

A general method for determining ...

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$$-\frac{2K}{\pi} \left(s - \frac{c^2}{x}\right) \arg \operatorname{ch} \sqrt{\frac{(L-X)(L+S)}{2L(S-X)}} - \frac{2K}{\pi} \left(s + \frac{c^2}{x}\right) \arg \operatorname{ch} \sqrt{\frac{(L+X)(L+S)}{2L(S+X)}} - \frac{Kc^2}{x} \frac{2}{\pi} \arg \operatorname{ch} \sqrt{\frac{(L^2 - X^2)(S^2 - 4c^2)}{(S^2 - X^2)(L^2 - 4c^2)}} \quad (95)$$

in which μ and K are expressed by

$$\mu = \frac{(\alpha_0 - \alpha_2) U_\infty}{\sqrt{1 - B^2 c^2}}, \quad K = \frac{(\alpha_2 - \alpha_1) U_\infty}{\sqrt{1 - B^2 s^2}} \quad (96)$$

If the leading edges are supersonic and the trailing edges subsonic the solution is expressed by:

$$u = -\frac{2\mu c}{\pi} \left(1 - \frac{c}{z}\right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} - X\right)\left(\frac{1}{B} + 2c\right)}{\frac{2}{B}(2c - X)}} \quad (97) \quad (97)$$

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$$\begin{aligned}
 & -\frac{2xc}{\pi} \left(1 + \frac{c}{z}\right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} + x\right) \left(\frac{1}{B} + 2c\right)}{\frac{2}{B} (2c + x)}} \\
 & -\frac{2K}{\pi} \left(s - \frac{c^2}{z}\right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} - x\right) \left(\frac{1}{B} + s\right)}{\frac{2}{B} (s - x)}} \\
 & -\frac{2K}{\pi} \left(s + \frac{c^2}{z}\right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} + x\right) \left(\frac{1}{B} + s\right)}{\frac{2}{B} (s + x)}} \\
 & -\frac{2Q}{\pi} \left(1 - \frac{c^2}{z}\right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} - x\right) \left(\frac{1}{B} + L\right)}{\frac{2}{B} (L - x)}}
 \end{aligned}
 \tag{97}$$

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$$-\frac{2Q}{\pi} \left(1 + \frac{c^2}{x}\right) \text{arc cos} \sqrt{\frac{\left(\frac{1}{B} + X\right) \left(\frac{1}{B} + L\right)}{\frac{2}{B} (L + X)}} -$$

$$-\frac{Lc^2}{x} - \frac{Kc^2}{x} \frac{2}{\pi} \text{arg ch} \sqrt{\frac{\left(\frac{1}{B^2} - X^2\right) (S^2 - 4c^2)}{(S^2 - X^2) \left(\frac{1}{B^2} - 4c^2\right)}} \quad (97)$$

$$-\frac{Qc^2}{x} \frac{2}{\pi} \text{arc cos} \sqrt{\frac{\left(\frac{1}{B^2} - X^2\right) (L^2 - 4c^2)}{(L^2 - X^2) \left(\frac{1}{B^2} - 4c^2\right)}}, \quad (97)$$

in which and K have the values from (96), and Q is:

$$Q = \frac{\alpha_1 U_\infty}{\sqrt{B^2 l^2 - 1}} \quad (98)$$

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where the leading and the trailing edges are supersonic the solution is:

$$\begin{aligned}
 u = & -\frac{2\kappa c}{\pi} \left(1 - \frac{c}{z}\right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} - X\right) \left(\frac{1}{B} + 2c\right)}{\frac{2}{B} (2c - X)}} - \\
 & - \frac{2\kappa c}{\pi} \left(1 + \frac{c}{X}\right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} + X\right) \left(\frac{1}{B} + 2c\right)}{\frac{2}{B} (2c + X)}} - \\
 & - \frac{2\kappa^*}{\pi} \left(s - \frac{c^2}{X}\right) \operatorname{arc} \cos \sqrt{\frac{\left(\frac{1}{B} - X\right) \left(\frac{1}{B} + S\right)}{\frac{2}{B} (S - X)}} -
 \end{aligned} \tag{99}$$

