

KESIC, Branko, dr.

Smoking and health. Liječn. vjesn. 86 no.11:1325-1340  
N ' 64.

1. Iz Skole narodnog zdravlja "Andrija Stampar" Medicinskog  
fakulteta u Zagrebu.

KESIOKI, A.

State of the chemical industry during the third quarter of 1962.  
Przem chem 41 no.12:733 D '62.

KESICKI, Apolinary

The execution of the planned tasks of the chemical industry during the first quarter of 1962. Przem chem 41 no.8:469-470 Ag '62.

KESICKI, Z.

The freezing of lubricating ducts and its prevention. p. 333.  
(PRZEGLAD KOLEJOWY MECHANICZNY. Vol. 8, no. 11, Nov. 1956, Warszawa, Poland)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 12, Dec. 1957.  
Uncl.

KESICKI, Z.; WODICZKO, E.

Damages of locomotives under way. p. 115.

PRZEGLAD KOLEJOWY MECHANICZNY. Warszawa, Poland, Vol. 10, no. 4, Apr. 1958.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, no. 9, September, 1959.  
Uncl.

KESICKI, Zygfryd, ins.

Analysis of the carrying out of the periodical repair plan of electric traction vehicles in 1960. Przegl kolej mechan 13 no.6:167-171 Je '61.

KESICKI, Zyfryd, inz.

Analysis of the carrying out of the repair plan of locomotives  
in the Polish Railroad Rolling Stock Repair Shops in 1960.  
Przeegl kolej mechan 13 no.3:86-91 Mr '61.

KESICKY, J.

"Possibilities of Using the Flotation Method in Evaluating Slovak Iron Ores." p. 29.  
(Rudy, Vol.1, No.2/3, Apr. 1953, Praha.)

SO: Monthly List of East European Accessions, Vol.3, No.3, Library of Congress, March 1954,  
Uncl.



KESICKY, J.

"Sorting on a Rake Grader." p. 53 (RUDY, Vol. 1, No. 4, June 1953) Praha, Czechoslovakia

SO: Monthly List of East European Accessions, Library of Congress, Vol. 3, No. 4, April 1954. Unclassified.

KESICKY, J.

"Akins Mechanical Spiral Sorter." p. 110, Praha, Vol. 2, no. 4, Apr. 1954.

SO: East European Accessions List, Vol. 3, No. 9, September 1954, Lib. of Congress

KESICKY, J.

"Additional Information on Flootation Methods for Slovak Iron Ores." p. 57 (RUDY, Vol. 1, No. 4, June 1953) Praha, Czechoslovakia

SO: Monthly List of East European Accessions, Library of Congress, Vol. 3, No. 4, April 1954. Unclassified.

BRITON, J.

Akins mechanical spiral center. P. 110.

CC: East European Acquisitions List, Vol. 3, No. 9, Sept. 1954, Lib. of Congress

KESICKY, J.

Methods and possibilities of processing minerals in Slovakia. p. 579.  
TECHNICKA PRACA, Bratislava, Vol. 6, no. 10, Oct. 1954.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol.5, No. 6,  
June 1956, Uncl.

KESICKY, J.

"Coal crusher." p. 6.

TECHNICKA PRACA. (Rada vedeckych technickych spolocnosti pri Slovenskej akademii vied). Bratislava, Czechoslovakia, Vol. 7, No. 1, 1955.

Monthly list of East European Accessions (EEAI), LC, Vol. 6, No. 6,  
August 1959.  
Uncla.

Kesicky, J.

"Flotation of nonsulfuric copper ores." p. 101

TECHNICKA PRACA. (Rada vedeckych technickych spoločností pri Slovenskej akadémii vied)  
Bratislava, Czechoslovakia, Vol. 7, no. 3, 1955.

Monthly List of East European Accessions (EEAI) IC, Vol. 8, No. 9, Sept. 1959

Uncl.





KESICKY, J.

Grade of crushing by roll or jaw crushers, p. 259, TECHNICKA PRACA  
(Statne nakladatelstvo technickej literatury) Bratislava, Vol. 7,  
No. 6, June 1955

SOURCE: East European Accessions List (EEAL) Library of Congress,  
Vol. 4, No. 12, December 1955

KESICKY, J.

Measurement of froth in the cre-dressing process.

TECHNICKA PRAGA. Czechoslovakia Vol. 7, No. 8, Aug. 1955

Monthly List of East European Accessions (EEAI), LC. Vol, 8, No. 9, September 1959  
Uncl.

KESICKY, J.

Reports on ore processing in ore-dressing plants. p. 121

Various flotation methods in processing graphite. p. 122.

RUDY Vol. 4, no. 4, Apr. 1956

Czechoslovakia

Source: EAST EUROPEAN LISTS Vol. 5, no. 7 July 1956

KESICKY, J.

KESICKY, J. Contribution to wet mineral dressing. p. 102

Vol. 8, no. 3, Mar. 1956  
TECHNICKA PRACA  
TECHNOLOGY  
Bratislava, Czechoslovakia

So: East European Accession Vol. 6, no. 2, 1957

KESICKY, J.

Maintenance of machinery and other installations of ore-dressing flotation plants.

P. 147, (Rudy) Vol. 5, no. 4, Apr. 1957, Praha, Czechoslovakia

SO: Monthly Index of East European Accessions (EEAI) Vol. 6, No. 11 November 1957

KESICKY, J.

Output of spherical drum mills without sleeves used for wet milling.

P. 254, (Rudy) Vol. 5, no. 7, July 1957, Praha, Czechoslovakia

SO: Monthly Index of East European Accessions (EEAI) Vol. 6, No. 11 November 1957

KESICKY, J.

"Calculating some functional elements in drum mills. p. 20."

RUDY. Praha, Czechoslovakia. Vol. 7, no. 1, Jan 1959.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, No. 6, Jun 59, Unclass.

KESIK, A.

Attention to avalanches! p. 9. TURYSTA. (Polskie Towarzystwo  
Turystyczno-Krajoznawcze) Warszawa. No. 3, Mar. 1955.

SOURCE: East European Accessions List, (EEAL), Library of  
Congress, Vol. 4, no. 12, December 1955



KNSIK, A.

In the kingdom of canyons. p. 10.  
No. 8, Aug. 1955. TRYSTA. Warsaw, Poland.

So: Eastern European Accession. Vol 5, no. 4, April 1956

KESIK, A.

KESIK, A. Bend of the Kamienna River near Baltow.  
p. 7, No. 12, Dec. 1956  
Warszawa, Poland  
Turysta

SOURCE: East European Accessions List (EEAL) Vol. 6, No. 4--April 1957

KESIK, Jozsef, mernok

Some problems of disseminating technical knowledge in  
Gyor-Sopron County. Term tud kozl 6 no.10:477 0 '62.

1. Tudomanyos Ismeretterjeszto Tarsulat Gyor-Sopron  
megyei muszaki szakosztalyanak titkara.

KESIK, M.; MAZUROWA, A.; MAZUR, M.

Studies on the effect of quinine, quinidine, procaine and procaine amide on oxygen metabolism in isolated frog hearts. Acta physiol. polon. 11 no.5/6:770-771 '60.

1. Z Zakladu Farmakologii P.A.M. w Szczecinie. Z Kliniki Chorob Wewnetrznych A.M. w Poznaniu.

(MYOCARDIUM metab)  
(QUININE pharmacol)  
(QUINIDINE pharmacol)  
(PROCAINE pharmacol)  
(PROCAINE AMIDE pharmacol)

KESIK, M.; MAZUROWA, A.; MAZUR, M.

Experimental studies on the effect of quinine, quinidine and procaine amide on ECG and on oxygen consumption by the heart muscle. *Polskie arch. med. wewn.* 31 no.4:469-479 '61.

1. Z I Kliniki Chorob Wewnętrznych AM w Poznaniu Kierownik Kliniki: prof. dr med. S. Kwasniewski i z Zakładu Farmakologii PAM w Szczecinie Kierownik Zakładu: doc. dr med. M. Mazur.

(ELECTROCARDIOGRAPHY pharmacol) (MYOCARDIUM metab)  
(QUININE pharmacol) (QUINIDINE pharmacol)  
(PROCAINE pharmacol) (PROCAINE AMIDE pharmacol)

KESIK, Maria; MAZUR, Mieczyslaw; PAWCZYNSKI, Cezary

Effect of geriocaine, novocaine, paraaminobenzoic acid and diethylamino-ethanol on the growth and respiration of Escherichia coli. Roczn. pom. akad. med. Swierczewski. 8:153-160 '62.

1. Z Zakladu Farmakologii Pomorskiej Akademii Medycznej Kierownik:  
doc. dr M. Mazur i z Zakladu Mikrobiologii Pomorskiej Akademii Medycznej  
Kierownik: prof. dr W. Murczynska.

(PARAAMINOBENZOIC ACID) (AMINO ALCOHOLS)  
(PROCAINE) (ESCHERICHIA COLI)

KUSKPAIL, J.

The birds which winter in Central Estonia (by the springs of Sopa-Norra and Varangu). p. 93

ESTI LUGUUS. (Eesti NSV Teaduste Akadeemia)  
Tartu, Estonia. No. 2, Mar. 1959.

Monthly list of East European Accessions (SEIA) Vol. 3, no. 1, Jan 1960.

Uncl.

