82978

S/142/60/003/002/018/022
E192/E382

Evaluation of the Condenser Capacitance in the Emitter Circuit of a Transistor in Tuned Amplifiers

the input and the output resistances of the amplifier are determined. These resistance are expressed by Eqs. (6) and (7). The input resistance can become negative when the inequality defined by Eq. (8) is fulfilled, whereas the output resistance is negative when the condition expressed by Eq. (10) is met. The final expression for the emitter capacitance C is given by:

$$C \geq C_{\ni} = \gamma + \sqrt{\gamma^2 - \lambda} \qquad (12)$$

where:

$$\gamma = \frac{\tau_{11} + \tau_{21}}{2r_{21}}, \quad \lambda = \frac{1}{\omega^2 r_{21} R} .$$

The quantities τ_{11}, τ_{21} and r_{21} in Eq. (12) are defined on p. 288. Experiments showed that Eq. (12) permits

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Evaluation of the Condenser Capacitance in the Emitter Circuit of a Transistor in Tuned Amplifiers

determination of a satisfactory value of C .
There are 3 figures and 5 Soviet references, one of which is translated from English.

4

ASSOCIATION: Kafedra radiotekhniki Khar'kovskogo aviatsionnogo instituta (Chair of Radio-Engineering of the Khar'kov Aviation Institute)

SUBMITTED: May 30, 1959, initially;
September 21, 1959, after revision.

Card 3/3

9.2520

77957
SOV/109-5-3-11/26

AUTHOR: Simonov, Yu. L.

TITLE: Stability Analysis of Resonance Amplifiers With Semiconductor Triodes

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol 5, Nr 3, pp 430-438 (USSR)

ABSTRACT: One of the basic drawbacks of semiconductor triodes as compared to electron tubes is a considerable internal feedback due to reverse conductance:

$$-Y_{12} = \frac{1}{r_{12}} + j\omega C_{12}$$

It is known that Y-parameters (among these r_{12} and C_{12}) depend on the frequency of the semiconductor. This article contains stability analysis of semiconductor triode resonance amplifiers. (1) Input Conductance

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of Semiconductor Triode With Oscillation in Collector Circuit (see Fig. 1). Its input conductance is the sum of Y_{11} and insertion Y_g conductances; Y_l is load conductance.

$$Y_s = \frac{Y_{12} Y_{21}}{Y_{22} + Y_l} = \frac{1}{R_g} + jB_g. \qquad (1)$$

Active, R_g, and reactive, B_g, components of insertion conductances

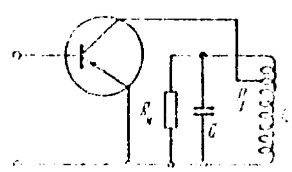

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Fig. 1.

characterize the load reaction on the input conductance of triode. After some substitutions and transformations, R_g is determined as:

$$R_g = \text{[illegible]} \qquad (2)$$

where

$$\text{[illegible]}$$

From (2) it is apparent that quantity R_g depends not only on the sign and the magnitude of detuning α but also on τ_{12} and τ_{21}. Assuming that in the area of small detuning of collector circuit (2) α is the only variable, the values of α are found at which function (2) assumes minimum values:

Stability Analysis of Resonance Amplifiers
With Semiconductor Triodes

[illegible]
SOV/10[illegible]

$$z_1 = \frac{1 + \omega^2\tau_{12}\tau_{21} + \sqrt{(1+\omega^2\tau_{12}^2)(1+\omega^2\tau_{21}^2)}}{\omega(\tau_{12}-\tau_{21})}, \qquad (3)$$

$$z_2 = \frac{\sqrt{(1+\omega^2\tau_{12}^2)(1+\omega^2\tau_{21}^2)} - 1 - \omega^2\tau_{12}\tau_{21}}{\omega(\tau_{12}-\tau_{21})}, \qquad (4)$$

Substituting (3) and (4) into (2), the expressions for minimum magnitude of insertion resistance are obtained:

$$R_{e\,min} = \frac{2r_{12}r_{21}\gamma_e^2\varphi}{r_1^2R_e},$$

$$R'_{e\,min} = \frac{2r_{12}r_{21}\gamma_e^2\varphi'}{r_1^2R_e}, \qquad (5)$$

where

$$\varphi = \frac{1 + \omega^2\tau_{12}\tau_{21} + \sqrt{(1+\omega^2\tau_{12}^2)(1+\omega^2\tau_{21}^2)}}{\omega^2(\tau_{12}-\tau_{21})^2}; \qquad (6)$$

$$\varphi' = \frac{\sqrt{(1+\omega^2\tau_{12}^2)(1+\omega^2\tau_{21}^2)} - 1 - \omega^2\tau_{12}\tau_{21}}{\omega^2(\tau_{12}-\tau_{21})^2}; \qquad (7)$$

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[illegible] (8)

Equation (8) is basic for determination of stability conditions in resonance semiconductor triode amplifiers. (2) Stability Conditions for One-Stage Resonance Amplifier. Equivalent resonance resistance of input circuit (Fig. 2) is determined as a connection of two resistances in parallel.

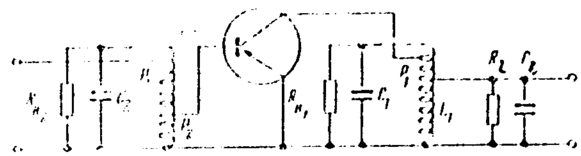

Fig. 2

$$R'_{e2} = \frac{1}{\frac{1}{R_{e2}} + \frac{p_2^2}{R}};$$

, (

$$R_{e2} = \frac{r_{11}R_{k2}}{r_{11} + p_2^2 R_{k2}};$$

where p_2 is coefficient of input circuit connection to the base circuit. If at any combination of detuning of both circuits $R'_{e2} > 0$ the amplifier will be stable. To achieve this, it is necessary and sufficient that:

$$|R_{e\,min}| \;\cdot\; p_2^2 R_{e2} \qquad (9)$$

By substituting here $R_{g\,min}$ from (?), the stability condition is found as:

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Stability Analysis of Resonance Amplifiers With Semiconductor Triodes

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SOV/109-5-3-11/26

$$\frac{r_1^2 r_2^2 R_{e1} R_{e2}}{r_{12} r_{21} r_b^2} \ge 2.$$

If $R_{e1} = R_{e2} = R_e$, the above inequality is rewritten as:

$$\frac{r_1^2 r_2^2 R_e^2}{r_{12} r_{21} r_b^2} \ge 2.$$

(5) Stability Condition of a Two-Stage Resonance Amplifier. Equivalent resonance resistance of oscillation circuits L_2, C_2, R_{e2} (Fig. 3) is limited by the double inequality:

$$\frac{R_{e2}}{1+\xi} \le R_{e2}' \le \frac{R_{e2}}{1-\xi}, \qquad (10)$$

where

$$\xi = \frac{r_1^2 r_2^2 R_{e1} R_{e2}}{2 r_{12} r_{21} r_b^2}; \quad \xi = \frac{r_1^2 r_2^2 R_{e1} R_{e2}}{2 r_{12} r_{21} r_b^2};$$

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φ and φ' being determined by (6) and (7), respectively.

Fig. 3

From a study of (5) and (10) it follows that a minimum value of inserted negative resistance of the second stage (counting from the end of the amplifier) corresponds to:

[illegible] (11)

Substituting (11) into ([illegible]):

$$R_{\min} \; [illegible] \; (1 \; [illegible]) \qquad (12)$$

Substituting ([illegible]) into ([illegible]) the stability condition is found for R_{e1} [illegible] R_{e2} [illegible] R_{e3} [illegible] R_e:

$$\frac{r_1 r_2 R_e}{[illegible]} \; [illegible] \; 1.$$

(3) Stability Condition for Multistage Resonance Amplifiers. Continuing the analysis in the same sequence, it is easy to find that the general expression of $R_{\min}$ for an n-cascade amplifier is:

$$R_{[illegible]} \; [illegible] \; \frac{[illegible] R_e}{[illegible]}.$$

[illegible]

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[illegible]

where function $\psi_n(\xi)$ is determined by the recursion formula:

$$\psi_n(\xi) \quad [illegible] \; 1 \; [illegible] \; \psi_{n-1}(\xi)$$

[illegible]

$$\psi_1(\xi) \; = \; [illegible]$$

Using ([illegible]), stability condition [illegible] n-stage amplifier is written as:

$$\psi_n(\xi) \; [illegible] \; 1. \qquad (1.3)$$

[illegible] amplifiers with different number of stages [illegible] (1a) [illegible]

[illegible]