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$$\begin{aligned}
 & - \frac{2K^*}{\pi} \left(s + \frac{c^2}{x} \right) \text{arc cos} \sqrt{\frac{\left(\frac{1}{B} + X\right) \left(\frac{1}{B} + S\right)}{\frac{2}{B} (S + X)}} \\
 & - \frac{2Q}{\pi} \left(1 - \frac{c^2}{z} \right) \text{arc cos} \sqrt{\frac{\left(\frac{1}{B} - X\right) \left(\frac{1}{B} + L\right)}{\frac{2}{B} (L - X)}} \\
 & - \frac{2Q}{\pi} \left(1 + \frac{c^2}{z} \right) \text{arc cos} \sqrt{\frac{\left(\frac{1}{B} + X\right) \left(\frac{1}{B} + L\right)}{\frac{2}{B} (L + X)}} \\
 & - \frac{ixc^2}{x} - \frac{K^*c^2}{x} \frac{2}{\pi} \text{arc cos} \sqrt{\frac{\left(\frac{1}{B^2} - X^2\right) (S^2 - 4c^2)}{(S^2 - X^2) \left(\frac{1}{B^2} - 4c^2\right)}}
 \end{aligned} \tag{99}$$

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$$-\frac{Qc^2}{z} \frac{2}{\pi} \arccos \sqrt{\frac{\left(\frac{1}{B^2} - X^2\right) (L^2 - 4c^2)}{(L^2 - X^2) \left(\frac{1}{B^2} - 4c^2\right)}}, \quad (99) \quad (99)$$

in which Q and κ have the values from (98) and (96), and K^* is:

$$K^* = \frac{(\alpha_2 - \alpha_1) U_\infty}{\sqrt{B^2 - 1}}. \quad (100) \quad (100)$$

The authors then determine the motion around the conical fuselage-symmetrical thick wing system, by considering that the fuselage axis and the wing have no angle of attack against the non-disturbed flow. In the x plane, the boundary conditions on the circle of a c radius are the same as in case of the fuselage-thin wing system, the fuselage having no angle of attack. The boundary conditions on the wing and the rest of the oy axis beyond the wing are the same as in the case of an isolated thick wing. The disturbance

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speeds have the same peculiarities on the leading and trailing edges of the wing, as in the case of the isolated thick wing. The motion of the upper semi-plane around the fuselage-symmetrical thick wing system is equivalent to the motion of the upper semi-plane around the fuselage-thin wing system where: a) the wing has supersonic leading edges in A_1' ($x = l_1' > \max \left[\frac{1}{B}, l_1 \right]$) and A_2' ($x = -l_2' < \min \left[-\frac{1}{B}, -l_2 \right]$), as shown in Fig. 4; b) the fuselage has a zero angle of attack; c) the wing has the angle of attacks γ_i and γ_j on different sections of the A_1N_1 and A_2N_2 segments respectively, and a zero angle of attack on the $A_2'A_2$ and A_1A_1' sections (Fig. 4). Thus, the problem of flow around the conical fuselage-thick wing system was reduced to the flow around the conical fuselage-thin wing system. The axial disturbance speeds of the more interesting cases are presented as follows: a) In case the wing has the $\pm \gamma_1$ slopes on the A_1M_1 and A_2M_2 sections, respectively

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$\pm \gamma_2$ slopes on the M_1N_1 and M_2N_2 sections, and if the wing presents a geometrical symmetry against the fuselage axis, i.e. if $l_1 = l_2 = l$, and $s_1 = s_2 = s$, the solution in the case of subsonic leading edges is given by:

$$\begin{aligned}
 u = & -\frac{2Q}{\pi} \left(1 - \frac{c^2}{x}\right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} - x\right) \left(\frac{1}{B} + L\right)}{\frac{2}{B} (L - X)}} \quad (101) \\
 & - \frac{2Q}{\pi} \left(1 + \frac{c^2}{x}\right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} + X\right) \left(\frac{1}{B} + L\right)}{\frac{2}{B} (L + X)}} \\
 & - \frac{2K}{\pi} \left(s - \frac{c^2}{x}\right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} - X\right) \left(\frac{1}{B} + S\right)}{\frac{2}{B} (S - X)}}
 \end{aligned}$$