KESKENY, F.

FOR- ES CIPTOTECHNIKA. (Doripari Tudományos Egyesület mint a Magyar Tudományos Egyesületek Szövetsége Taggyesülete) Budapest.

Recurrent features: News of the Association;  
Index for 1955.  
Index for 1956.

Enzyme steeping of furs. p. 190.

Vol. 8, No. 6, Dec. 1958.

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



KESKENI, F.

Remarks about Laszlo Wiedner and Ferenc Kolos' article "New Limiting Processes."  
p. 29 BOR-ES CIPOTECHNIKA, Vol. 6, no. 2, Apr. 1956.

SOURCE: East European Accessions List (EEAL), Library of Congress,  
Vol. 5, No. 7, July 1956.

KESKENY, F.; Morval, L.

Fur industry in the Soviet Union, p. 123.

BOR ES CIPOTECHNIKA. (Boripari Tudományos Egyesület mint a Magyar Tudományos Egyesületek Szövetsége Tagegyesülete) Budapest, Hungary. Vol. 9, no. 4, Aug. 1959.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, no. 11, November 1959.  
Uncl.

PROTASOV, V.; KESKO, Ye.

The wage system which excludes equalization. Sots. trud 7 no.12:118-123  
D '62. (MIRA 16:2)

1. Zamestitel' nachal'nika otdela truda i zarabotnoy platy Noril'skogo  
gornometallurgicheskogo kombinata (for Protasov). 2. Starshiy inzh.  
otdela truda i zarabotnoy platy Noril'skogo gornometallurgicheskogo  
kombinata (for Kesko).  
(Noril'sk—Wages—Nonferrous metal industries)

107-57-1-22/60

AUTHOR: ~~Kesker, R.~~ (Tallin)

TITLE: UR2KAA. A New-Year Questionnaire (Novogodnyaya anketa)

PERIODICAL: Radio, 1957, Nr 1, p 15 (USSR)

ABSTRACT: In 1956, the author's most remote contact was with New Zealand, a distance of 18,000 km. On October 19, 1956, contact was established with the Soviet North Pole station, and a few minutes later with the Soviet South Pole station; then the author helped the two polar operators to find each other and establish a direct contact. During the last months of 1956 the author worked shortwave hams in 150 countries.

AVAILABLE: Library of Congress

Card 1/1

*KESKYLA, I. Yu.*

Potassium and sodium ethylxanthates. I. Yu. Keskyula, S. B. Faerman, Ch. I. Kondrat'ev and R. I. Goncharova. *Trans. State Inst. Applied Chem.* (U. S. S. R.) 30, 29-67 (1936); *Chem. Zvest.* 1936, 1, 1454-5. — In the prepn. of K xanthate from alc. KOH and CS<sub>2</sub> the mixt. heats spontaneously and becomes dark in color; therefore the CS<sub>2</sub> must be added slowly and the mixt. cooled. In general, 1.3-1.5 parts CS<sub>2</sub> was added to 1 part KOH. Optimum temp. 30-35°. The xanthate which sepd. at once is designated as fraction I, that which sepd. on cooling as fraction II, and that obtained by evapn. of the mother liquor as III. For the production of K xanthate, ordinary alc. (rectified spirit, denatured alc., etc.) can be used as well as abs. alc. The directly sepd. xanthate (fraction I) was of about the same quality when produced with various kinds of alc. The fraction III was of poor quality; its properties depended on the temp. and the degree of evapn. of the mother liquor. It was satisfactory for use in botan. The yield of I depended upon the concn. of the alc. KOH and its water content; the yield was higher the lower the alc. excess and the lower the water content. The highest yield (98%) was obtained with a concn. of 1 part KOH to 1.5 parts rectified spirit. The total yield of I, II and III was 93-105%. The mother liquors were unstable, especially when the water content was high, and therefore had to be evapd. immediately after sepn. of the xanthate. The reaction can be carried out equally well in glass or iron vessels. With aq. alc. KOH instead of alc. KOH the K xanthate (fraction I) can be obtained in similar yield (78-80% of a product of 94-97%

10

... A disadvantage of the use of aq. alc. KOH is that the mother liquor is less stable so that the isolation of the xanthate remaining in soln. is more difficult. Salting out of the last fraction is not to be recommended because in this manner a product was obtained having a high content of free alkali. In general, the yields of I were better the less the excess of the original materials. The product I was best sepd. by centrifuging, and dried at 50-60°. For the production of 1000 kg. xanthate using ground KOH (98%), 95% alc. and technical CS<sub>2</sub> with an alc. KOH ratio of 1:1, about 820 kg. KOH, 540 kg. alc. and 650-700 kg. CS<sub>2</sub> were required. Cast iron, wrought iron, or Cr- or Ni-plated iron are suitable for construction of the equipment required. Na ethylxanthate could be prepd. as simply as the K salt. The reaction was carried out with the smallest possible excess of alc. and CS<sub>2</sub> (1.1 mol. of each per mol. NaOH). The homogeneous soln. of NaOH in alc. was first prepd. and the CS<sub>2</sub> added at such a rate that the temp. was kept at 30-35°. After all the CS<sub>2</sub> had been added the mixt. was stirred until it became solid. The raw product was dried in thin layers in the air at 15-20° for 24 hrs. and then for 2-3 days at temp. up to 70°. In this way 90-95% of a product contg. 80-90% Na xanthate was obtained. In the presence of dilg. agents such as benzene or CCl<sub>4</sub> the reaction occurred even at 10-20° and with better yields but the loss of solvent was large.

W. A. Moore

ASB-348 METALLURGICAL LITERATURE CLASSIFICATION



L 31751-66 ETO(f)/T/EWP(v)/EWP(k)/EWP(l) IJP(c)

SOURCE CODE: CZ/0032/65/015/008/0613/0617

ACC NR: AP6021667

AUTHOR: Kesz, J.

60  
B

ORG: Nuclear Power Plant, Skoda, Plzen (Oborovy podnik, zavod jaderne elektrarny)

TITLE: Inspection of welds on a thick-walled reactor vessel with a betatron 19

SOURCE: Strojirenstvi, v. 15, no. 8, 1965, 613-617

TOPIC TAGS: betatron, nuclear reactor component, nuclear electric power plant, welding

ABSTRACT: The article reports on the successful use of a new Czechoslovak betatron for inspection of welds on a thick-walled vessel for the first Czechoslovak nuclear power station. Techniques are described in detail. Welds can be checked on vessels with walls more than 300 mm thick. Orig. art. has: 3 figures and 8 tables. [Based on author's Eng. abstract] [JPRS]

SUB CODE: 13, 20, 18, 10 / SUBM DATE: none / ORIG REF: 003 / OTH REF: 002

LS

Card 1/1

UDC: 621.791.056.001:621.384.6

KESL, J.

Control of castings with the Czechoslovak 15 MeV betatron.  
Strojirenstvi 14 no.7:532-536 JI '64.

1. OJE, Zavody V.I. Lenina National Enterprise, Plzen.

USSR / Human and Animal Physiology (Normal and Pathological).  
Neuromuscular Physiology.

T

Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 60681

Author : Kesler, D. F.  
Inst : Smolensk Medical Institute  
Title : Change in Nerve Excitability to the Constant Current  
Poles with Electrotonus

Orig Pub : Sb. nauchn. rabot stud. Smolenskiy med. in-t, 1957,  
Vyp. 6, 53-57

Abstract : Tests were done on a neuromuscular preparation (sciatic nervegastrocnemius muscle) of a frog. The nerve touched the polarizing electrode in two places, and between them - induction electrodes. The excitability was studied at the polarization point of constant current (CC). At the anode point of polarization the excitability was considerably lowered. In control tests, lowering of

Card 1/2

USSR / Human and Animal Physiology (Normal and Pathological).  
Neuromuscular Physiology.

T

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000721610011-2"  
Abs Jour : Ref Zhur - Biologiya, No 13, 1958, No. 60681

excitability was also noted in the regions of an electrotonus at an 0.5 cm. distance from the point of polarization, but in a smaller degree than at the point of polarization. In macrointervals at the cathode point of polarization, no significant changes in excitability were noted. When opening impulses of inductive current were sent to the nerve, surpassing somewhat the strength of the rheobase, then right after the shut-off of CC there was some increase in the excitability, of the order of 1 - 2 cm. Evidently, in the nerve at the point of polarization after the first few seconds of CC action, there occurred adaptation. In the region of cath-electrotonus at the distance of 0.5 cm. from the point of polarization, an increase in excitability was noted. --  
F. I. Mumladze