Stability Analysis of Resonance Amplifiers With Semiconductor Triodes

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n	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
w(n)	2	1	0,763	0,66	0,616	0,536

$$\frac{r_{1}r_{2}R_e^2}{r_1 r_2 r_e^2} \le w(n). \qquad (14)$$

For an unlimited increase of n:

$$\frac{r_1 r_2 R_e^2}{r_1 r_2 r_e^2} = 0,500,$$

and w(n) = 0.500. The resonance coefficient of a one-stage amplifier is:

$$K_0 = p_1 p_2 \frac{R_e}{r_1 r_2}. \qquad (15)$$

11/15 Substituting (15) into (14) and introducing stability reserve per $K_y = R_e/R_e'$, the limit resonance amplification coefficient is found:

$$K_0 = \sqrt{2(1-k_y)\frac{r_{12}}{r_{21}}\bar{\gamma}_0} \qquad \text{for } n = 1,$$

$$K_0 = \sqrt{2k_y(1-k_y)\frac{r_{12}}{r_{21}}\bar{\gamma}_0} \qquad \text{for } n \to \infty, \tag{16}$$

where

$$\bar{\gamma}_0 = \frac{1 - \omega_0^2\tau_{12}\tau_{21} - \sqrt{(1+\omega_0^2\tau_{12}^2)(1+\omega_0^2\tau_{21}^2)}}{\omega_0^2(\tau_{12}-\tau_{21})^2}. \tag{17}$$

Assuming (16) k_y = 0.9, it can be rewritten as:

$$K_0 = 0.42\sqrt{\frac{r_{12}}{r_{21}}\bar{\gamma}_0}. \tag{18}$$

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Thus, a maximum stable amplification with unlimited number of stages is independent of the method of [illegible] connection in oscillation circuits and is dependent only on the four parameters: r_{12}, C_{12}, r_{21}, C_{21}, and the [illegible]

Stability Analysis of Resonance Amplifiers With Semiconductor Triodes

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SOV/109-5-3-11/26

frequency. Summarizing the above, it is interesting to note that stability conditions and equations for maximum stable amplification coincide with those for tube amplifiers. This can be explained by the selection of Π-shaped equivalent circuit and Y-shaped parameters of semiconductor triodes. (5) Stability Condition for Resonance Amplifiers With Common Base. An analysis of the above showed that relations derived for circuits with common emitter can be used. (6) Concerning Accuracy of Stability Conditions as Derived. Formula (5) was derived under the assumption that the triode parameters and the equivalent resonance resistance of the collector circuit are constant for small detunings of the latter. In the above analyses the input conductance was used. This poses the problem of how accurate the stability conditions are. For control purposes a derivation of stability conditions by the method of general analysis of linear amplifier stability is carried out. A method using junction point potentials is applied and the stability condition found for

Card 13/1

$Re(\dot{\beta}\dot{K})$ a<1 as:

$$\frac{p_1^2 p_2^2 R_e^2}{r_{12} r_{21} \varphi \tau_1^2} < 2.$$

This derived stability condition coincides with stability conditions derived above for a one-stage amplifier and proves the acceptability of the input conductance method used. Moreover, Eq. (5) was experimentally verified using a fused triode (П6Г, f_0 = 150 kc) and surface barrier (П405, П405А, f_0 [illegible] 5mc) and diffusion triodes (П403, f = 5mc). Parameters r_{12}, r_{21}, C_{12}, L_{21}, and relation of $R_{g\,min}$ to $p_1^2 R_e$ were determined experimentally. The maximum error, determined as:

$$\lambda = \frac{p_1^2 R_e |R_{g\,min}| - 2 r_{12} r_{21} \tau_1^2 \varphi_0}{2 r_{12} r_{21} \tau_1^2 \varphi_0},$$

Stability Analysis of Resonance Amplifiers With Semiconductor Triodes

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was in all tests within the range of 10-20%. Conclusions: (1) A formula is derived and experimentally checked for minimum negative insertion resistance for an oscillator in the collector circuit. (2) It was found that for $\tau_{12} = \tau_{21}$ the insertion resistance is positive per any sign and magnitude of collector circuit detuning. (3) Stability conditions were derived, and relations for stable limit amplification for resonance amplifiers with different cascade numbers of semiconductor triodes. There are 4 figures; 1 table; and 8 Soviet references.

SUBMITTED: March 19, 1959

Card 15/15

69923

S/109/60/005/05/011/021
E140/E435

9,2520

AUTHOR: Simonov, Yu.L.

TITLE: A Method of Increasing the Stability of Tuned Transistor Amplifiers

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol 5, Nr 5, pp 811-817 (USSR)

ABSTRACT: The method is based on correction of the internal feedback of the transistor. The stability condition of a single-stage resonant transistor amplifier is found on the basis of linear circuit theory. The method was tested experimentally on junction, surface-barrier and diffusion transistors. For variable-tuned amplifiers, the stabilization element should be a pure resistance while for fixed-tuned amplifiers an inductance. As shown experimentally, one defect of the method is a certain interaction of the tuned amplifier circuits when a resistance is used. There are 2 figures, 1 table and 6 Soviet references.

SUBMITTED: August 10, 1959

Card 1/1

26213
S/106/60/000/010/008/009/XX
A055/A133

9.2580

AUTHOR: Simonov, Yu. L.

TITLE: On the y-neutralization calculation of transistorized resonance amplifiers

PERIODICAL: Elektrosvyaz', no. 10, 1960, 35 - 38

TEXT: This article is an analysis of the stability of a transistorized resonance amplifier with y-neutralization, whose neutralization circuit contains only a condenser (with no resistance in series). Considering points 1 and 2 (Fig. 1) as nodes and using the nodal voltage method, the following characteristic equations are obtained for a neutralized amplifier:

$$\left.\begin{aligned} &\dot{U}_1\left[Y_0 + \frac{Y_K}{p_1^2} + m^2(Y_{11} + Y_N)\right] - \dot{U}_2 m(Y_{12} + mY_N) = I_1 \\ &-\dot{U}_1 m(Y_{21} + mY_N) + \dot{U}_2\left[Y_{22} + \frac{Y_K}{p_1^2} + m^2(Y_{LN} + Y_N)\right] = 0 \end{aligned}\right\}, \quad (1)$$

where Y_{11} ... Y_{22} are the characteristic admittances of the transistor; Y_0, Y_1

Card 1/6

are the admittance of the signal source and of the load respectively; Y_b, Y_k are the self-admittance of the basic and the collector oscillating circuit, respectively; $m = \frac{p_2}{p_1}$ is the ratio of the coupling factors of the oscillating circuits: p_2 to the base circuit and p_1 to the collector circuit; $Y_N = i\omega C_N$ is the admittance of the neutralization circuit. The following parameters are also used in the analysis: α_b, R_{eb}, α_k and R_{ek} are, respectively, the generalized detuning and the equivalent resonance resistance of the base circuit and of the collector circuit. $\dot{\beta}$ is the feedback coefficient and $\dot{K}$ is the voltage amplification factor at $\beta = 0$, $\dot{\beta}$ and $\dot{K}$ being related by the following equation: $\dot{\beta}\dot{K} = a + ib$. Using the determinant of the equation-system (1), the author deduces the following expressions for a and b:

$$a = \frac{p_1^2 p_2^2 R_{eb} R_{ek} (1+\xi\omega\tau_{12})}{r_{12} r'_{21} [\alpha_b \alpha_k + \omega\tau_{21}(\alpha_b + \alpha_k) - 1](1+\xi^2)} \quad (7)$$

$$b = \frac{p_1^2 p_2^2 R_{eb} R_{ek} (\omega\tau_{12} - \xi)}{r_{12} r'_{21} [\alpha_b \alpha_k + \omega\tau_{21}(\alpha_b + \alpha_k) - 1](1+\xi^2)} \quad (8)$$

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A055/A133

where
$$\varepsilon = \frac{\omega\tau_{21} + \alpha_b + \alpha_k - \alpha_b \alpha_k \omega\tau_{21}}{1 - \omega\tau_{21}(\alpha_b + \alpha_k) - \alpha_b \alpha_k} \tag{9}$$

$$\tau_{12} = r_{12}(C_{12} - mC_N) \tag{10}$$

$$\tau_{21} = \frac{L_{21}}{r_{21}}\left[1 - mC_N \frac{r_{21}^2}{L_{21}}\left(1 + \omega^2 \frac{L_{21}^2}{r_{21}^2}\right)\right], \tag{11}$$

$$r'_{21} = \frac{r_{21}}{(1 - \omega^2 mC_N L_{21})^2 + \omega^2 m^2 r_{21}^2 C_N^2}. \tag{12}$$

Assuming b = 0, the phase balance condition is:

$$\varepsilon = \omega\tau_{12} \tag{13}$$

The combined solution of (9) and (13) gives the expressions relating the detunings of the oscillating circuits at phase balance.

$$\alpha_b = \frac{1 - q\alpha_k}{q + \alpha_k} \tag{14}$$

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S/106/60/000/010/008/009/XX
A055/A133

On the y-neutralization calculation of...

where:

$$q = \frac{1+\omega^2\tau_{12}\tau_{21}}{\omega(\tau_{12}-\tau_{21})}.$$

Substitution of (14) in (7) gives the amplitude balance condition at phase balance:

$$\frac{p_1^2p_2^2R_{eb}R_{ek}}{r_{12}r'_{21}\psi(\alpha_k)} = 1 \quad (15)$$

where

$$\psi(\alpha_k) = \frac{1+\alpha_k^2}{q+\alpha_k}(\omega\tau_{12}-q). \quad (16)$$