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$$\begin{aligned}
 & - \frac{2K}{\pi} \left(s + \frac{c^2}{x} \right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} + X\right)\left(\frac{1}{B} + S\right)}{\frac{2}{B}(S + X)}} - \\
 & - \frac{2\kappa c}{\pi} \left(1 - \frac{c}{x} \right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} - X\right)\left(\frac{1}{B} + 2c\right)}{\frac{2}{B}(2c - X)}} - \\
 & - \frac{2\kappa c}{\pi} \left(1 + \frac{c}{x} \right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} + X\right)\left(\frac{1}{B} + 2c\right)}{\frac{2}{B}(2c + X)}} - \\
 & - \frac{i\kappa c^2}{x} - \frac{Qc^2}{x} \frac{2}{\pi} \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B^2} - X^2\right)(L^2 - 4c^2)}{(L^2 - X^2)\left(\frac{1}{B^2} - 4c^2\right)}}
 \end{aligned} \tag{101}$$

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$$-\frac{Kc^2}{x} \frac{2}{\pi} \arg \operatorname{ch} \sqrt{\frac{(\frac{1}{B^2} - X^2)(S^2 - 4c^2)}{(S^2 - X^2)(\frac{1}{B^2} - 4c^2)}} \quad (101)$$

in which Q, K, and κ are expressed by:

$$Q = \frac{(\gamma_1 - \gamma_2)U_\infty}{\sqrt{1 - B^2}}, \quad K = \frac{(\gamma_2 - \gamma_1)U_\infty}{\sqrt{1 - B^2}}, \quad \kappa = -\frac{\gamma_2 U_\infty}{\sqrt{1 - B^2}}; \quad (102) \quad (102)$$

If the leading edges are supersonic and the trailing edges subsonic, the solution is the same as in case of the conical fuselage-thin wing system, i.e. Eq. (97), in which α_1 and α_2 are replaced by γ_1 and γ_2 respectively. If the leading and trailing edges are supersonic, the solution is expressed by Eq. (99), in which α_1 and

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α_2 are replaced by γ_1 and γ_2 , respectively. b) If the whole wing has a $\pm \gamma$ slope, having no symmetry against the fuselage axis, the solution in case of subsonic leading edges is given by

$$\begin{aligned}
 u = & -\frac{2Q_1}{\pi} \left(l_1 - \frac{c^2}{x} \right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} - x\right) \left(\frac{1}{B} + L_1\right)}{\frac{2}{B} (L_1 - x)}} \\
 & - \frac{2Q_2}{\pi} \left(l_2 + \frac{c^2}{x} \right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} + x\right) \left(\frac{1}{B} + L_2\right)}{\frac{2}{B} (L_2 + x)}} \\
 & - \frac{2\pi^* c}{\pi} \left(1 - \frac{c}{x} \right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} - x\right) \left(\frac{1}{B} + 2c\right)}{\frac{2}{B} (2c - x)}}
 \end{aligned}
 \tag{103}$$

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$$\begin{aligned}
 & -\frac{2x^2c}{\pi} \left(1 + \frac{c}{x}\right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} + X\right) \left(\frac{1}{B} + 2c\right)}{\frac{2}{B}(2c + X)}} - \\
 & -\frac{ix^2c^2}{x} + \frac{Q_1 4c^2}{\pi x + c} \frac{\sqrt{\frac{1}{B^2} - X^2}}{\frac{1}{B} + 2c} \left\{ K(k) - F(\varphi_1, k) + \right. \\
 & \left. + \frac{2c}{x-c} \left[\Pi(\rho, k) - \Pi(\varphi_1, \rho, k) \right] \right\} - i\psi_1 - \frac{Q_1 4c^2}{\pi x - c} \frac{\sqrt{\frac{1}{B^2} - X^2}}{\frac{1}{B} + 2c} \left\{ K(k) - \right. \\
 & \left. - F(\varphi_2, k) - \frac{2c}{x+c} \left[\Pi\left(\frac{k^2}{\rho}, k\right) - \Pi\left(\varphi_2, \frac{k^2}{\rho}, k\right) \right] \right\} - i\psi_2, \quad (103)
 \end{aligned}$$