Card 2/2



5

Some derivatives of phthalazine and pyridazine as potential hypotensive agents. S. Biniecki, A. Haase, J. Izdebski, E. Kesler, and L. Ryjski [Inst. Pharm., Warsaw]. *Bull. acad. polon. sci. Ser. sci., Chim., géol. et géograph.* 6: 227-33(1958)(in English).—Hypotensive agents less toxic than 1-hydrazinophthalazine (I) hydrochloride are sought among *N*-derivs. of I. *N*-Carbethoxy-*N'*-phthalazinohydrazine (II)-HCl.H<sub>2</sub>O, m. 212° (decompn.), and 1,4-dihydrazine (III)-HCl.H<sub>2</sub>O, m. 207° (decompn.), were prepd. from I and 1,4-dihydrazinophthalazine (IV), resp. Condensation in pyridine soln. of nicotinoyl and Isonicotinoyl chlorides with I and with 8-hydrazino-6-phenylpyridazine (V) gave: 3-(3-pyridyl)-s-triazolo[3,4-*a*]phthalazine, m. 215-16°; 3-(4-pyridyl)-s-triazolo[3,4-*c*]phthalazine, m. 253-4°; 3-(3-pyridyl)-6-phenyl-s-triazolo[4,3-*b*]pyridazine, m. 183-9°; and 3-(4-pyridyl)-6-phenyl-s-triazolo[4,3-*b*]pyridazine, m. 303-7°, resp. V, m. 145-6° was prepd. by: condensation of β-benzoylpropionic acid with N<sub>2</sub>H<sub>4</sub>, bromination, hydrolysis, action of POCl<sub>3</sub>, and condensation of the 3-chloro-6-phenylpyridazine with N<sub>2</sub>H<sub>4</sub>. 1-Phthalazinohydrazone (VI) were prepd. by condensing I with substituted PhCOMe (substituent and m.p. of hydrazone given): H, 144-5°; 2-OH, 203-5°; 4-OH, 229-31°; 2-NH<sub>2</sub>, 268-70°; 4-NH<sub>2</sub>, 183.5-5.5. With substituted PhCHO (substituent and m.p. of hydrazone given): 2-OH, 211-12°; 4-OH, 197°; and with piperonal (hydrazone, m. 236-8°). 1-Hydrazino-6-chlorophthalazine monohydrate, m. 248° (decompn.), was prepd. from 6-chlorophthalide (after Levy and Stephen, C.A. 25: 3325) by bromination, hydrolysis, action of N<sub>2</sub>H<sub>4</sub> (cf. Vaughan and Baird, C.A. 49, 5149), POCl<sub>3</sub>, N<sub>2</sub>H<sub>4</sub>, and 2N

HCl. 1-Hydrazino-7-chlorophthalazine (VII) HCl.H<sub>2</sub>O, m. 248° (decompn.), was prepd. from 6-aminophthalide (cf. Borsche, *et al.*, C.A. 28, 4050) by exchange of NH<sub>2</sub> for Cl, bromination, hydrolysis, condensation with N<sub>2</sub>H<sub>4</sub> (cf. R. Vaughan, S. L. Baird, *loc. cit.*), action of POCl<sub>3</sub>, N<sub>2</sub>H<sub>4</sub>, and 2N HCl. The order of decreasing pharmacodynamic activity is: 1-hydrazino-4-chlorophthalazine > VII > II > I > IV. VI in MeNHCOMe solns. had tranquil hypotensive effects on animals. Toxicity of II is 1/10 of that of I or IV. No exptl. details are given. J. Stecki

KESLER, G.; RAZSEMBERG, Ye.

Anesthesia in coronary sclerosis. Khirurgiia 35 no.6:12-16  
Je '59. (MIRA 12:8)

1. Iz Instituta klinicheskoy i eksperimental'noy khirurgii (dir. -  
dots. B.Shpachek), Praga-Krch.  
(CORONARY DISEASE, surg.  
anesth. in surg. of insuff. (Rus))

KESLER, G.N.

Symposium on the methods of cytological research and the study  
of radiation injuries of the cell. TSitologia 7 no.2:261-282 1965  
(MIRA 18.5  
165.

DUBININ, N.P.; SHCHERBAKOV, V.K.; KESLER, G.N.

Phases of a cell cycle and the mitogenic effect of stimulating compounds. Genetika no.2:73-86 Ag '65. (P. 11:13:10)

1. Institute of Biological Physics, Academy of Sciences of the U.S.S.R., Moscow.

DUBININ, N.P.; SHCHERBAKOV, V.K.; KESLER, G.N.; SUYKOVA, L.A.

Specificity of the object in induced mutagenesis. Dokl. AN SSSR  
165 no.1:210-213 N '65. (MIRA 18:10)

1. Institut biologicheskoy fiziki AN SSSR. 2. Chlen-korrespondent  
AN SSSR (for Dubinin).

DUBININ, N.P.; SHCHERBAKOV, V.K.; KESLER, G.N.

Chromosome mutation spectrum at different levels of natural cell mutation. Dokl. AN SSSR 161 no.6:1434-1436 Ap '65. (MIRA 18:5)

1. Institut biologicheskoy fiziki AN SSSR. 2. Chlen-korrespondent AN SSSR (for Dubinin).

KESLER, I.

Some problems from the theory of the ratio detector. p. 591.  
(Archiwum Elektrotechniki, Warszawa, Vol. 5, no. 4, 1956.)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 7, July 1957. Uncl.

~~SECRET~~ K

A simple apparatus for the determination of dielectric constants. K. Kestler and A. Ermanik Univ. Zagreb, Yugoslavia. *Arhiv kem.* 27, 3, 8 (1955). Detailed description is given of a simple app. Capacity is detd. with a precision of 0.01 pF. N. Pivnik



KESLER, Kh.

V. M. Tatevskiy, Yu. A. Pentin, Ye. G. Treshchova, and Kh. Kesler,  
"Rotational Isomerism and the Energy of the Formation of Hydrocarbons."

report presented at the Symposium on Concepts of Conformation in Organic  
Chemistry which took place in Moscow at the IOKh AN SSSR (Institute of Organic  
Chemistry, AS USSR) from September 30 to October 2, 1958.

Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1959, No. 3, 561-564.

SOV/51-7-3-4/21

AUTHORS: Kesler, Kh., Pentin, Yu.A., Treshchova, Ye.G. and Tatevskiy, V.M.

TITLE: Investigation of the Infrared Absorption Spectra of Hydrocarbons at Various Temperatures Both in the Liquid and Solid Phases.

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 3, pp 301-310 (USSR)

ABSTRACT: The paper reports a study of the infrared absorption spectra of nine hydrocarbons at temperatures from room temperature (liquid phase) and at low temperatures (solid phase). The study was undertaken to find out the changes in the spectra which occur on solidification. The hydrocarbons studied were normal alkanes (n-heptane, n-octane), branched alkanes (3-methylheptane, 2,3-dimethylheptane, 2,4-dimethylpentane, 2,5-dimethylhexane, 2,2,5,5-tetramethylhexane) and branched alkenes (2-methylheptene-2, 3,3-dimethylheptene-1). All these hydrocarbons were prepared and their properties determined in outside laboratories (acknowledgments are made to Prof. R. Ya. Levina and to A.V. Iogansen in this connection). Table 1 gives the degree of purity, the melting and crystallization points and the refractive index at 20°C ( $n_D^{20}$ ) of the nine hydrocarbons listed above. The infrared spectra were recorded in the region from 700 to 1800  $\text{cm}^{-1}$  by means of a two-beam infrared spectrometer IKS-2 with a NaCl prism. The optical slit width was 7-10  $\text{cm}^{-1}$ .

Card 1/2

SOV/51-7-3-4/21

Investigation of the Infrared Absorption Spectra of Hydrocarbons at Various Temperatures Both in the Liquid and Solid Phases

For liquids, cells with effective layer thickness from 0.03 to 0.48 mm were used. At low temperatures a special cell was employed; its construction ensured the constancy of the layer thickness of a liquid or solid in it. Measurements were carried out at temperatures from +20°C to -172°C. In order to obtain good crystals and to avoid vitrification, the hydrocarbons were cooled slowly. Figs 1-3 show absorption spectra of the nine hydrocarbons at various temperatures. Tables 2-4 give the observed absorption maxima for the liquid and solid phases. The results obtained show that in the case of 2,4-dimethylpentane and 2,5-dimethylhexane only one (the most symmetrical) isomer exists in the crystal phase, but more than one rotational isomer is present in the liquid phase. The authors suggest that only those substances crystallize out which have one rotational isomer of sufficiently high symmetry necessary to form a correct molecular crystal lattice. There are 3 figures, 4 tables and 10 references, 3 of which are Soviet and 7 English.

SUBMITTED: November 26, 1958

Card 2/2

KESLER, M.

(1)

Hg<sub>2</sub>P<sub>2</sub>I<sub>2</sub>. D. Gršenič, S. Ščavničar, and M. Kesler  
(*Fac. Nat. Sci. Math., Zagreb, Yugoslavia*). *Arhiv Kem.*  
24, 61-6 (1952) (in English). — P<sub>2</sub>I<sub>4</sub> (20 g.) and 40 g. Hg were  
heated for 10 hrs. in a sealed tube of high-melting glass in an  
atm. of CO<sub>2</sub>. At the bottom the tube was kept at 330-340°  
and in the center at 250°. Cooling took 2-3 hrs. The low  
part of the tube contained Hg<sub>2</sub>P<sub>2</sub>I<sub>2</sub> (88% of theory), HgI<sub>2</sub>,  
Hg, and scarlet amorphous P. Well-developed crystals  
were obtained occasionally when the process was repeated  
with 1/10 of the above amounts. The compd. cannot be  
analyzed according to the Volhard method; the Souberain-  
Liebig method was used. Hg<sub>2</sub>P<sub>2</sub>I<sub>2</sub> can be prepd. also from 2  
g. P<sub>2</sub>I<sub>4</sub> + 8 g. Hg in a sealed glass tube by heating for 15 hrs.  
in the same manner. The crystals are monoclinic. The  
unit cell and space lattice group were detd. from oscilla-  
tion photographs taken with filtered CuK radiation.  $a =$   
13.07,  $b = 12.44$ , and  $c = 17.16$  Å;  $\beta = 120.2^\circ$ . As the  
density is 7.09, the unit cell must contain 12 stoichiometric  
units of Hg<sub>2</sub>P<sub>2</sub>I<sub>2</sub>; the space lattice group is  $C_{2h}^2 - P2_1/c$ .  
Werner Jacobson

*KF 52 513, 10*

YUGOSLAVIA/Fitting Out of Laboratories - Instruments.  
Their Theory, Construction, and Use.