It is known that the amplifier will be absolutely stable if, at phase balance, the amplitude balance condition is not satisfied, i.e.:

$$\frac{p_1^2p_2^2R_{eb}R_{ek}}{r_{12}r'_{21}\psi(\alpha_k)} < 1 \quad (17)$$

Condition (17) must be satisfied at all values of $\psi(\alpha_k)$ and especially at its minimum values. Investigating the extremum values of $\psi(\alpha_k)$, the author finally finds the following expression for the stability condition of the one-stage resonance

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S/106/60/000/010/008/009/XX
A055/A133

On the y-neutralization calculation of...

amplifier:

$$\frac{p_1^2 p_2^2 R_{eb} R_{ek}}{r_{12} r'_{21} \varphi (1+\omega^2 \tau_{21}^2)} < 2 \qquad (21)$$

where

$$\varphi = \frac{1 + \omega^2 \tau_{12} \tau_{21} + \sqrt{(1+\omega^2\tau_{12}^2)(1+\omega^2\tau_{21}^2)}}{\omega^2(\tau_{12}-\tau_{21})^2}. \qquad (20)$$

The amplifier stability will thus be the greater, the smaller the magnitude $\tau_{12} - \tau_{21}$. Besides, if

$$\tau_{12} = \tau_{21}, \qquad (22)$$

the amplifier will be absolutely stable at any value of p_1, p_2, R_{eb} and R_{ek}, and at any value of $\varkappa_b$ and $\varkappa_k$. Taking (10), (11) and (22), the author finds the expression for the capacitance of the neutralization circuit condenser:

$$C_N = C_{12} \frac{p_1}{p_2} \frac{1 - \frac{L_{21}}{r_{12} r_{21} C_{12}}}{1 - \frac{r_{21}}{r_{12}}\left(1 + \omega^2 \frac{L_{21}^2}{r_{21}^2}\right)}. \qquad (23)$$

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S/106/60/000/010/008/009/XX
A055/A133

On the y-neutralization calculation of...

Since:

$$\frac{r_{21}}{r_{12}}\left(1 + 2\frac{L_{21}^2}{r_{21}^2}\right) \ll 1,$$

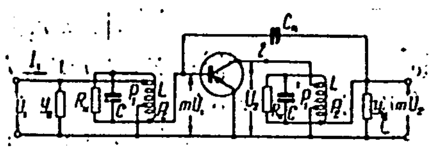
(23) can be given the following simplified form:

$$C_N = C_{12}\frac{p_1}{p_2}\left(1 - \frac{L_{21}}{r_{12}r_{21}C_{12}}\right) \qquad (24)$$

There are 1 figure and 6 Soviet-bloc references.

SUBMITTED: October 2, 1959

Fig. 1.



[Abstracter's note: The following subscripts are translated in the text and formulae:
1 (load) stands for н
b (base) stands for б
e (equivalent) stands for э]

Card 6/6

85486

9.2520 (1024,1154,1159)

S/108/60/015/0??/009/012
B019/B06?

AUTHOR: Simonov, Yu. L., Member of the S[ociety]

TITLE: Calculation of the Stability of a Single-[Circuit] Resonance Amplifier Made of Transistors

PERIODICAL: Radiotekhnika, 1960, Vol. 15, No. ??, pp. 56-61

TEXT: The stability of a transistor resonance amplifier was investigated by the author by a study of its input conductivity. The author gives the well-known formula for the input conductivity of such an amplifier with a grounded emitter circuit, and studies the formulas for the active and the reactive conductivity. He comes to the conclusion that self-excitation in transistor resonance amplifiers may occur at both positive and negative values of the maladjustment of the output circuit. Next, he investigates the conditions of stability for single-, double-, and multiple-circuit resonance amplifiers, and concludes that the formulas for the conditions of stability and for the stable limiting amplification of such resonance amplifiers agree with those for similar vacuum-tube amplifiers. The results obtained were experimentally verified with the circuit diagram shown in

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85486

Calculation of the Stability of a Single-circuit Resonance Amplifier Made of Transistors S/108/60/015/0[illegible]/009/0[illegible] B0[illegible]9/B06[illegible]

Fig. 4 which permits the measurement of all external transistor parameters and of the insertion impedance. The tests were made between 100 and 1500 kilocycles. Between 100 and 600 kilocycles the difference between calculated and experimental values for the minimum negative input impedance of a transistor having a resonant circuit in the collector circuit was not higher than 11%. This quantity did not exceed 18% throughout this frequency range. It was found that the value and the sign of maladjustment of a collector circuit for which the input impedance of the transistor has a negative value depends on the ratio of $\tau_{12} = r_{2}C_{12}$ to $\tau_{21} = L_{21}/r_{21}$. When $\tau_{12} = \tau_{21}$ the insertion impedance is positive for any sign and maladjustment of the collector circuit. There are 4 figures, 2 tables, and 9 Soviet references.

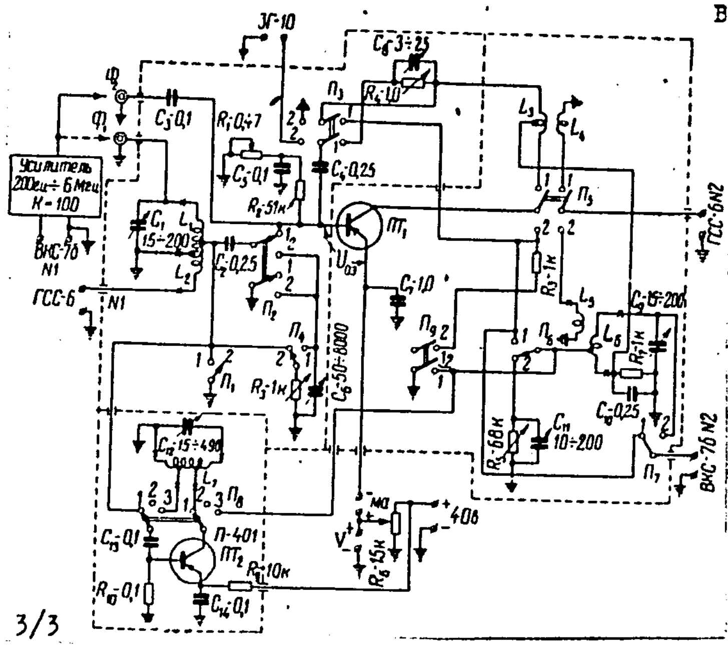
SUBMITTED: May 20, 1959

Card 2/3

85480

S/108/60/015/011/009/012
B019/B063

К расчёту устойчивости одноконтурных усилителей



Card 3/3

NAYDEROV, V.Z.; SIMONOV, Yu.L.

Structural stability of a linear four-terminal network. Elektrosviaz' 15 no.4:43-48 Ap '61. (MIRA 14:9)
(Electric networks)

KRYUKOV, Yu.G.; SIMONOV, Yu.L.

Analysis of a cascaded tuned transistor amplifier. Radiotekhnika 16 no.3:54-59 Mr '61. (MIRA 14:2)

1. Deystvitel'nyye chleny Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi im. A.S.Popova.

(Transistor amplifiers)

32954
S/106/62/000/001/005/0..
A055/A101

9.2520 (1139,1159,1161)

AUTHORS: Kryukov, Yu.G., Simonov, Yu.L.

TITLE: Analysis of the transistorized cascode resonance amplifier of the common emitter - common base type

PERIODICAL: Elektrosvyaz', no. 1, 1962, 40 - 44

TEXT: The authors give the essential results of an analysis of the cascode resonance amplifier of the common emitter - common base type. To simplify the analysis, the circuit of this amplifier was replaced by an equivalent triode circuit. The Y-parameters system was used. Multiplying the a-matrices of the transistors and using the formulae for conversion from a-matrix elements to y-matrix elements, the authors obtain the y-matrix of the equivalent triode. With the aid of this matrix, they deduce the expressions giving the voltage amplification factor of the amplifier and, in particular, its voltage amplification factor at resonance. This last expression fully coincides with the analogous expression for the usual single-cascode resonance amplifier with common emitter and y-type neutralization. The cascode amplifier containing two transistors possesses approximately the same amplification properties as the usual neutralized

X

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32254
S/106/62/000/001/005/009
A055/A101

Analysis of the transistorized cascode

amplifier. The authors next deduce formulas giving the input and output admittances of the cascode resonance amplifier, as well as the output resistance and capacitance of the equivalent triode. The stability conditions of the cascode resonance amplifiers are also examined. The authors reproduce the expressions giving the stability conditions and the limit value of stable amplification in the cases of a one-stage amplifier and of amplifiers containing any number of stages. At the end of the article, they briefly describe the amplifier circuit used by them for an experimental check of the results yielded by their theoretical analysis. This check proved that the theoretical results are correct to within about [illegible]%. The conclusion of the authors is that, for increasing the resonance amplifier stability at radio-frequencies, it is advisable to use the cascode connection [illegible] common-emitter [illegible] common-base type, this mode of [illegible] having a much smaller internal feedback than the common-emitter connection. The Soviet personalities mentioned in the article are: E.A. Shul'gin, [illegible] Garmash and A.A. Bitkin. There are 3 figures, [illegible] tables and [illegible] references: [illegible] Soviet-bloc and [illegible] non-Soviet-bloc.