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in which $\psi_1 = \frac{Q_1 c^2}{x}$ on the segment $l_1 < x = y < \frac{1}{B}$, and $\psi_1 = 0$ beyond this segment; $\psi_2 = \frac{Q_2 c^2}{x}$ on the segment $-\frac{1}{B} < x = y < -l_2$, and $\psi_2 = 0$, beyond this segment, in which Q_1 , Q_2 and x are expressed by

$$Q_1 = \frac{\gamma U_\infty}{\sqrt{1-B^2 l_1^2}}, \quad Q_2 = \frac{\gamma U_\infty}{\sqrt{1-B^2 l_2^2}}, \quad x = -\frac{\gamma U_\infty}{\sqrt{1-B^2 c^2}}, \quad (104) \quad (104)$$

and k , ρ , φ_1 and φ_2 by

$$k = \frac{(1-Bc)^2}{(1+Bc)^2}, \quad \rho = -\frac{(1-Bc)^2 (x+c)^2}{(1+Bc)^2 (x-c)^2}, \quad (105 a) \quad (105 a)$$

and

$$\varphi_1 = \arcsin \frac{(1+Bc)(l_1-c)}{(1-Bc)(l_1+c)}, \quad \varphi_2 = \arcsin \frac{(1+Bc)(l_2-c)}{(1-Bc)(l_2+c)} \quad (105 b)$$

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If the A₁ leading edge is supersonic and the A₂ leading edge subsonic, the solution is given by

$$\alpha = -\frac{2Q_1}{\pi} \left(l_1 - \frac{c^2}{x} \right) \arg \cos \sqrt{\frac{\left(\frac{1}{B} - X \right) \left(\frac{1}{B} + L_1 \right)}{\frac{2}{B} (L_1 - X)}} -$$

$$-\frac{2Q_2}{\pi} \left(l_2 + \frac{c^2}{x} \right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} + X \right) \left(\frac{1}{B} + L_2 \right)}{\frac{2}{B} (L_2 + X)}} -$$

$$-\frac{2x \cdot c}{\pi} \left(1 - \frac{c}{x} \right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} - X \right) \left(\frac{1}{B} + 2c \right)}{\frac{2}{B} (2c - X)}} -$$

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$$-\frac{2x^2c}{\pi} \left(1 + \frac{c}{x}\right) \arg \operatorname{ch} \sqrt{\frac{\left(\frac{1}{B} + x\right) \left(\frac{1}{B} + 2c\right)}{\frac{2}{B} (2c + x)}}$$

$$-\frac{ix^2c^2}{x} - \frac{Q_1}{\pi x} \frac{2c^2}{x-c} \frac{\sqrt{\frac{1}{B^2} - x^2}}{\frac{1}{B} + 2c} \left[2\operatorname{er} F(\varphi_1^*, k_1) + \right. \tag{106}$$

$$\left. + \frac{x+c}{x-\frac{1}{B}} \left(\frac{1}{B} - 2c\right) \operatorname{er} \Pi(\varphi_1^*, \rho_1, k_1) \right] - f_1 - \frac{Q_2}{\pi} \frac{4c^2}{x-c} \frac{\sqrt{\frac{1}{B^2} - x^2}}{\frac{1}{B} + 2c} \left\{ \operatorname{er} K(k) - \right.$$

$$\left. - \operatorname{er} F(\varphi_2, k) - \frac{2c}{x+c} \left[\operatorname{er} \Pi\left(\frac{k^2}{\rho}, k\right) - \operatorname{er} \Pi\left(\varphi_2, \frac{k^2}{\rho}, k\right) \right] \right\} - i\psi_2, \tag{106}$$

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in which $f_1 = \frac{Q_1^* c^2}{x}$ on the segment $\frac{1}{B} < x = y < l_1$, and $f_1 = 0$ beyond this segment; $\psi_2 = \frac{Q_2 c^2}{x}$ on the segment $-\frac{1}{B} < x = y < -l_2$, and $\psi_2 = 0$ beyond this segment, and in which Q_2 , κ and k , ρ , φ_2 are given by the relations (104), (105 a, b) and

$$Q_1^* = \frac{\gamma U_\infty}{\sqrt{B^2 M_1^2 - 1}}, \quad k_1^* = \frac{8Bc}{(1+2Bc)^2}, \quad (107a) \quad (107a)$$

$$\rho_1 = -\frac{2B(x-2c)}{(1+2Bc)(Bx-1)}, \quad \varphi_1^* = \arcsin \sqrt{\frac{(1+2Bc)(BL_1-1)}{2B(L_1-2c)}}. \quad (107b)$$

If both leading edges are supersonic, the solution is the same as in the corresponding case of the fuselage-thin wing system. There

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are 4 figures and 3 references: 2 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: E. Carafoli: High Speed Aerodynamics. Ed. tehnica, Bucharest, 1956.