H-

Abs Jour : Ref Zhur - Khimiya, No 3, 1957, 8678

Author : Kesler, M., Pregernik, A.

Inst :

Title : A Simple Apparatus for Determining Dielectric Constants

Orig Pub : Arkhiv kemiju, 1955, 27, No 1, 37-38 (in Croatian with an English summary)

Abstract : The apparatus described is constructed entirely from commercial radio parts. Particular attention has been paid to the elimination of interference by the mutual capacitance between the conductors and in the oscillator circuit. A sharper resonance curve has been obtained by the utilization of a coil with a ferromagnetic core. The accuracy of the capacitance measurements attains 0.01  $\mu\mu$  f.

Card 1/1

*Kesler M*  
APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721610011-2"

Yugoslavia/Physical Chemistry. Molecule.

Chemical bond.

Abs Jour : Ref Zhur - Khimiya, No 7, 1957, 22017

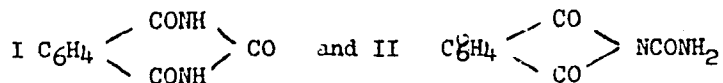
Author : Kesler, M.

Inst : None

Title : Dipole moment and molecular structure of phthalylurea

Orig Pub : Arkhiv kemiju, 1955, 27, No 2, 67-72 (published in Croatian with English summary)

Abstract : Dipole moment of phthalylurea was determined. Comparison with dipole moment calculated for formula I and II was made



The calculated dipole moments are very different, whereby the value calculated for II is in good agreement with the experimental, which equals to 4.65 D.

*Kesler M* Inst. "Rudjer Boskovic"  
Zagreb, Yugo.

Card 1/1

-16-

KESLER, M.

The bond angle of sulfur in alkyl mercuric sulfides determined by the dipole moment method. Croat chem acta 34 no.2:123-126 '62.

1. Laboratory of General and Inorganic Chemistry, Faculty of Science, University of Zagreb, Zagreb, Croatia, Yugoslavia.

KESLER, M.

Structural investigations of alkyl mercury bromides and  
alkyl mercury sulphides by dipole moment method.  
Croat chem acta 35 no.2:101-108 '63.

1. Laboratory of General and Inorganic Chemistry, Faculty of  
Science, University of Zagreb, Zagreb Croatia, Yugoslavia.

KESLER, M.

Structural investigations of alkyl mercury sulphide, alkyl mercury oxide and alkyl mercury selenide by dipole moment method. Croat chem acta 36 no.3:165-168 '64.

1. Institute of General and Inorganic Chemistry of the Faculty of Mathematics and Natural Sciences of the University of Zagreb, Zagreb. Submitted February 29, 1964.



*KESLER, P.*

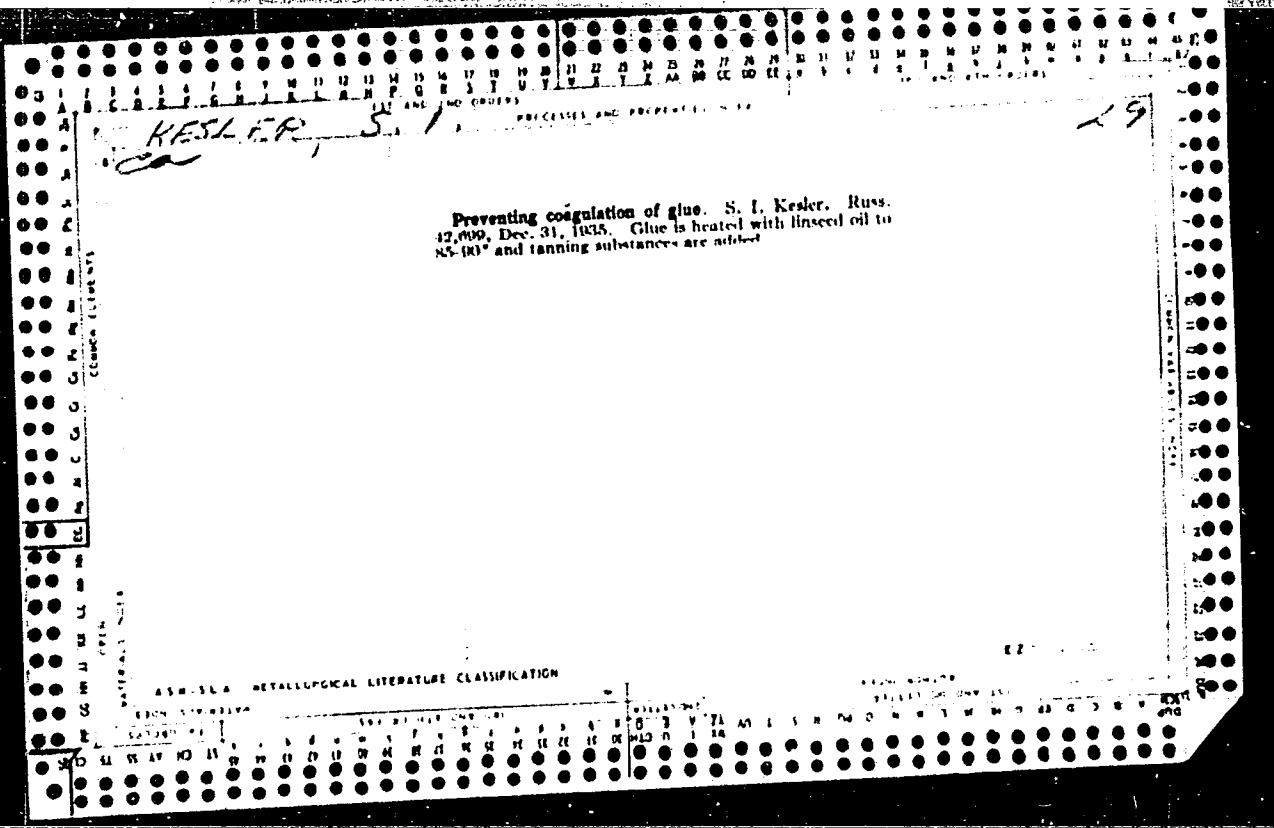
TEMISHVARI, A.; ADAM, D.; KESLER, P.; LITMAN, I.

Experimental hypertension produced by stenosis of the thoracic  
aorta. Khirurgia no.8:35-38 Ag '54. (MLRA 7:11)

1. Iz Fiziologicheskogo instituta (dir. prof. P.Balint) i Kliniki  
usovershenstvovaniya khirurgov (dir. prof. I.Litman) Budapeshtskogo  
universiteta.

(HYPERTENSION, experimental,  
prod. by stenosis of thoracic aorta)

(AORTA, stenosis,  
exper., prod. of hypertension)



Radiology

BULGARIA

ZOGRAFOV, D., BAEV, I., and KESLEV, D., Institute of Radiology and Radiation Hygiene (Institut po radiologiya i radiatsionna khiglana) (Docent I. Nikolov, Director)

"Intraperitoneal Administration of a Bone Marrow Suspension in Acute Radiation Sickness"

Sofia, Rentgenologiya i Radiologiya, Vol 5, No 1, 1966, pp 32-40

Abstract: On irradiation of rats with X-rays in a dose LD<sub>97.5</sub>, intraperitoneal administration of homologous bone marrow was less effective (35% survival) than intravenous injection (65% survival). Study of the peripheral blood, bone marrow, and inclusion of Fe<sup>59</sup> in erythrocytes indicated that there was no significant difference in the regeneration of hemopoiesis between animals treated by the two methods. On transplantation by intraperitoneal injection of rat bone marrow to irradiated mice, granulocytes containing alkaline phosphatase (i.e., rat granulocytes) were not found in the bone marrow of the mice. This indicated that donor elements were not implanted in the bone marrow of recipient animals after intraperitoneal introduction. The rapid regeneration after intraperitoneal administration of bone marrow is explained by humoral stimulation, while the high therapeutic effect on intravenous administration is ascribed to development of donor cells in the bone marrow of recipient animals. The

BULGARIA

APPROVED FOR RELEASE: 09/17/2001  
Sofia, Rentgenologiya i Radiologiya, Vol 5, No 1, 1966, pp 32-40  
CIA-RDP86-00513R000721610011-2"

fact that donor cells were implanted in the bone marrow in the latter case was confirmed by the results of experiments in which rat bone marrow was injected intravenously to mice. Table and graphs, 23 references (2 Bulgarian, 21 Western). Russian and English summaries. [Manuscript received Sep 64.]

KRASHENINNIKOV, A.N., kand.tekhn.nauk; KESLI, E.O., inzh.