SUBMITTED: [illegible] 1961

Card 2/2

S/108/62/017/011/005/007
D413/D308

AUTHOR: Simonov, Yu.L., Member of the Society (see Association)

TITLE: The theory of the twin-circuit amplifier using negative-resistance two-terminal networks

PERIODICAL: Radiotekhnika, v. 17, no. 11, 1962, 44-49

TEXT: In using tuned amplifiers with negative-resistance elements (parametric, tunnel-diode and other amplifiers), it is hard to achieve both high gain and an adequate pass-band: this is considerably easier with twin-circuit amplifiers, but their theory has up to now been insufficiently developed. The author gives the general principles of such amplifiers, sets up an equivalent circuit, and derives the necessary basic design formulas; in particular he examines the choice of transformation ratios, and shows that the matched condition is not necessarily that for maximum overall gain. There is 1 figure.

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S/108/62/017/011/005/007
D413/D308

The theory of the twin-circuit ...

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova (Scientific and Technical Society of Radio Engineering and Electrical Communications im. A.S. Popov) /Abstracter's note: Name of Association taken from first page of journal/

SUBMITTED: June 29, 1961

Card 2/2

43265

S/108/62/017/012/008/010
D413/D308

9.4330

AUTHOR: Simonov, Yu. L., Member of the Society ~~(see Association)~~

TITLE: Contribution to the theory of tunnel-diode RC amplifiers

PERIODICAL: Radiotekhnika, v. 17, no. 12, 1962, 52-59

TEXT: The author briefly describes the properties of tunnel diodes, and states that the theory of their application has been insufficiently developed, particularly in relation to RC amplifiers. He first considers the condition for stability of the working point on the tunnel diode characteristic, and recommends as a balance between stability and power consumption that the ratio of diode negative resistance to circuit DC impedance at the point of connexion should lie between 1.05 and 1.5. He takes two standard tunnel diode RC amplifier circuits, one with series and the other with parallel connexion of the diode, sets up their equivalent circuits and

Card 1/2

Contribution ... S/108/62/017/012/008/010
D413/D308

analyses them to obtain frequency and phase characteristics, stability limits and input impedance, in a form suitable for use in design calculations. He finds that the ratio between source impedance and diode negative resistance should be in the range 0.3 - 0.9 for the series circuit and 2 - 20 for the parallel circuit. There are 5 figures.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi imeni A.S. Popova (Scientific and Technical Society of Radio Engineering and Electrical Communications imeni A.S. Popov) [Abstractor's note: Name of association was taken from first page of journal.]

SUBMITTED: September 30, 1961

Card 2/2

AKULOV, I.I.; BARZHIN, V.Ya.; VALITOV, R.A.; GARMASH, Ye.N.; KUCHIN, L.F.; NAYDEROV, V.Z.; PUTSENKO, V.V.; SEMENOVSKIY, V.K.; SIMONOV, Yu.L.; TARASOV, V.L.; TEREKHOV, N.K.; SHEVYRTALOV, Yu.B.; YUNDENKO, I.N.; CHISTYAKOV, N.I., otv. red.; KOKOSOV, L.V., red.; TRISHINA, L.A., tekhn.red.

[Theory and design of principal radio circuits using transistors] Teoriia i raschet osnovnykh radiotekhnicheskikh skhem na transistorakh. [By] I.I.Akulov i dr. Moskva, Sviaz'izdat, 1963. 452 p. (MIRA 16:8)

(Transistor circuits) (Electronic circuits)

ACCESSION NR: AP4041003 S/0106/64/000/006/0054/0062

AUTHOR: Simonov, Yu. L.

TITLE: Using tunnel diodes in transistorized tuned amplifiers

SOURCE: Elektrosvyaz', no. 6, 1964, 54-62

TOPIC TAGS: amplifier, transistorized amplifier, tunnel diode amplifier, tuned amplifier

ABSTRACT: A theoretical analysis of a transistorized amplifier to whose circuit a negative-resistance two-pole (tunnel diode) is connected is presented. The maximum possible amplification of the tuned transistorized amplifier is evaluated; design formulas for such an amplifier equipped with a tunnel diode are developed. The nonlinearity of the current-voltage characteristic and the junction capacitance of the tunnel diode is accounted for. It is inferred that using the tunnel diode in a multistage tuned amplifier may, at best, halve the number of

ACCESSION NR: AP4041003

stages; using the diode in a single-stage amplifier may raise its gain. The I/V characteristic nonlinearity places certain limitations on the number of stages where the tunnel diode is applicable and on the required stability of the power-supply source. Similarly, the junction-capacitance nonlinearity may impose certain restrictions in the case of RF and IF amplifiers. Orig. art. has: 3 figures and 52 formulas.

ASSOCIATION: none

SUBMITTED: 02Nov63 ENCL: 00

SUB CODE: EC NO REF SOV: 005 OTHER: 000

Card 2/2

[illegible]V, Y. [illegible]

Calculation of [illegible] noise of [illegible] with large [illegible] signals. Radiotekh. i elektron. 9 no.9:1724-1729 S '64.

(MIRA 17:10)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001550720001-0"

SIMONOV, Yu.L.

Use of tunnel diodes in transistorized tuned amplifiers. Elektrosviaz' 18 no.6:54-62 Je '64. (MIRA 18:1)

SIMONOV, Yu.L.

Calculation of the noise of a transistor at high frequencies.
Elektrosviaz' 18 no.8:71-73 Ag '64. (MIRA 17:8)

L 36502-65 EEC(b)-2/EEC(k)-2/EWA(h)/EWT(1)/EWG(m)/T Pm-4/Pz-6/Peb IJP(c)
S/0109/65/010/003/0443/0448 25
B
ACCESSION NR: AP5007089

AUTHOR: Simonov, Yu. L.

TITLE: Theory of a tunnel-diode 25 crystal-stabilized oscillator with a constant-impedance circuit

SOURCE: Radiotekhnika i elektronika, v. 10, no. 3, 1965, 443-448

TOPIC TAGS: tunnel diode oscillator, semiconductor oscillator

ABSTRACT: The results of a theoretical analysis of a quartz-stabilized tunnel oscillator with a constant-impedance circuit (Watters, Electronics, 1961, 39) are presented. The conditions of self-excitation with and without crystal are obtained by examining an a-c equivalent circuit. Formulas for output power, diode-voltage amplitude, bias voltage and bias current are derived. The effect of the diode junction capacitance on the oscillator frequency stability is studied; the minimum junction capacitance ensures the highest frequency stability. To compensate for

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L 36502-65

ACCESSION NR: AP5007089

temperature variations, it is recommended that the tunnel diode be shunted with a capacitor whose temperature coefficient of capacitance (TCC) has a reverse sign as compared to the TCC of the diode. Orig. art. has: 2 figures and 32 formulas.

ASSOCIATION: none

SUBMITTED: 20Jan64 ENCL: 00 SUB CODE: EC

NO REF SOV: 006 OTHER: 000

Card 2/2

SIMONOV, Yu.L.

Parameters of a tunnel diode for large harmonic signal operation. Radiotekhnika 20 no.4:62-65 Ap '65. (MIRA 18:6)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi imeni Popova.

AKULOV, I.I.; BARZHIN, V.Ya.; VALITOV, R.A.; GARMASH, Ye.N.; KUCHIN, L.F.; NAYDEROV, V.Z.; PUTSENKO, V.V.; SEMENOVSKIY, V.K.; SIMONOV, Yu.L.; TARASOV, V.L.; TEREKHOV, N.K.; SHEVYRTALOV, Yu.B.; YUNDENKO, I.N.; CHISTYAKOV, N.I., prof., otv. red.; KOKOSOV, L.V., red.

[Theory and design of basic radio circuits using transistors] Teoriia i raschet osnovnykh radiotekhnicheskikh skhem na tranzistorakh. Moskva, Sviaz', 1964. 454 p. (MIRA 18:8)

L 34047-66 EWT(1)/EEC(k)-2/T IJP(c)

ACC NR: AP6025468 SOURCE CODE: UR/0108/66/021/004/0049/0055

AUTHOR: Simonov, Yu. L. (Active member)

ORG: Scientific-Technical Society of Radio Technology and Electrocommunications im. A. S. Popov (Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi)

TITLE: Power and efficiency of a tunnel diode oscillator

SOURCE: Radiotekhnika, v. 21, no. 4, 1966, 49-55

TOPIC TAGS: tunnel diode, electronic oscillator, approximation calculation, oscillator strength

ABSTRACT: An analysis of the problems connected with calculation of the oscillating power of a self-excitation oscillator based on a TD (Tunnel Diode; Tunnel'niy Diod in Russian). In the past, various authors have used various methods to calculate the γ-factor for this type of oscillator: piecewise discontinuous, third degree parabola, straight line sectors and second degree parabola. This has resulted in production of various values of γ, the most accurate of which has been shown by experiment to be 1/8, which can be used to produce a systematic error in the form of a 10-30% increase. Like the previous authors on the subject, Simonov does not use the available accurate analytic approximations, due to the huge volume of computation required, but attempts rather to use the most suitable rough approximations. Orig. art. has: 1 figure and 19 formulas. [JPRS: 36,087]

SUB CODE: 09, 12 / SUBM DATE: 27Jan64 / ORIG REF: 004

UDC: 621.373.53

Card 1/1

L 40047-66 EWT(1)

ACC NR: AP6023885 SOURCE CODE: UR/0109/66/011/007/1345/1346

47
B

AUTHOR: Simonov, Yu. L.; Fayner, A. I.