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106120 also 1121,1327

AUTHOR: Mateescu, Dan

TITLE: Supersonic flow around a trapezoidal wing provided with two conical bodies

PERIODICAL: Studii si cercetări de mecanică aplicată, no. 1, 1961, 61 - 78

TEXT: The author extends the study of the interference between the wing and fuselage, developed in previous works by E. Carafoli and D. Mateescu (Ref. 1: Écoulement supersonique autour du système portant aile-fuselage conique (Supersonic Flow around a Wing-Conical Fuselage Lifting System) Revue de Mécanique Appliquée, Acad. R.P.R. 4, 3, 1959), (Ref. 2: A General Method for Determining the Wing-Conical Body Interference in Supersonic Flow. Revue de Mécanique Appliquée, Acad. R.P.-R., 5, 2, 1960), and (Ref. 3: Supersonic flow around the cruciform wing-conical body system. Revue de Mécanique Appliquée, Acad. R.P.R. 5, 3, 1960), analyzing the supersonic flow

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Supersonic flow around a ...

around a trapezoidal wing provided with two conical bodies. It is considered that the axis of each body has an angle of attack α_0 against the non-disturbed flow U_∞ , whereas the central section of the wing, included by the two bodies, has an angle of attack α_1 , and the outer section of the wing an angle of attack α_2 . Considered also is that the transversal dimensions of the bodies are small in ratio the Mach cone, $B^2 c^2 \ll 1$, and the angle of attack of the wing and of the bodies are sufficiently small. Finally, it is considered that the distance between the two bodies is large enough so that neither of them is partially included by the Mach cone determined by the other body. The author applies the usual designations and formulae. To solve the problem he first treats the conical motion determined by the Mach cone with the point in O as shown in Fig. 1, the solution of the motion determined by the Mach cone with the point in O' being obtained in a similar way. The boundary conditions regarding the considered conical motion are:

$$v \cos \theta + (w - \alpha_0 U_\infty) \sin \theta = cu \approx 0, \quad (5)$$

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Supersonic flow around a ...

on the circle of radius a ; $w = \alpha_1 U_\infty$ (6)

on the sections N_2 and $N_1 M_1$; $w = \alpha_2 U_\infty$ (7)

on the $M_1 A_1$ section; and $u = v = 0$ (8)

on the $x = y > l_1$ semi-straight line. Using the same designations and transformations as in Refs. 1 and 2 (Op.cit.) (15)

the solution of the motion may be expressed as $\frac{dF}{dx} = v - i(k_0 - \lambda_0 U_\infty)$ (16) X
 $U = -xV + \int V dx = -x \frac{dF}{dx} + F,$

and

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Supersonic flow around a ...

$$\frac{dF}{dX} = \frac{dF}{dx} \frac{1}{2} \left(1 + \frac{X}{\sqrt{X^2 - 4c^2}} \right). \quad (17)$$

The function $\frac{dF}{dX}$ may be decomposed into two functions of complex variables, i.e.:

$$\frac{dF}{dX} = V_a + \frac{dF_1}{dX}. \quad (18)$$

The boundary conditions of these functions are: For the function V_a , whose peculiarities are transposed into the X plane shown in Fig. 3.

$$\operatorname{Im} V_a = 0 \quad (19)$$

on the N_2N_1 segment:

$$\operatorname{Im} V_a = \frac{K}{2} \quad (20)$$

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Supersonic flow around a ...

on the D_2N_2 and N_1M_1 segments;

$$\partial_m \mathcal{V}_a = \frac{K}{2} + \frac{K_1}{2} \left(1 + \frac{Y}{\sqrt{Y^2 - 4c^2}} \right) \quad (21)$$

on the $(S_1 < X = Y < \min \{L_1, \frac{1}{B}\})$ segment $Re \mathcal{V}_a = 0$ (22)

on the $-\infty D_2$ and $A_1 \infty$ semi-straight lines; and

$$Re \mathcal{V}_a = \frac{Q_1}{2} \left(1 + \frac{Y}{\sqrt{Y^2 - 4c^2}} \right) \quad (23)$$

on the $\frac{1}{B} < X = Y < L_1$, segment, i.e. $L_1 > \frac{1}{B}$ ($L_1 > \frac{1}{B}$). The determination problem of the flow around the system under consideration is thus reduced to solving a conical motion around a fictive isolated wing having a variable angle of attack. The author determines the functions \mathcal{V}_a and \mathcal{U}_a from the fictive conical motion for different positions of the wing against the Mach cone, deducing then the expression of the axial disturbance speed around the trapezoidal wing provided with two conical bodies. In the case of subsonic

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Supersonic flow around a ...