Properties of an air-entrained concrete mix and of air-entrained  
concrete before steaming. Bet.i zhel.-bet. 8 no.9:418-422 S  
'62. (MIRA 15:12)

(Air-entrained concrete--Testing)

SKIBA, L.A.; KESLINA, Ye.Z., starshiy nauchnyy sotrudnik

Warping of filaments should be shifted to the synthetic fiber plants. Tekst.prom. 21 no.3:67-68 Mr '61. (MIRA 14:3)

1. Zaveduyushchiy laboratoriyey ekonomicheskikh issledovaniy UkrNIIPV (for Skiba).  
(Synthetic fabrics)

SKIBA, L.A. [Skyba, L.A.]; KESLINA, Ye.Z. [Keslina, IE.Z.]

Avivage and oiling are factors improving the characteristics of rayon before knitting. Leh.prom. no.4:67-69 O-D '62. (MIRA 16:5)

1. Ukrainskiy nauchno-issledovatel'skiy institut po pererabotke iskusstvennogo i sinteticheskogo volokna.  
(Rayon) (Knit goods)

MESNARY, I.

"Development of Building Methods in the Planning and Technical Execution of Shield Chambers", P. 380. (MELYEPITESTUDOMANYI SZEMLE, Vol. 4, No. 7/8, July/Aug. 1954, Budapest, Hungary)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 1, Jan. 1955, Uncl.

KESMINAS, A.

The problem of determining the optimum depth of wear of a dam for a hydroelectric power station. Liet ak darbai B no.2:191-201 '60.

(EEAI 10:1)

1. Lietuvos TSR Mokslu akademijos Energetikos ir elektrotechnikos institutas

(Hydroelectric-power stations) (Dams)



KESMINAS, A. P., Cand. Tech. Sci. (diss) "Possibilities of Preparation and Computation of Hydrological Forecasts for Despatcher Regulation of Current in GES," Kaunas, 1961, 24 pp. (Belorussian Polytech. Inst.) 150 copies (KL Supp 12-61, 268).

ZOLOTAREV, T.L., doktor tekhn.nauk, prof.; KESMINAS, A.P., inzh.

Forecasting of the annual distribution of stream flow. Trudy MEI no. 135:  
157-164 '61. (MIRA 15:12)  
(Water power) (Hydroelectric power stations)

"APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721610011-2

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721610011-2"

KESNER, B.

✓ Determination of carbon dioxide in the atmosphere.  
 P. Uhlir and B. Kesner. *Zh. Sotsial. Sel'skokhoz. Nauki*  
 (Prague) Ser. A, No. 1, 9-20 (1954); *Referat. Zhur., Khim.*  
 1956, Abstr. No. 54978. — A transportable app. for the detn.  
 of CO<sub>2</sub> in the air is described. The basic parts of the app.  
 are the reservoir which consists of joined tubes parallel to  
 each other and of an inner diam. 10 mm., of a membrane,  
 a pump, and a washer with a Ba(OH)<sub>2</sub> soln. (0.02N Ba(OH)<sub>2</sub>  
 in a 1% BaCl<sub>2</sub>·2H<sub>2</sub>O soln.). At a 0.04-0.7% concn. of CO<sub>2</sub> in  
 the air an app. with 350 ml. tube vol. is used, but at 0.02-  
 0.2% CO<sub>2</sub> an app. with 1 l. tube vol. washed after enter-  
 ing the pipes the air sample circulates at least 8 times  
 through the tubes, the pump, and the washer. After the  
 absorption of CO<sub>2</sub> (7-10 min. of pumping operation) the  
 soln. in the washer is titrated with a 0.02N H<sub>2</sub>C<sub>2</sub>O<sub>4</sub> soln. or  
 with HCl, with phenolphthalein as indicator. The Ba-  
 (OH)<sub>2</sub> soln. is stored in a rubber balloon. The washers are  
 filled with this soln. without any contact with the air.  
 The results are very precise. G. G. Darton

TH  
/

3

KESNER, Oldrich, inz.

"Forming machines." Reviewed by Oldrich Kesner. Stroj vyr 10  
no.12:634 '62.

KESNER, Vjekoslav (Zagreb)

Complex remuneration according to efficiency in the Gorane Mines  
of Nonmetallic Materials, Lokve. Kem ind 9 no.12:N-55--N-58 D '60.

1. Clan Redakcionog odbora, "Nemetali!"

KESNER, Vjekoslav

Ore deposits in the region of Zagreb, and possibilities of their exploitation. Kem ind 12 no. 11: 861-863 N '63.

*KESOVA, S.K.*  
USSR/General Problems of Pathology - Allergy.

T-2

~~Abs~~ Jour : Ref Zhur - Biol., No 3, 1958, 12548  
Author : Dykhno, Yu.A., Kesova, S.K., Kuliyeu, A.Kh.  
Inst : Not given  
Title : The Treatment of Bronchial Asthma by Intrathoracic  
Injection of Blood.  
Orig Pub : Sb. tr. Azerb. n...i. in-ta kurortol. i fiz. metodov leche-  
niya, 1956, vyp. 2, 115-119.  
Abstract : These are the results of intrathoracic instillation of  
blood into 7 patients, most of whom had severe cases of  
long duration. 5-10 ml of compatible donor's blood, or  
the patient's own blood, to which 1.5-2 ml of 10% CaCl<sub>2</sub>  
solution had been added as a preservative, was introduced  
intrasternally each week with an average of 8 transfu-  
sions in all per patient. Sixty-six patients were cured

Card 1/2

"Paleogeographic Conditions of the Life of Men in the Desert."

report to be submitted for the Intl. Geographical Union, 10th General Assembly and  
19th Intl. Geographical Congress, Stockholm, Sweden, 6-13 August 1960.



KESS, J.; CICHOCKA, E.; PAWLOWSKA, Z.

Characteristics of synthetic fibers and their application to the production of protective clothing. p. 13.

OCHONA PRACY. (Centralna Rada Zwiaskow Zawodowych i Centralny Instytut Ochrony Pracy) Warszawa. Poland. Vol. 11, no. 4, Apr. 1959.

Monthly list of East European Accessions (EEAI) LC. Vol. 8, No. 9, Sept. 1959  
uncla.

KESS, J.

Modern protection of the head against blows. p. 31

OCHRONA PRACY. (Centralna Rada Związkow i Centralny Instytut Ochrony Pracy)  
Warszawa, Poland  
Vol. 14, no. 6, June 1959

Monthly list of East European Accessions (EEAI) IC Vol. 8, no. 9  
Sept. 1959  
Uncl.

KHLEBOV, R., inzh.; KESSEL', A., inzh.

New pebble remover. Muk.-elev. prom. 26 no. 11:25-27  
N '60. (MIRA 13:11)

1. Gor'kovskiy mashinostroitel'nyy zavod im. Vorob'yeva.  
(Grain--Cleaning)

KESSEL', A., inzh.

ZSM-20, a new grain-cleaning separator. Muk.-elev. prom. 27  
no.10:13-14 O '61. (MIRA 14:12)

1. Nachal'nik eksperimental'nogo byuro Gor'kovskogo mashinostroi-  
tel'nogo zavoda im. Vorob'yeva.  
(Grain--Cleaning)

KESSEL', A., inzh.; UKHAN', Z., inzh.; PATRIN, Yu., inzh.;  
DEMSKIY, A., inzh.

New machines for flour and great mills. Muk.-elev. prom. 28  
no.1:10-13 Ja '62. (MIRA 16:7)

1. Gor'kovskiy mashinostroitel'nyy zavod im. Vorob'yeva  
(for Kessel', Ukhan', Patrin). 2. Gor'kovskiy mashinostroitel'-  
nyy zavod im. Vorob'yeva (for Demskiy).  
(Grain-milling machinery)

24(5), 21(1)

AUTHOR:

Kessel', A. R.

SOV/56-36-5-22/76

TITLE:

Resonance Absorption of Ultrasound on Nuclei  
(Rezonansnoye pogloshcheniye ul'trazvuka na yadrakh)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,  
Vol 36, Nr 5, pp 1451-1456 (USSR)

ABSTRACT:

On a paramagnet located in a magnetic field  $H_0$ , sound of the frequency  $\nu$  is subjected to resonance absorption if  $h\nu = g\beta H_0$  ( $g$  = splitting factor,  $\beta$  the Bohr magneton). Al'tshuler (Ref 1) developed the theory of this phenomenon and also developed a formula for the resonance absorption coefficient  $\sigma$ ; he also computed  $\sigma$  for a number of substances. It was shown experimentally that nuclear spin transitions may be caused by ultrasonic waves. On  $In^{115}$ -nuclei ultrasonic resonance absorption has already been found by direct observation. The author of the present paper develops a theory of ultrasonic resonance absorption on paramagnetic nuclei of atoms with simple cubic lattice. He bases on the assumption that spin-lattice interaction is determined by the nuclear quadrupole forces.