ORG: none

TITLE: Possibility of designing tunnel-diode cascade frequency multipliers 25
without intermediate amplifiers

SOURCE: Radiotekhnika i elektronika, v. 11, no. 7, 1966, 1345-1346

TOPIC TAGS: tunnel diode, frequency multiplication

ABSTRACT: The shape of static characteristic of a tunnel diode is close to the quadratic parabola, which permits such an operation of the diode frequency doubler that its first-harmonic input power is much smaller than its second-harmonic output power. A Fourier series expansion and curves based on it illustrate the above point. An experimental cascade multiplier designed with two 3I301A GaAs tunnel diodes (maximum current, 2 ma) raised the frequency from 50 kc to 200 kc with an input voltage of 0.1 v and output, 0.5 v. Orig. art. has: 4 figures and 4 formulas. [03]

SUB CODE: 09 / SUBM DATE: 25Jan65 / ORIG REF: 001 / ATD PRESS: 5052

UDC: 621.374.4

Card 1/1

L 06126-67 EWT(l)/FWP(c)/EWT... WH

ACC NR: AP6023857 SOURCE CODE: UR/0108/66/021/007/0039/0043

AUTHOR: Simonov, Yu. L. (Active member)

ORG: Scientific and Technical Society of Radio Engineering and Electrocommunication im. A. S. Popov (Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi)

TITLE: Quartz-stabilized tunnel-diode oscillator

SOURCE: Radiotekhnika, v. 21, no. 7, 1966, 39-43

TOPIC TAGS: electronic oscillator, crystal oscillator, tunnel diode

ABSTRACT: A quartz-crystal-stabilized tunnel-diode oscillator is theoretically analyzed, in which an oscillatory circuit made up from an external inductance and the diode-junction capacitance acts as a resistance transformer. The conditions of oscillator operability are established, and design formulas (power, efficiency) are deduced. It is found that the use of higher (than 0.9--1.2 v) supply voltages and high values of the safety factor (that ensures operating-point stability) cannot be recommended as they result in lower efficiency and higher power consumption. The oscillator has fewer components but apparently inferior frequency-stability than the Nagle and Watters oscillators. Orig. art. has: 1 figure and 34 formulas.

SUB CODE: 09 / SUBM DATE: 20Mar64 / ORIG REF: 005

UDC: 621.382.233

Card 1/1

SIMONOV, Yu.M., assistent

Discontinuous spraying of a biofilter in a sprinkler system. Sbor. trud. LIIZHT no.185:144-146 '62.

Analysis of the spraying of the surface of a biofilter by distributers in the form of overshot wheels. Ibid.[redacted] (MIRA 17:1)

SIMONOV Yu N

CARD 1 / 2 PA - 1531

SUBJECT USSR / PHYSICS
AUTHOR KAZARINOV, JU.M., SIMONOV, JU.N.
TITLE The Elastic Scattering of Neutrons by Protons at an Energy of 580 MeV.
PERIODICAL Žurn.eksp.i teor.fis, 31, fasc.2, 169-173 (1956)
Issued: 5.10.1956

Here the differential cross sections of such a scattering within the angular range of from 35 to 180° (in the center of mass system) are measured.

Test order: The differential cross sections in the interval of the scattering angles ϑ = 35,5 to 180° (in the center of mass system) were measured by registering the recoil protons produced by elastic (n-p) collisions. On this occasion the difference between the number of paraffin ($CH_{2,09}$) and graphite (C) scatterers (fitted to the neutron bundles) in the angles ϑ = 0 - 70° was determined. The energy distribution of the neutrons in the bundle has a maximum at 600 MeV and a half width of ~ 130 MeV. As scatterers paraffin and graphite disks were used with different slowing down power for the recoil protons. The detector consisted of three scintillation counters connected in coincidence and working on the basis of tolane crystals and photomultipliers. The absolute values of the differential cross sections of (n-p) scattering were determined by the normalization of the obtained energy distribution of the recoil protons with respect to the total cross section of the elastic scattering of neutrons by protons.

[illegible] made by exchange- and ordinary interaction to the total cross section of elastic scattering are of the same order. The anisotropy of scattering increases with increasing energy. Conclusions: The data obtained are not in contradiction to the charge independence hypothesis. At 580 MeV $4\sigma_{np}(90^\circ) > [illegible](90^\circ)$ is true for the differential scattering cross sections. The states of the (n-p) system with the isotopic spins [illegible] contributions $\sigma_{T=0}(90^\circ) = 1.10^{-27} cm^2$/steread and $\sigma_{T=1}(90^\circ) = 3.10^{-27} cm^2$/steread to the cross section of scattering under $\vartheta = 90^\circ$. This may be due to the existence of a very strong interaction in these two states. The marked asymmetry of the $\sigma_{np}(\vartheta)$ with respect to the angle of 90° indicates that the interference of the waves corresponding to the states T = 0 and T = 1 influences the character of scattering considerably. This asymmetry is apparently the result of the interaction between two nucleons in the states of the system with high orbital momenta $l > 2$. The lack of a relativistic scattering theory prevents a rigorous interpretation of these data. The angular distribution $\sigma_{np}(\vartheta)$, which was found in nonrelativistic approximation, is explicitly given.

INSTITUTION: Institute for Nuclear Problems of the Academy of Science in the USSR.

Simonov, Yu. N.

4

5663

ELASTIC SCATTERING OF NEUTRONS BY 580 MEV PROTONS. Iu. M. Kazarinov and Iu. N. Simonov (Academy of Sciences, USSR). Soviet Phys. JETP 4, 161-4(1957) March.

Differential cross sections were measured for elastic scattering of neutrons by 580-Mev protons in the angular region θ = 35 to 180° (in the system of the center of inertia) with a 2° angular resolution. The character of the obtained $\sigma_{np}(\theta)$ dependency indicates that at ~ 600 Mev there arises in the neutron-proton system a noticeable interaction in states with orbital moments up to $l \approx 6$. The results obtained do not contradict the hypothesis of charge independences. (auth)

2

AUTHORS: Kazarinov, Yu. M., Simonov, Yu. N. SOV/56-35-1-10/59

TITLE: Measurement of the Total Production Cross Section of Charged π-Mesons in n-p Collisions at Neutron Energies of 586 MeV (Izmereniye polnogo secheniya obrazovaniya zaryazhennykh π-mezonov v n-p-stolknoveniyakh pri energii neytronov 586 MeV)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 1, pp. 78 - 84 (USSR)

ABSTRACT: The production of charged pions in n-p collisions has been comparatively only little investigated (Ref 1; E_n=409 MeV; Ref 2 - $E_n \sim$ 600 MeV, E_p = 760 MeV, method of nuclear emulsions, π^+-π^--spectra at Φ=90° (laboratory system), targets of pure hydrogen). The present paper deals with the determination of the total yield of charged pions within an angular range of 15 to 120° at effective E_n=586 MeV. The experiments were carried out on the synchrocyclotron of the Ob"yedinennyy institut yadernykh issledovaniy (United Institute of Nuclear Research). The energy distribution of the neutrons in the beam had a maximum

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at 600 MeV (half width 130 MeV). For the purpose of determining the differential cross section of the production of charged pions in n-p collisions the ratio between the sum of π^+ and π^--mesons N_π and the number of recoil protons N_p was investigated in dependence on Φ. (Φ = angle of incidence of the neutron beam inciding on to the target). The experimental arrangement is shown by figure 1. The neutron beam passes through the monitor (ionization chamber and impinges on the scatterer. Beside the latter (at a certain angle to the original direction of the beams) is the radiator of the Cherenkov counter between 2 scintillation counters, and behind a filter there is the 3rd counter. For the separation of the pions various types of detectors were used: A Cherenkov counter was used for Φ = 15° and 30° with two scintillation counters connected in coincidence, for Φ = 45° a Cherenkov counter (plexiglass) + 2 scintillation counters in coincidence, and for Φ = 60, 90, 120° 3 scintillation counters in coincidence were used. Assuming the charge symmetry of the nuclear forces $\sigma(np \to \pi^+) = \sigma(np \to \pi^-) = (2{,}0 \pm 0{,}5) \cdot 10^{-27}\,cm^2$., was obtained ($\Phi$ is always given in the laboratory system). In conclusion the authors thank I. I. Lapidus for discussing the results and N.S.Amaglobeli for his assistance in carrying out the work. There are 5 figures, 2 tables, and 12 references, 8 of which are Soviet.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy, Laboratoriya yadernykh problem (United Institute of Nuclear Research, Laboratory for Nuclear Problems)

SUBMITTED: February 27, 1958

KAZARINOV, Yu. M., SIMONOV, Yu. N.

