\infty} a(r_1 - s_1, r_2 - s_2) f(s_1,s_2) \qquad (2.5)$$

is the convolution mapping of the space R_2 into R_2. Let $A^{(D)}$ designate the mapping of the space $R_2^{(D)}$ into the space $R_2^{(D)}$, defined by the rule $A^{(D)}f = (Af)^{(D)}$,

$$A^{(D)}f = (Af)^{(D)} \qquad (2.6)$$

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The problem of finding a function $g \in R_2^{(D)}$ such that $A^{(D)}g = f$,

$$A^{(D)}g = f \tag{2.7}$$

is called the Wiener-Hopf A-problem on the set D. Then the solution is given by the following theorem: Let D be an arbitrary set of mesh points, W(D) its WH-kernel, and $W(M_2-D)$ the WH-kernel of its complement. Further let a K_1, K_2 decomposition be possible for A, such that $K_1 \subset W(D)$, $K_2 \subset W(M_2-D)$. Then the Wiener-Hopf A-problem on the set D has one and only one solution for each right hand side $f \in R_2^{(D)}$. This solution is given by the formula

$$g = \mathfrak{F}^{-1}\left\{\frac{1}{\mathfrak{F}c}\mathfrak{F}\left(\left[\mathfrak{F}^{-1}(\mathfrak{F}d\mathfrak{F}f)\right]^{(D)}\right)\right\} \tag{5.2}$$

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where

$$\begin{cases} \mathcal{F}c = e^{\mathcal{F}\left([\mathcal{F}^{-1}(\ln \mathcal{F}a)]^{(K_1)}\right)}, \\ \mathcal{F}d = e^{-\mathcal{F}\left([\mathcal{F}^{-1}(\ln \mathcal{F}a)]^{(K_2-K_1)}\right)} \end{cases} \tag{5.3}$$

The WH-kernel of the set D is denoted by W(D) and defined as follows: Let r be an arbitrary fixed mesh point $r \in D$. Further let $p_r(\varphi)$ be a ray originating in this point and forming an angle φ with the positive direction of the axis X_1, and let V_r be the set of such $p_r(\varphi)$, for which $(p_r(\varphi) \cap M_2) \subset D$. Let a ray $g_r(\varphi)$ originating in the origin and forming the same angle with the positive direction of the axis X_1, correspond to each ray $p_r(\varphi)$. Thus a certain set is made - call it $V_r^{(0)}$ - of rays originating in the origin,

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corresponding to every point $r \in D$. Then

$$W(D) = \left(\bigcap_{r \in D} V_r^{(0)}\right) \cap M_2 \tag{4.19}$$

K_1, K_2 decomposition for the operator A is said to be possible if sets and functions described as follows exist: Let $\alpha \in \hat{R}_2$ and let α have the index zero. Further let α have the property that the sets K_1, $K_2 \in \mathfrak{M}_2$ exist, such that $\mathfrak{F}^{-1}(\ln \mathfrak{F}\alpha) \in K_1 \cup K_2$. Then there exist such functions c and d, $c \in \hat{R}_2$, $d \in \hat{R}_2$, c, d have the index zero, $c \in R_2^{(K_1)}$, $d \in R_2^{(K_2)}$ that

$$\mathfrak{F}\alpha = \frac{\mathfrak{F}c}{\mathfrak{F}d} \tag{4.16}$$

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The Fourier transform is defined by:

$$\mathcal{F}f = \sum_{s \in M_2} f(s) e^{i(s_1 x_1 + s_2 x_2)} \tag{4.8}$$

Say that $\alpha \in \hat{R}_2$ has the index zero if $\mathcal{F}\alpha \neq 0$ for all $X \in E_2$;

$$[\mathrm{Arg}(\mathcal{F}\alpha)(x_1, x_2)]_{x_1=0}^{x_1=2\pi} = 0, \quad [\mathrm{Arg}(\mathcal{F}\alpha)(x_1, x_2)]_{x_1=0}^{x_2=2\pi} = 0 \tag{4.10}$$

Also assume that the set $K \subset M_2$ belongs to the class $\mathfrak{M}_2$, if it

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The Wiener-Hopf technique ... P/033/61/013/004/002/005
D250/D302

is formed by all the mesh points lying on all rays $p(\varphi)$, issuing from the origin and forming an angle φ with the positive direction of the axis X_1, such that $\alpha \leqslant \varphi \leqslant \beta$ or $\alpha < \varphi < \beta$, where $\beta - \alpha \leqslant \pi$. The theorem is applied to a heat-conduction-type problem, to the difference analogue of the equation $\nabla^2 u - \alpha u = f$ and to that of the equation $\nabla^4 u + 12 \nabla^2 u + 36u = f$; it is found that the second of these problems can be solved by this technique only when the domain D is a half-plane, but the first and third can be solved for more general domains. There are 4 Soviet-bloc references.

ASSOCIATION: Mathematical Institute of the Czechoslovak Academy of Sciences

SUBMITTED: January 25, 1961

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BABUSKA, Ivo (Zitna 25, Praha 1)

Random solutions of Laplace's equation. Cas pro pes mat 86 no.3: 269-276 '61.

1. Matematicky ustav Ceskoslovenske akademie ved.

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