Card 1/3

Resonance Absorption of Ultrasound on Nuclei

SOV/56-36-5-22/76

First, formulas are derived for the spin-lattice interaction operators, next for the matrix elements of spin-lattice interaction and the absorption coefficient, first for sound propagation vertical, and then parallel to the magnetic field. For some substances the parameters are numerically computed and then tabulated (Tables 1, 2). For the spin transitions  $\Delta m = 1$  and  $\Delta m = 2$  expressions are derived for the absorption coefficient at any direction of sound propagation and arbitrary polarization of sound waves. Comparison with the experiment is possible only for  $\text{In}^{115}$  in  $\text{InSb}$ ; at  $\nu = 9.976$  Megacycles,  $H_0 = 10.69 \cdot 10^3$  G and  $5.35 \cdot 10^3$  G for  $\Delta m = 1$  and  $\Delta m = 2$  respectively, the author, who carried out the experimental investigation, obtained the value  $0.66 \pm 0.8$  for the ratio of the absorption maxima of the transitions  $\Delta m = 1$  and  $\Delta m = 2$ . Theoretically, 0.41 is obtained, but in that case it was assumed that the line width of the signals is the same, whereas actually the line width of the signal  $\Delta m = 2$  is somewhat narrower, which would mean that the ratio obtained would become somewhat higher.

Card 2/3

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721610011-2"

Resonance Absorption of Ultrasound on Nuclei

SOV/56-36-5-22/76

The author thanks Professor S. A. Al'tshuler for his valuable advice and for his interest in this work. There are 2 tables and 12 references, 6 of which are Soviet.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet  
(Kazan' State University)

SUBMITTED: November 5, 1958

Card 3/3

83016

S/181/60/002/008/035/045  
B006/B063

24.1800

AUTHOR: Kessel', A. R.

TITLE: The Spin-echo Effect Stimulated by Ultrasonic Waves

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 8,  
pp. 1943 - 1944

TEXT: Quantum-mechanical studies of the spin-echo effect have shown that it is caused by transitions between magnetic levels of material particles, which are due to pulses of a radio-frequency field. As was shown by S. A. Al'tshuler, ultrasonic waves of resonant frequency cause transitions between magnetic levels of material particles. As usual, the sound absorption coefficient is large as compared to the absorption coefficient of the radio-frequency field. Besides, modern emitters can generate sound fluxes of the same order of magnitude as electromagnetic energies which are used for spin-echo observations. All this indicates that an ultrasonic stimulation of the spin-echo effect should be possible. The author of the present paper briefly discusses some formulas for a crystal of cubic symmetry with a nuclear spin  $I = 3/2$ . The

Card 1/2



83016

The Spin-echo Effect Stimulated by Ultrasonic Waves S/181/60/002/008/035/045  
B006/B063

observable effect can be increased by prolonging the time of spin-spin relaxation,  $T_2^*$ . As the paper of Ref. 4 shows, this can be brought about by means of a rotating magnetic field (increase by about one order of magnitude). A study of the spin-echo effect stimulated by ultrasonic waves may give information about the relaxation times as well as the sound absorption coefficient,  $\sigma$ , and the nature of crystal fields. The effect can be observed only in solids, and not in liquids whose sound absorption coefficient is much smaller than that of solids: X

$\sigma_{liq}/\sigma_{sol} \sim 10^{-6}$ . The author thanks S. A. Al'tshuler for discussions, as well as R. A. Dautov and U. G. Konvillem for their advice and their interest in this work. There are 4 references: 1 Soviet, 2 US, and 1 British.

ASSOCIATION: Kazanskiy filial AN SSSR (Kazan' Branch of the AS USSR)

SUBMITTED: January 25, 1960

Card 2/2

84969

S/056/60/039/003/055/058/XX  
B006/B070

2A.7900 (1055,1144,1160)

AUTHOR: Kessel', A. R.

TITLE: Action of a Pulsed Acoustic Resonance on a Nuclear Spin System

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,  
Vol. 39, No. 3(9), pp. 872 - 877

TEXT: The resonance absorption of ultrasonics in paramagnetics predicted by S. A. Al'tshuler (Ref.7) was proved experimentally. It has also become possible to measure the probabilities of transitions between sub-levels of paramagnetic particles under the action of acoustic vibrations. For this purpose, the ultrasonic pulses were of such a duration that the matter could be assumed to be in a steady state. The present paper gives a theoretical study of the effect stimulated by ultrasonics. In the introduction, the author discusses the effect of ultrasonics on the rotation of the magnetic moment in a constant magnetic field, on the spin, and on the Larmor rotation. The effect of ultrasonics on a spin system (cubic crystal, nuclear quadrupole moment  $Q$ , nuclear spin  $I$ , constant

Card 1/3

84969

Action of a Pulsed Acoustic Resonance on a Nuclear Spin System S/056/60/039/003/055/058/XX  
B006/B070

field  $H_0$ ) is considered quantum-mechanically in Section 2; the acoustic vibrations of resonance frequency  $\omega$  being of duration  $t_\omega$ . A few relations are derived for a single nucleus with  $I > 1/2$ . Results relating to the time dependence of the average values of some spin components and nuclear quadrupole moments are given in Table 1 for  $\Delta m = 1$  and  $\Delta m = 2$ . The total effect on all nuclei of a sample and a special case ( $I = 3/2, \omega_1 t_\omega = \omega_2 t_\omega = \pi/2$ ) are treated in Section 3. The results are finally discussed. Unlike the effect of an electromagnetic field on a spin system, a single acoustic pulse does not induce a free precession signal in the first approximation in  $\hbar\omega/kT$ . Two acoustic pulses produce a spin echo signal which equals that produced by electromagnetic pulses. The optimum conditions for this are given by  $T_2\omega_{1,2} \gg 1$  (see Ref.8). The author thanks S. A. Al'tshuler and B. M. Kozyrev for discussions of the results, and R. A. Dautov for advice. There are 2 tables and 15 references: 4 Soviet, 9 US, 1 Japanese, and 1 British.

Card 2/3

L 10031-63

EPF(c)/EWT(1)/BDS--AFPTC/ASD--Pr-l

ACCESSION NR: AR3000354

S/0058/63/000/004/D059/D060

SOURCE: RZh. Fizika, Abs. 4D416

AUTHOR: Kessel\*, A. R.

TITLE: On the theory of pulsed resonance action on the nuclear spin system

CITED SOURCE: Izv. Kazansk. fil. AN SSSR. Ser. obshchaya, vyp. 1, 1961, 37-42

TOPIC TAGS: Nuclear magnetic resonance, pulsed, electromagnetic and sound signals

TRANSLATION: Pulsed excitation of a spin system by successive electromagnetic and sound signals is considered theoretically. The Schroedinger equation is used to determine the wave function of the system after eliminating the external generators, and the average values of the components of magnetization are calculated. The connection between the deformations due to the sound wave and the oscillations of the electric quadrupole energy of the nucleus is described phenomenologically by introducing a quadrivalent tensor. In the case of an axial

Card 1/2

L 10031-63  
ACCESSION NR: AR3000354

crystal in the absence of a constant magnetic field, a single acoustic pulse does not give rise to a signal of free nuclear induction. However, the use of a 2-pulse magnetic-sound technique makes it possible to obtain various oscillating electromagnetic signals, characterizing the dynamic properties of the substance. An investigation of the solution of the Schroedinger equation for an axial crystal placed in a static magnetic field shows that excitation, by means of sound, of transitions in which the magnetic quantum number changes by plus or minus 1 and by plus or minus 2 make it possible to observe free-induction and spin-echo signals. U. Kopvillem

DATE ACQ: 14 May 63 ENCL: 00

SUB CODE: PH

bm/KW  
Card 2/2

L 10033-63

EWT(1)/BDS--AFFTC/ASD

ACCESSION NR: AR3000353

S/0058/63/000/004/D058/D058

SOURCE: RZh. Fizika, Abs. 4D406

AUTHOR: Kessel', A. R.

TITLE: Statistical theory of acoustical resonance 2\

CITED SOURCE: Izv. Kazansk, fil. AN SSSR. Ser. obshchaya, vyp. 1, 1961, 43-48

TOPIC TAGS: acoustical resonance, statistical theory, ultrasound

TRANSLATION: In a manner similar to that used in the paper of Kubo and Tomita (RZhFiz 1959, no 11, 25017) for the relaxation function of the magnetic moment, the author calculates the relaxation function of an arbitrary physical quantity in a system subjected to the action of external forces. These results are used to describe the properties of the spin system of a substance in which acoustic oscillations are generated. Expressions are obtained, suitable for the calculation of the coefficient of absorption of sound, the shape of the acoustic resonance line, and of nuclear magnetization stimulated by ultrasound.

Card 1/21

KESSEL', A.R.

Theory of the spin echo. Zhur.eksp.i teor.fiz. 41 no.4:1254-1257  
0 '61. (MIRA 14:10)

1. Fiziko-tekhnicheskii institut Kazanskogo filiala Akademii  
nauk SSSR.

(Nuclear spin)

05721

S/181/61/003/011/015/056  
B102/B138

24,7000 (1137, 1143, 1144)

AUTHOR: Kessel', A. R.