"π-Meson Production in np Collisions at 400-600 Mev"

report presented Intl. Conference on High Energy Physics, Geneva, 4-11 July 1962

Joint Institute for Nuclear Research
Laboratory of Nuclear Problems

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001550720001-0"

KAZARINOV, Yu.M.; SIMONOV, Yu.N.; SARANTSEVA, V.R., tekhn. red.

[Neutron-proton scattering at a neutron energy of 200 Mev] N-P-rasseianie pri energii neitronov 200 Mev. Dubna, Ob"edinennyi in-t iadernykh issl., 1962. 11 p. (MIRA 15:4)
(Neutrons--Scattering) (Protons)

S/056/62/043/001/006/056
B125/B102

AUTHORS: Kazarinov, Yu. M., Simonov, Yu. N.

TITLE: np scattering of 200-Mev neutrons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 1(7), 1962, 35-39

TEXT: A neutron beam was obtained from stripping reactions induced by 400-Mev deuterons extracted from the OIYaI synchrocyclotron. The energy distribution of the neutrons was symmetric about its maximum at $E_n = 192$ Mev. The differential cross section obtained by recording the recoil protons scattered through recoil angles $0 \leq \Phi \leq 55^{\circ}$ (laboratory system) using a telescope of four scintillation counters decreases with a gradually decreasing slope from $\sim 9.5 \cdot 10^{-27}$ cm^2 sterad^{-1} at $\sim 10^{\circ}$ to its minimum value ($\sim 2 \cdot 10^{-27}$ cm^2 sterad^{-1}) at $\vartheta \sim 83^{\circ}$, whereupon it increases to $11 \cdot 10^{-27}$ cm^2 sterad^{-1} at $\sim 170^{\circ}$, first slowly and then rather steeply. This angular distribution is appreciably asymmetric with respect to $\vartheta = 90^{\circ}$. The total cross section σ_t for the scattering of neutrons from

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protons, determined from the difference between neutron absorption in polyethylene disks and that in graphite disks, was found to be $(42.7 \pm 0.9)\cdot 10^{-27}$ cm^2. The pion-nucleon interaction constant f^2 as calculated from measurements of the angular distribution of the scattered particles is 0.08 ± 0.02. At energies of 90 and 200 Mev, the real part of the scattering amplitude makes a great contribution to the cross section for scattering through an angle of 0^{o}. There are 3 figures.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: February 20, 1962

[illegible] Report presented at Int'l Conf. on High Energy Physics, Geneva 4-11 July 1962

Card 2/2

L 45655-65 EWT(m)/T/EWA(m)-2

ACCESSION NR: AP5009830 UR/0367/65/001/002/0271/0273

15

14

AUTHOR: Kazarinov, Yu. M.; Satarov, V. I.; Simonov, Yu. N.

17 B

TITLE: Total cross section for the interaction of 630-MeV neutrons with protons and carbon nuclei

SOURCE: Yadernaya fizika, v. 1, no. 2, 1965, 271-273

TOPIC TAGS: neutron proton interaction, neutron carbon interaction, nucleon nucleon interaction, interaction cross section, elastic scattering, scattering cross section

ABSTRACT: Total cross sections for the interaction of neutrons of mean effective energy 630 MeV with protons and carbon nuclei have been measured by the neutron beam attenuation method. The purpose of the measurement was to gain data on the total elastic np cross section, which cannot be measured directly, and to obtain other information useful in the phase-shift analysis of elastic nucleon-nucleon scattering data in the region above threshold. The neutron beam was attenuated by inserting absorbers of the materials to be investigated. The experimental set-up was the same as used by Dzhelepov et al. (DAN SSSR v. 104, 717, 1955). The values

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L 45655-65
ACCESSION NR: AP5009830

obtained for the total cross section of the np and nC reactions are $(35.2 \pm 0.9) \times 10^{-27}$ and $(324.0 \pm 1.5) \times 10^{-27}$ cm^2, respectively. It is deduced from these values that the imaginary part of the forward elastic NN scattering amplitude is equal to $(0.77 \pm 0.02) \times 10^{-13}$ cm. Orig. art. has: 1 figure and 1 formula.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: 28Sep64 ENCL: 00 SUB CODE: NP

NR REF SOV: 004 OTHER: 000

Card 2/2

SIMONOV, Yu.S.

New developments in washing gravel and crushed stone for making cement. Stroi.i dor.mash. 7 no.2:33 F '62. (MIRA 15:5)
(Aggregates (Building materials))

SIMONOV-YEMEL'YANOV, Yu.A.

Determination of the nature of the minimum boundaries of stability for complex pressure hydraulic systems. Izv.Kar. i Kol'.fil.AN SSSR no.4:54-66 '58. (MIRA 12:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut gidrotekhniki im. B.Ye.Vedneyeva. (Hydraulic engineering)

SIMONOV-YEMEL'YANOV, Yu. A.

Cand Tech Sci - (diss) "Study of the behavior of near-boundary areas of stability of complicated supporting hydraulic systems with leveling reservoirs." Moscow, 1961. 11 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Power Inst); 150 copies; free; bibliography at end of text (10 entries); (KL, 7-61 sup, 245)

MOTYCKA, K.; SOUCEK, J.; SLAVIK, K.; JIRASEK, J.; JIRASEK, A.; Technical assistance: SMETANOVA, R.; FRANTOVA, L.; SIMONOVA, A.

The treatment of experimental mouse hemoblastosis. I. The effect of some new folic acid antimetabolites on cell transplanted leukemia in mice of the AKR strain. Neoplasma (Bratisl.) 11 no.4: 389-397 '64.

1. Institute of hematology and blood transfusion, Prague, Laboratory of protein metabolism and proteosynthesis, Charles University, Prague, I-st pathological-anatomical institute, Charles University, Pregue, Czechoslovakia.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001550720001-0"

[illegible], [illegible].; [illegible], [illegible].; [illegible], [illegible].; [illegible] assistance: [illegible], [illegible].;
[illegible]VA, [illegible].; [illegible]OVA, A.

The treatment of experimental mouse [illegible]. II. The effect of long-term administration of some folic acid antagonists on mice of the AKR strain. Neoplasma (Bratisl.) [illegible] no.4:[illegible]-[illegible] [illegible].

[illegible] Institute of Hematology and Blood Transfusion, [illegible], Laboratory of protein metabolism and proteosynthesis, Charles University, Prague, Czechoslovakia.

SIMONOVA, A.A.

Prevention of industrial eye injuries at Kuznetsk Metallurgical plants. Vest. oft. 73 no. 5:3-8 S-O '60. (MIRA 14:1)
(EYE--WOUNDS AND INJURIES)
(KUZNETSK--STEEL INDUSTRY--SAFETY MEASURES)

SIMONOVA, A. A.

- Children - Diseases

Effect of the Kislovodsk treatment of children with rheumatic heart diseases upon the hydrophil tissue test administered during interparoxysmal stages. Pediatriia, No. 4, 1952.

9. Monthly List of Russian Accessions, Library of Congress, December 1952, Uncl.

SIMONOVA, A.G.

Effect of growth promoting substance of petroleum origin on the renal epithelium culture. Izv. AN Kazakh. SSR. Ser. biol. nauk 3 no.6:75-82 N-D '65. (MIRA 18:12)

1. Institut eksperimental'noy biologii AN KazSSR.

VIL'KOVYSKAYA, G.B.; MURONETS, I.I.; PUCHKOV, S.V., kand.fiz.-mat.nauk; KRAVCHENKO, I.M., red.; SIMONOVA, A.I., red.; MANOILE, M.G., red.; KOLESNIKOVA, A.P., tekhn.red.

[German-Russian geophysical dictionary] Nemetsko-russkii geofizicheskii slovar'. Pod red. I.M.Kravchenko, A.I.Simonova. Moskva, Gos.izd-vo fiziko-matem.lit-ry, 1959. 409 p. (MIRA 12:5)

(German language--Dictionaries--Russian)

(Geophysics--Dictionaries)

KOZLOV, N.S.; SIMONOVA, E.V.

Catalytic synthesis of β-arylaminoketone nitro derivatives. Zhur. org. khim. 1 no.9:1638-1640 S '65.

Activity of aliphatic aromatic ketones. Ibid.:1641-1642
(MIRA 18:12)

1. Permskiy sel'skokhozyaystvennyy institut. Submitted July 16, 1964.

GIMPELEVICH, E.D.; SIMONOVA, E.Ya.

Method for fast determination of organic carbon in rocks. Trudy VNIGNI no.11:278-283 '58. (MIRA 13:1)
(Rocks--Analysis) (Carbon)

GORLOV, N.V.; SIMONOVA, G.F.