TITLE: Classical theory of nuclear acoustic resonance

PERIODICAL: Fizika tverdogo tela, v. 3, no. 11, 1961, 3342-3346

TEXT: Acoustic resonance of nuclei contained in a cubic crystal which is placed in an external constant magnetic field  $H_0$  is investigatedclassically. From a solution of the classical kinetic equation the distribution function of nuclear orientation is determined. It is used to study the characteristics of nuclear spin systems under the influence of acoustic oscillations. In a system of spherical coordinates with the polar axis parallel to  $H_0$ , nuclear energy is described by

$$\mathcal{H}(t) = \mathcal{H}_0 + h_{ac}(t), \quad |\mathcal{H}_0| \gg |h_{ac}|,$$

rAc

$$\mathcal{H}_0 = -\hbar\omega_0 f \cos\theta, \quad \omega_0 = \gamma H_0, \quad h_{ac}(t) = \sum_{\beta} F_{\beta}^0 \cos\omega t X_{\beta},$$

$$F_{\beta}^0 = \hbar\omega_1 \sin kR f_{\beta}(\theta', \varphi'), \quad f_0 = 3\cos^2\theta' - 1, \quad f_1 = \sin\theta' \cos\theta',$$

$$f_2 = \sin^2\theta',$$

Card 1/5



30781

S/181/61/003/011/015/056  
B102/B138

Classical theory of nuclear...

$$\omega_1 = \frac{3(I+1)e^2 Q q_1 A k}{4\hbar(2I-1)}, \quad X_0 = \cos^2 \theta - \frac{1}{3}, \quad X_1 = 4 \sin \theta \cos \theta \cos \varphi, \quad (1).$$

$$X_2 = \sin^2 \theta \cos 2\varphi;$$

Since it depends on spin orientation, the angles  $\theta$  and  $\varphi$  of momentum direction, or  $I_x, I_y, I_z$  ( $\hbar \mathbf{I}$  is the nuclear momentum) may be taken as generalized coordinates. In doing so:

$$\left. \begin{aligned} \frac{dI_x}{dt} &= \omega_0 I_y - 2\omega_1 I^{-3} e^{i\omega t} [(f_0 + f_2) I_x + 2f_1 I_z] I_y, \\ \frac{dI_y}{dt} &= -\omega_0 I_x + 2\omega_1 I^{-3} e^{i\omega t} [2f_1 (I_x^2 - I_z^2) + (f_0 - f_2) I_x I_z], \\ \frac{dI_z}{dt} &= 4\omega_1 I^{-3} e^{i\omega t} [f_2 I_x + f_1 I_z] I_y, \quad \omega_1 = \omega_0 \sin kR. \end{aligned} \right\} \quad (2)$$

is found, a system which is analogous to Bloch's equations but nonlinear and therefore not solvable.  $Q$  denotes the nuclear quadrupole moment  $\gamma$  the gyromagnetic ratio,  $C_4$  the axis of symmetry whose direction is determined by  $\theta'$ ,  $\varphi' = 0$ ,  $2A$  - amplitude and  $\vec{k}$  the wave vector of the standing waves,  $R$  the nuclear coordinate,  $e q_1$  - derivative of electric field gradient with

Card 2/5

30781

S/181/61/003/011/015/056  
B102/B138

Classical theory of nuclear...

respect to sound-induced relative deformation. The system (2) is used to determine the distribution function  $\Psi(t) = \Psi_0 [1 + \Psi_2 e^{i\omega t}]$ .  $\Psi_0$  is distribution where there are no deformations occur,

$$\Psi_0 = c e^{u \cos^2 \theta}, \quad c^{-1} = \int_0^{\pi} \int_0^{2\pi} e^{u \cos^2 \theta} \sin \theta d\theta d\varphi, \quad u = \frac{\hbar \omega_0}{kT} I. \quad (3)$$

A general solution is found as

$$\Psi(t) = \Psi_0 \left\{ 1 - \eta \sin kR e^{i\omega t} \left[ (a_1 \cos 2\varphi + a_2 \sin 2\varphi) \sin^2 \theta - a_3 \left( \cos^2 \theta - \frac{1}{3} \right) + (a_4 \cos \varphi + a_5 \sin \varphi) \sin \theta \cos \theta \right] \right\},$$

$$\left. \begin{aligned} a_1 &= \frac{4+mp}{4+p^2} f_2, \quad a_2 = \frac{i2nf_2}{4+p^2}, \quad a_3 = \frac{m}{p} f_0, \quad a_4 = \frac{1+mp}{1+p^2} f_1, \\ a_5 &= \frac{\ln 4 f_1}{1+p^2}, \\ m &= \frac{1}{\tau \omega_0}, \quad n = \frac{\omega}{\omega_0}, \quad p = m + in. \end{aligned} \right\} \quad (7)$$

Card 3/5

Classical theory of nuclear...

00781  
S/181/61/003/011/015/056  
B102/B138

$\text{cm}^3$ . For  $\beta = 0$ ,  $g_0(\nu) = \tau [\omega_0^2 \tau^2 + 1]^{-1}$ , and  $\alpha_0$  is the non-resonance sound absorption coefficient of the spin system. The shape of the resonance absorption curve is given by

$$g_\beta(\nu) = \frac{(\beta^2 \omega_0^2 + \omega^2) \tau^2 + 1}{[1 + (\omega_0^2 - \omega^2) \tau^2]^2 + 4\omega^2 \tau^2} 4\tau$$

$g_\beta(\nu_0) = 2\tau$ . For KI and KBr numerical estimations are given. The author thanks professor A. S. Alt'shuler for advice and discussion. There are 7 references: 2 Soviet and 5 non-Soviet. The four references to English-language publications read as follows: D. J. Bolef, M. Menes. Phys. Rev., 114, 1441, 1959; H. G. Dehmelt. Am. J. of Phys., 22, 110, 1954; R. K. Wangsness, F. Bloch. Phys. Rev., 89, no. 4, 1953; H. Froehlich. Nature, 157, 478, 1946.

ASSOCIATION: Fiziko-tehnicheskij institut Kazanskogo filiala AN SSSR  
(Physicotechnical Institute of Kazan' Branch AS USSR)

SUBMITTED: June 1, 1961

Card 5/5

Quantum phonon counter. Fiz. tver. tela 4 no. 8:2283-2286  
Ag '62. (MIRA 15:11)

1. Fiziko-tehnicheskij institut Kazanskogo filiala AN SSSR.  
(Electroacoustics) (Quantum theory)

24.2800

39759  
S/126/62/013/006/001/018  
E032/E514

AUTHOR: Kessel', A.R.

TITLE: The effect of motion on acoustic resonance

PERIODICAL: Fizika metallov i metallovedeniye, v.13, no.6, 1962,  
801-807

TEXT: It is shown that the statistical method of the quantum theory of irreversible processes put forward by R.J.Kubo (Phys. Soc. Japan, 1957, 12, 570) is convenient for treating acoustic resonance. It is argued that the effect of motion on acoustic resonance should be stronger than on paramagnetic resonance because in AR the electromagnetic fields arise as a result of forced vibrations of magnetic dipoles and electric charges in the substance under investigation, and depend on the motion which is not associated with the sound-waves. Although the Kubo method was used by the author in a previous paper (Izv.Kazanskogo filiala AN, ser.obshchaya, No.1, 1961, p.37) to compute the nuclear magnetization in ionic crystals in the presence of stationary acoustic vibrations, the results of that paper did not fully describe the effect of molecular motion on AR. It is now shown that in determining the form of an AR absorption line it is  
Card 1/2

247000

39750  
S/126/62/014/001/002/018  
E032/E414

AUTHOR: Kessel', A.R.

TITLE: On nuclear acoustic resonance absorption in metals

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.1, 1962, 17-25

TEXT: The author's theory of acoustic resonance (FMM, v.13, no.6, 1962) is used to calculate nuclear acoustic resonance in metals. The absorption coefficients and NAR line profiles are computed for alkali metals. Allowance is made for the thermal motion of the lattice, magnetic dipole interactions between nuclei, nuclear exchange through conduction electrons and the "contact" interactions between electrons and nuclei. Numerical estimates for Na indicate that NAR may be detected in metals with existing experimental techniques. Observations of NAR in metals and analysis of absorption line profiles provide interesting information about internal forces in crystals. For example, line-width ratios may be used to differentiate between magnetic dipole and exchange interactions between nuclei. Consideration of the temperature dependence of line widths leads to the  
Card 1/2

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721610011-2"

On nuclear acoustic resonance ...

S/126/62/014/001/002/018  
E032/E414

conclusion that the region of temperatures where self-diffusion is inappreciable is most favourable for the observation of NAR in metals. Professor S.A.Al'tshuler is thanked for discussing the results of the work.

ASSOCIATION: Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR (Physicotechnical Institute of the Kazan Branch AS USSR)

SUBMITTED: December 11, 1961

Card 2/2

L 10033-63

EWT(1)/BDS--AFFTC/ASD

ACCESSION NR: AR3000353

S/0058/63/000/004/D058/D058

SOURCE: RZh. Fizika, Abs. 4D406

AUTHOR: Kessel', A. R.

50

TITLE: Statistical theory of acoustical resonance 71

CITED SOURCE: Izv. Kazansk, fil. AN SSSR. Ser. obshchaya, vyp. 1, 1961, 43-48

TOPIC TAGS: acoustical resonance, statistical theory, ultrasound

TRANSLATION: In a manner similar to that used in the paper of Kubo and Tomita (RZhFiz 1959, no 11, 25017) for the relaxation function of the magnetic moment, the author calculates the relaxation function of an arbitrary physical quantity in a system subjected to the action of external forces. These results are used to describe the properties of the spin system of a substance in which acoustic oscillations are generated. Expressions are obtained, suitable for the calculation of the coefficient of absorption of sound, the shape of the acoustic resonance line, and of nuclear magnetization stimulated by ultrasound.