Genesis of mica-bearing pegmatites in the northwestern White Sea region. Zap. Vses. min. ob-va 86 no.6:671-681 '57. (MIRA 11:3)

1. Laboratoriya geologii dokembriya AN SSSR i Trest Lengeolnerud. (White Sea region--Pegmatites)

20-117-5- 41/54

AUTHORS: Gorlov, N. V. , and Simonova, G. F.

TITLE: The Laws Governing the Distribution of Muscovite in Pegmatites of the Northwestern White-Sea Coast (Zakonomernosti razmeshcheniya muskovita v pegmatitakh severo-zapadnogo Belomor'ya)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 5, pp. 874 - 877 (USSR)

ABSTRACT: The archaic micaceous pegmatites of North Carelia in the south west of the Kol'skiy-peninsula differ considerably from the common practically binary pegmatites of the pure line ("chistoy linii") in their inner structure as well as in the mineral composition. On the strength of the composition of the feldspars (reference 1) the pegmatites are subdivided into I) plagioclase pegmatites, II) mixed (with plagioclase and microcline), and III) microcline plagioclase. Sometimes subtypes are separated according to the ratio of the two components. According to the own and foreign present data the authors could find a dependence of the spatial distribution of the development degree of the muscovite on the inner structure and on the composition of the veins which belong to the above-mentioned types and subtypes. Furthermore general rules governing the development of the micaceous pegmatite vein could be indicated from the simple up to differentiated and zonal ones. They

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20-117-5- 41/54

The Laws Governing the Distribution of Muscovite in Pegmatite of the North-western White-Sea Coast

facilitate the conquering of each single type or subtype as the reflection of one of the stages of the formation process of a mixed and micaceous vein of complicated structure. The task of the present paper is the systematization of this experience. The main mass of the muscovite is coalesced with quartz as quartz muscovite aggregate. I) Type - plagioclase veins. They are comparativley poor in minerals. Beside plagioclase and quartz as well as muscovite occur as admixtures: garnet, tourmaline, biotite, and apatite. These veins can be micaceous or binary. The first can be subdivided into two subtypes: 1) with muscovite in the axial part, 2) in the axial and contact-near part. II) Type - veins of mixed composition. They are most distributed in Carelia and in the Kol'skiy-peninsula. The mineral composition is more complicated here: beside the admixtures mentioned at I) various rare minerals occur, like albite and mica of later generations. The inner structure is as a rule zonal and differentiated. The zones correspond to the above-mentioned subdivisions. A) Veins consisting chiefly of plagioclase. They contain microcline in imperceptible quantities and have the same structure as the type I). B) Plagioclase-microcline veins. Here the plagioclase quantities are approximatively equal to the microcline quantities. C) Veins consisting chiefly of microcline.

Card 2/3

FINKEL', L.A.; SIMONOVA, G.P.

Organization work and small-scale mechanization of operations in cocoon drying. Izv.vys.ucheb.zav.; tekh.tekst.prom. no.6:3-9 '60. (MIRA 14:1)

1. Uzbekskiy nauchno-issledovatel'skiy institut shelkovodstva. (Uzbekistan--Sericulture)

SIMONOVA, G.V.; ROZOVSKAYA, M.I.; FARBER, Yu.D.

Experience in tuning trunk lines condensed with V-12 apparatus. Vest.sviazi 14 no.9:18-20 S '54. (MLRA 7:10)

1. Glavnyy inzhener Montazhno-izmeritel'nogo upravleniya tresta "Mezhgorsvyaz'stroy." (for Simonova) 2. Inzhenery Montazhno-izmeritel'nogo upravleniya (for Rozovskaya, Farber).
(Telephone lines)

SIMONOVA, I.

(24) (174)

Prague, Prakticke Zubni Lekarstvi, Vol X, No 3, April 62
Copyright: State Medical Publishing House Statni zdravotnicke nakladatelstvi, Prague, 1962

1. "First Symp one of a Sickness in the White-Blood Component in the Oral Cavity and Adjacent Area," Z. [illegible], MSDR [Doctor of Stomatology] of the Stomatological Clinic (Stomatologicka klinika), Hradec Kralove, director [illegible]; L. [illegible], MD, prednosta, Docent L. SANAKA, MD; L. [illegible], MD, of the First Clinic of Internal Medicine (I. interni klinika), Prof. Dr J. REHOR, DrSc [Doctor of Sciences], director; and Docent P. CERNIK, [illegible] Clinic of Internal Propedeutics (Klinika interni propedeutiky), [illegible]; 65-71.

2. "Secondary Decay in Premolars and Molars of the Permanent Set of Teeth in Children Aged [illegible] to [illegible]," [illegible] [illegible], [illegible] Dentist (promovana zubni lekarka) of [illegible] [illegible], [illegible], [illegible], director; [illegible] Institute [illegible] [illegible] (zubni [illegible]), [illegible] rentar ([illegible]), department of [illegible] [illegible]; H. PROCHAZKA, MD, director ([illegible]); pp 71-75.

3. "Bending Strength of [illegible] [illegible]," Prof Dr Bedrich [illegible], Brno; pp 75-78.

4. "Development of the Czechoslovak Stomatology," Prof. Dr Miroslav MATOUSEK, director of the Institute of [illegible] [illegible] (Ustav [illegible] dejin lekarstvi) PU [Palacky University], [illegible] and [illegible], Palacky University, Olomouc; pp 78-[illegible].

5. "Method Applied for Checking Stomatological Installations in District Centers," [illegible] [illegible], [illegible] Stomatological [illegible] (Okresni [illegible]) of [illegible] [See No 1], [illegible] Boleslav, [illegible] [illegible], MD, director; pp [illegible].

6. "Folk Medicine in Dentistry in Slovakia," Rudolf [illegible], Dentist (zubni lekar), Chair of Stomatology [illegible] (Stomatologicka katedra), Slovak Institute for Advanced Training of Physicians (Slovensky ustav pre doskolovanie lekarov), Bratislava, Docent Dr J. [illegible], director; pp [illegible].

7. "Is It Possible and Right [illegible] [illegible] to Sit at Work [illegible]," [illegible], on an article by Jaroslav [illegible], in Prakticke Zubni Lekarstvi, No 7, 1961," [illegible], [illegible], [illegible] of Technical Sciences, VUPL [illegible] [illegible] [illegible] lekarstvi; Research Institute of Occupational Medicine; p 87.

8. "Application of Models [illegible] [illegible] of [illegible] and Using [illegible] Filling Materials," [illegible], [illegible] laboratory worker ([illegible] zubni laborant), [illegible] dental laboratory worker, [illegible] [illegible], [illegible], [illegible]; department of [illegible] ([illegible]), [illegible], MUDr See No 1, director; pp [illegible].

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SIMONOVA, I.A.

Combined treatment of cancer of the larynx. Zhur. ush., nos. i gorl.bol. 23 no.3:9-13 My-Je'63. (MIRA 16:7)

1. Iz kafedry bolezney ukha, gorla i nosa (zav.-dotsent A.Ya. Chebotarev) Novokuznetskogo instituta usovershenstvovaniya vrachey.

(LARYNX—CANCER) (LARYNX—SURGERY)
(RADIATION THERAPY)

OSITYANSKAYA, L.Z.; SIMONOVA, I.I.

Quantitative spectrum analysis of organophosphorus insecticides containing thionic and thiolic bonds. [Trudy] NIUIF no.171: 20-26 '61. (MIRA 15:7)

(Spectrum analysis) (Insecticides)
(Phosphorus organic compounds)

BENSON, Mikhail Il'ich, inzh.; BERIEZIN, Nikolay Tikhonovich, inzh.; GURNI, Varvara Pavlovna, kand. tekhn.nauk; LYUBOVSKIY, Grigoriy Abramovich, inzh.; MARTIROSYAN, Yelena Mikirtychevna: PROGOROVICH, Anna Lazarevna, kand. tekhn. nauk; SIMONOVA, Irina Mikhaylovna, inzh.; YEFREMOVA, M.K., red.; GOLOVINA, N.Z., red.; AKSEL'ROD, I.Sh., tekhn. red.

[English-Russian dictionary of the food industry] Anglo-russkii slovar' po pishchevoi promyshlennosti. Moskva, Fizmatgiz, 1963. 570 p. (MIRA 17:1)

BOYKO, A.A., red.; BURSHTEYN, G.Ya., doktor ekon. nauk, retsenzent; LIR, Yu.S., kand. ekon. nauk, retsenzent; SKOGOREV, V.A., retsenzent; SIMONOVA, I.Ya., retsenzent; GOLUBYATNIKOVA, G.S., red.izd-va; IL'INSKAYA, G.M., tekhn. red.; LAVRENT'YEVA,L.G., tekhn. red.

[Planning in the coal industry; a manual for preparing the technical, industrial and financial plan] Planirovanie v ugol'noi promyshlennosti; spravochnik po razrabotke Tekhpromfinplana. Moskva, Gosgortekhizdat, 1963. 342 p. (MIRA 16:12)

(Coal mines and mining—Management)

GERM.

USSR.