Card 1/2/

45355

24.4400

S/181/63/005/002/045/051  
B102/B186

AUTHORS: Kessel', A. R., and Kopvillem, U. Kh.

TITLE: Theory of two-quantum magneto-acoustic transitions

PERIODICAL: Fizika tverdogo tela, v. 5, no. 2, 1963, 667 - 674

TEXT: The probability and line shape of magneto-acoustic two-quantum transitions (cf. N. S. Shiren, Phys. Rev. Lett., 6, 168, 1961) are calculated on the basis of approximate linear theory of irreversible processes. Such a theory is applicable when the actions of the two external fields are weak enough to be replaceable by one effective field. The two-quantum transition probability is calculated for the discrete spectrum of a system of N identical noninteracting particles with spin S, whose Hamiltonian is

$\mathcal{H}_0 = \sum_{j=1}^N \mathcal{H}_0^j$ . The result is 
$$W_{\omega_1, \omega_2}^j = \frac{1}{16\hbar^4} \sum_{\alpha, \beta} \left( |(\mathcal{H}_0^j)_{\alpha\beta}|^2 |(\mathcal{H}_0^j)_{\alpha\beta}|^2 (\omega_M + \omega_{\alpha\beta})^{-2} + |(\mathcal{H}_0^j)_{\alpha\beta}|^2 |(\mathcal{H}_0^j)_{\alpha\beta}|^2 \times \right. \quad (7)$$

$$\times (\omega_A + \omega_{\alpha\beta})^{-2} + 2\text{Re} \left( (\mathcal{H}_0^j)_{\alpha\beta} (\mathcal{H}_0^j)_{\alpha\beta} (\mathcal{H}_0^j)_{\alpha\beta} (\mathcal{H}_0^j)_{\alpha\beta} \right) \times$$

$$\times \left( (\omega_M + \omega_{\alpha\beta}) (\omega_A + \omega_{\alpha\beta}) \right)^{-1} \left( \delta(\nu_A + \nu_M - \nu_{\alpha\beta}) + \delta(\nu_M - \nu_A - \nu_{\alpha\beta}) + \right.$$

$$\left. + \delta(\nu_A - \nu_M - \nu_{\alpha\beta}) + 2\delta(\nu_M - \nu_{\alpha\beta}) \delta_{\nu_A, 0} + 2\delta(\nu_A - \nu_{\alpha\beta}) \delta_{\nu_M, 0} \right)$$

Card 1/3

S/181/63/005/0G2/045/051  
B102/B186

Theory of two-quantum ...

with  $W_{1 \rightarrow 2} = \lim_{t \rightarrow \infty} \frac{1}{t} W_{1 \rightarrow 2}(t)$ .  $W_{1 \rightarrow 2}(t) = |\mathcal{L}_{12}^j(t)|^2$ .

$\mathcal{L}^j(t)$  is the evolution operator (R. P. Feynman, Phys. Rev. 84, 108, 1951). The transition between the levels  $E_1$  and  $E_2$  ( $E_1 < E_2$ ) takes place under the action of the field  $H(t) = H_1 \cos \omega_M t$  and the acoustic deformations  $\epsilon(t) = \epsilon_0 \cos \omega_A t$ .  $E_A$  and  $E_1$  are intermediate levels,  $\delta(\nu)$  Dirac's delta function and  $\delta_{\nu, A, 0}$  the Kronecker symbol. If the line width is taken into account, the  $\delta(\nu)$  functions in (7) have to be replaced by the form factor  $g(\nu)$ . Consistently with Kubo's theory (J. Phys. Soc. Japan, 12, 570, 1957; 9, 888, 1954)

$$P(\omega_k) = \sum_k \frac{\omega_k^2 \langle |K(\omega_k)|^2 \rangle}{4E(\omega_k, \beta)} \left( 1 - \sum_{\omega_\gamma \neq 0} \frac{\omega_\gamma^2}{\omega_k^2} \right) \frac{1}{\sqrt{2\pi} \sigma_{\omega 0}} e^{-\frac{(\omega_k - \omega_0 + \sum_{\omega_\gamma \neq 0} \frac{\omega_\gamma^2}{\omega_k})^2}{\sigma_{\omega 0}^2}} + \quad (14)$$

$$+ \sum_k \sum_{\omega_\gamma \neq 0} \frac{\omega_k^2 \langle |K(\omega_k)|^2 \rangle}{4E(\omega_k, \beta)} \frac{\omega_\gamma^2}{\omega_k^2} \delta(\omega_k - \omega_k - \omega_\gamma),$$

$$\sigma_{\omega 1}^2 = \frac{\langle \langle [K(\omega_k), \mathcal{K}'(\omega_\gamma)] [\mathcal{K}'(-\omega_\gamma), K(-\omega_k)] \rangle \rangle}{\hbar^2 \langle |K(\omega_k)|^2 \rangle}. \quad (15)$$

Card 2/3

S/151/63/005/004/012/047  
3102/3186AUTHOR: Kessel', A. R.TITLE: Analog system of Bloch equations for spins  $S > 1/2$ 

PERIODICAL: Fizika tverdogo tela, v. 5, no. 4, 1963, 1055 - 1061

TEXT: The region of applicability of the system of Bloch equations in paramagnetic resonance is bounded by two factors: (1) They may be obtained by expanding spin-spin and spin-lattice interactions into a series with respect to the energy; in the case of solids this expansion is generally insufficient. (2) When this expansion is possible the following additional conditions have to be satisfied: the particle spectra have to be equivalent;  $\hbar\omega_0 \ll kT$ , where  $\omega_0$  is the resonance frequency for  $S > 1/2$ ; the contribution of the quadrupole interactions to the line width (for  $S > 1$ ) should be negligible. Since the Bloch system does not describe quadrupole and acoustic resonances it is applicable without restriction only for  $S = 1$ . Here a method is proposed that allows of dropping the conditions (2). For arbitrary  $S > 1/2$  a system of  $n \leq 4S(S+1)$  linear differential equations are derived which generalize the Bloch system. Similar generalizations may be

Card 1/2



Analog system of Bloch...

S/181/63/005/004/012/047  
B102/B186

obtained by any other way of taking the internal interactions  $G$  into account. The possibility of observing quadrupole induction is pointed out, i.e. it is possible to measure the alternating electric field of resonance frequency which is generated by the precession of the electrical quadrupole moment of the electron shell of the paramagnetic atoms participating in paramagnetic resonance.

ASSOCIATION: Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR  
(Physicotechnical Institute of the Kazan' Branch AS USSR)

SUBMITTED: October 26, 1962

Card 2/2

L 17636-63

EWT(1)/BDS/ES( $\pi$ )-2

AFFTC/ASD/

S/056/63/044/003/046/053

ESD-3/IJP(C)/SSD

Pab-4

64

AUTHOR:

Kessel', A. R. and Morocha, A. K.

TITLE:

The effect of the electric quadrupole induction during the electron resonance

PERIODICAL:

Zhurnal eksperimental'noy i tekhnicheskoy fiziki, v. 44, no 3, 1963, 1113-1115

TEXT: Whenever the resonant magnetic field causes transitions between levels where magnetism is not entirely due to spin, the motion of the orbital magnetic moment is accompanied by changes in the distribution of the electron charge. In particular, the motion of the electrical quadrupole moment of the electron shell induces a magnetic field which can be measured (A. R. Kessel', Ref. 1: FTT, 5, 1055, 1963). In this letter the authors investigate the various possible signals and present formulas giving their respective amplitudes. There is 1 figure and 1 table.

ASSOCIATION: Fiziko-tekhnicheskii institut Kazanskogo filiala Akademii nauk SSSR  
(Physico-Technical Institute of the Kazan' Section of the AS USSR)

SUBMITTED: December 12, 1962  
Card 1/1

L 14504-63 EWT(d)/EWT(1)/FCC(w)/EUS AFFTC/ASD IJP(C)

ACCESSION NR: AP 3001268

8/0181/63/005/006/1528/1536

AUTHOR: Kessel', A. R.; Morocha, A. K.

TITLE: Equations of motion for effective spin 21

SOURCE: Fizika tverdogo tela, v. 5, no. 6, 1963, 1528-1536

TOPIC TAGS: effective spin, rare earths, relaxation time, group theory, Bloch function

ABSTRACT: The authors use group theory to introduce equations such as the Bloch function for effective spin. Previous works have employed a great number of equations, but the authors show that this number may be greatly reduced by employing the symmetry of the problem and by introducing effective spin. They illustrate the method with the rare earths, examining all cases of practical importance. They have found solutions to the equations and have obtained general expressions for relaxation time, including all possible mechanisms of interaction between ions and their environment. They show that after two impulses there occurs a separation, with time, of signal echoes from magnetic dipole induction and electrical quadrupole induction. There is possibly also a separation according to frequency. Orig. art. has: 15 formulas.

Card 1/2: Association: Physical and Technical Inst., Kazan Branch, Academy of Sc. USSR

56  
55

KESSEL', A.R.; OVCHINNIKOV, I.V.

Effect of electric dipole induction in electron resonance. Fiz.  
tver. tela 5 no.8:2364-2365 Ag '63. (MIRA 16:9)

1. Fiziko-tehnicheskii institut AN SSSR, Kazan'.  
(Dipole moments)  
(Paramagnetic resonance and relaxation)