Water-soluble substances of flour in relation to the baking characteristics of the various kinds of wheat. D. I. Terpugov and K. F. Simonova (Agri. Inst., Voronezh, U.S.S.R.). *Selektsiya i Semenovodstvo* 18, No. 8, 19–23 (1951); *Chem. Zentr.* 1952, 1250.—Expts. reported show that a direct relation exists between the water-sol. content of the flour and the fermentative activity of the dough, as well as between the latter and the principal factor detg. the baking quality of the flour, i.e., the vol. of the dough. Therefore, flours can be judged and classified on the basis of their contents in water-sol. substance. Protein content should also be considered in rating a flour. M. G. M.

SUSHKO, V.; SIMONOVA, L.

Urgent descent of the Il-18 airplane. Grazhd. av. 20 no.10: 18-19 O '63. (MIRA 16:12)

USSR/Microbiology - Microbiology Pathogenic to Humans and Animals. F-4

Abs Jour : Ref Zhur - Biol., No 12, 1958, 52848

Author : Prokhorov, M.I., Simonova, L.A.
Inst : -
Title : New Media for Cultivating Bacteira for Control of Harmful Rodents and Insects.

Orig Pub : Byul. nauchno-tekhn. inform. po s.-kh. mikrobiol., 1957, No 3, 28-30.

Abstract : No abstract.

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PROKHOROV, M.I.; SIMONOVA, L.A.

Experiments in testing new media for bacterial cultures used in the control of injurious rodents and insects. Trudy Vses. inst. sel'khoz. mikrobiol. no.14:333-343 '58. (MIRA 15:4)
(Bacteriology--Cultures and culture media)
(Rodentia--Biclogical control)
(Insects, Injurious and beneficial--Biological control)

SI[illegible], I.[illegible], [illegible] Sci--([illegible]) "[illegible] [illegible] soil [illegible] r[illegible]ces [illegible] region." [illegible], 195[illegible]. [illegible] (First [illegible] Order of Lenin [illegible] Sov[illegible]v), [illegible] copies ([illegible],[illegible]-5[illegible],[illegible])

SIMONOVA, L.B. (Moskva, B-93, Arsen'yevskiy per., d.2, kv.9)

Deep subcutaneous tissue space in the gluteal region [with summary in English]. Arkh.anat.gist. i embr. 35 no.3:58-63 My-Je '58 (MIRA 11:7)

1. Kafedra operativnoy khirurgii i topograficheskoy anatomii (zav.-prof. V.V. Kovanov) I Moskovskogo ordena Lenina meditsinskogo instituta im. I.M. Sechenova.
(BUTTOCKS, anat. & histol
deep subcutaneous tissue space (Rus))

SIMONOVA, L.B. (Moskva, V-93, Arsen'yevskiy per., d.2, kv.9)

Topography of the suprapyriform foramen. Arkh.anat.gist.i embr. 37 no.8:55-58 Ag '59. (MIRA 12:11)

1. Kafedra operativnoy khirurgii i topograficheskoy anatomii (zav. - prof.V.V.Kovanov) I Moskovskogo ordena Lenina meditsinskogo instituta im. I.M.Sechenova.
(PELVIS anat & histol)

CHISTOV, A.D.; BAZARNOVA, G.V.; BEK, N.D.; BELIKOVA, V.I.; BLINOVA, M.Ya.; KABANOVA, P.G.; MAKAROVA, M.D.; PRIPISTSOVA, K.D.; SIMONOVA, L.F.; TOLKACHEVA, Ye.M.; TYUNYAYEVA, V.V.; ZINCHENKO, V.S., red.izd-va; PAVLOVSKIY, A.A., tekhn.red.

[Foreign trade of the U.S.S.R. for 1918-1940; statistical survey] Vneshniaia torgovlia SSSR za 1918-1940 gg.; statisticheskii obzor. Moskva, Vneshtorgizdat, 1960. 1134 p. (MIRA 13:10)

1. Russia (1923- U.S.S.R.) Glavnoye tamozhennoye upravleniye. 2. Otdel statistiki Glavnogo tamozhennogo upravleniya Ministerstva vneshney torgovli SSSR (for all, except Zinchenko, Pavlovskiy). (Commercial statistics)

SIMONOVA, L.F., inzh.; KISAROV, G.N., inzh.

Consultation. Tekst.prom. 20 no.10:86 O'60. (MIRA 13:11)
(Textile machinery)

MENYUK, N.S.; SIMONOVA, L.G.

Preliminary data on the acclimatization of the Peipus lavaret (Coregonus lavaretus maraenoides Poljakov) in Lake Pulemetskoye. Vop. ikht. 2 no.2:367-370 '62. (MIRA 15:11)

1. Ukrainskiy nauchno-issledovatel'skiy institut rybnogo khozyaystva (UASKhN), Kiyev.

(Pulemetskoye, Lake--Whitefishes)
(Animal introduction)

NEVSKIY, V.A.; SIMONOVA, L.I.

Nontectonic joints of some rocks in the upper Kurgan Basin.
Izv. AN SSSR. Ser.geol. 27 no.7:19-27 Jl '62. (MIRA 15:6)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR, Moskva.
(Kurgan Valley--Joints (Geology))

[illegible], L. [illegible]

[illegible] from Central A[illegible]a. [illegible] no.16327 [illegible] '65. (MIRA [illegible])

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001550720001-0"

...., M. K.; BONDARENKO, V. A.; PROKOF'YEV, P. T.; SIMONOVA, L. I.

"The Spectrum of Electrons of Internal Conversion of In^{116} Following Capture of Thermal Neutrons."

report submitted for All-Union Conf on Nuclear Spectroscopy, Tbilisi, 14-22 Feb 64.

IF AS LatvSSR (Inst Physics, AS LatvSSR)

L 19461-65 EWT(m)/EWP(t)/EWP(b) IJP(c) JD

ACCESSION NR: AP4044671 S/0120/64/000/004/0084/0086

AUTHOR: Wang, Ts'ien-wa; Sidorov, A. I.; Sidorova, L. P.; Simonova, L. I.

TITLE: Method of producing silicon spectrometric detectors with a broad region of the sensitive layer 27, 27

SOURCE: Pribory* i tekhnika eksperimenta, no. 4, 1964, 84-86

TOPIC TAGS: spectrometric detector, silicon spectrometric detector

ABSTRACT: The development of detectors from Si compensated with Li and having practically no dead layer is reported. The detectors are based on a "new phenomenon" observed by the authors in the course of their experiments with drifting Li ions in Si. At a temperature of 125C and lower and at a voltage over 200 v, the entire high-resistance region had electron-type conductivity. This fact facilitates bringing the space-charge layer to the surface; after removing a thin p-region, a surface-barrier junction can be created by spraying gold. The

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ACCESSION NR: AP4044671

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resulting material has a very high resistivity. A theoretical explanation of the phenomenon is offered. "The authors wish to thank B. M. Golovin, B. P. Osipenko and I. V. Sizov for their interest in the work, and also to thank other workers of the Semiconductor Group of the Nuclear-Reaction Laboratory." Orig. art. has: 4 figures and 7 formulas.

ASSOCIATION: Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint Nuclear Research Institute)

SUBMITTED: 25Jul63 ENCL: 00

SUB CODE: EC, NP NO REF SOV: 003 OTHER: 006

Card 2/2

L 45191-65 EWT(m)/EWP(t)/EWP(b)/EWA(h) IJP(c) JD

ACCESSION NR: AP5009828 UR/0367/65/001/002/0250/0251

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AUTHORS: Balodis, M. K.; Bondarenko, V. A.; Prokof'yev, P. T.; Simonova, L. I. 15 B

TITLE: Spectrum of internal-conversion electrons produced upon capture of thermal neutrons by indium

SOURCE: Yadernaya fizika, v. 1, no. 2, 1965, 250-251

TOPIC TAGS: indium, conversion electron spectrum, thermal neutron capture, beta spectrometry, gamma transition, internal conversion coefficient

ABSTRACT: The spectrum of the internal-conversion electrons produced upon capture of thermal neutrons by indium was plotted in the 40--600 keV energy range with a β spectrograph of 0.4--0.5% resolution, described by the authors elsewhere (Izv. AN SSSR ser. fiz. v. 28, 262, 1965). The registration of the spectrum on a photographic

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ACCESSION NR: AP5009828

plate with R-50 emulsion took 1.5 hours at a reactor power of 1500 kW (5×10^{12} neut/sec-cm^2). Conversion lines were observed, corresponding to gamma transitions at 60.7, 85.5, 96.1, 115.0, 126.5, 141.2, 155.6, 162.3, 171.0, 173.4, 186.2, 203.4, 234.8, 271.5, 284, 289, 335, and 384 keV. The internal conversion coefficients were estimated for some of the transitions. The ratio of the cross section for isomer production was estimated from the intensity ratio of the 138.5 and 415 keV conversion lines in Sn^{116} and found to equal 0.8 ± 0.4. Orig. art. has: 1 table.

ASSOCIATION: Institut fiziki Akademii nauk Latviyskoy SSR (Institute of Physics, Academy of Sciences, Latvian SSR)

SUBMITTED: 24Jul64 ENCL: 00 SUB CODE: NP

NR REF SOV: 002 OTHER: 007

Card 2/2