A_1 , the leading edge v_a^* and u_a are expressed by

$$\begin{aligned}
 v_a = c_1 & \sqrt{\frac{\frac{1}{B} + X}{L_1 - X} + \frac{K}{\pi} \operatorname{arg ch} \sqrt{\frac{(L_1 - X) \left(\frac{1}{B} + 2c\right)}{\left(L_1 + \frac{1}{B}\right) (2c - X)}}} \\
 & - \frac{K}{\pi} \operatorname{arg ch} \sqrt{\frac{\left(\frac{1}{B} + X\right) (L_1 + 2c)}{\left(L_1 + \frac{1}{B}\right) (2c + X)}} + \frac{K_1}{\pi} \operatorname{arg ch} \sqrt{\frac{(L_1 - X) \left(\frac{1}{B} + s_1\right)}{\left(L_1 + \frac{1}{B}\right) (s_1 - X)}}} + \quad (31) \\
 & + i\psi_1 + \frac{K_1}{\pi} \frac{2c}{X + 2c} \frac{\sqrt{(L_1 - X) \left(\frac{1}{B} + X\right)}}{\sqrt{(L_1 + 2c) \left(\frac{1}{B} + 2c\right)}} \left\{ K(k) - F(\varphi, k) - \right.
 \end{aligned}$$

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Supersonic flow around a ...

$$-\frac{2X}{X-2\sigma} [\Pi(\rho, k) - \Pi(\varphi, \rho, k)] \quad (31)$$

$$u_\infty = -C_1 L_1 \sqrt{\frac{\frac{1}{B} + X}{L_1 - X}} - Q_2 \arccos \sqrt{\frac{\frac{1}{B} + X}{L_1 + \frac{1}{B}}}$$

$$-\frac{2\sigma K}{\pi} \operatorname{arg ch} \sqrt{\frac{(L_1 - X) \left(\frac{1}{B} + 2\sigma\right)}{\left(L_1 + \frac{1}{B}\right) (2\sigma - X)}} \quad (32)$$

$$-\frac{2\sigma K}{\pi} \operatorname{arg ch} \sqrt{\frac{\left(\frac{1}{B} + X\right) (L_1 + 2\sigma)}{\left(L_1 + \frac{1}{B}\right) (2\sigma + X)}} \quad (32)$$

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Supersonic flow around a ...

$$\begin{aligned}
 & -\frac{2\sigma_1 K_1}{\pi} \arg \operatorname{ch} \sqrt{\frac{(L_1 - X) \left(\frac{1}{B} + S_1 \right)}{\left(L_1 + \frac{1}{B} \right) (S_1 - X)}} - \frac{4\sigma^2}{X} \psi_1 + \\
 & + \frac{K_1}{\pi} \frac{4\sigma^2}{X + 2c} \sqrt{\frac{(L_1 - X) \left(\frac{1}{B} + 2c \right)}{\left(L_1 + 2c \right) \left(\frac{1}{B} + 2c \right)}} \left\{ \mathbf{K}(k) - \mathbf{F}(\varphi, k) + \right. \\
 & \left. + \frac{4c}{X - 2c} \right] \mathbf{\Pi}(\rho, k) - \mathbf{\Pi}(\varphi, \rho, k) \Big\},
 \end{aligned} \tag{32}$$

in which $\psi_1 = \frac{K_1}{2} \frac{X}{\sqrt{X^2 - 4\sigma^2}}$ on the $S_1 < X = Y < L_1$ segment, and $\psi_1 = 0$ beyond this segment, while k, ξ , and φ are given by

$$k = \frac{(l_1 - c)(1 - Bc)}{(l_1 + c)(1 + Bc)}, \tag{33a}$$

(33a)

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$$\rho = \frac{(l_1 - c)^2 (x + c)^2}{(l_1 + c)^2 (x - c)^2}, \quad (33b) \quad (33b)$$

$$\varphi = \arcsin \frac{(l_1 + c)(s_1 - c)}{(l_1 - c)(s_1 + c)}, \quad (33c) \quad (33c)$$

and Q_2 by

$$Q_2 = C_1 \left(L_1 + \frac{1}{B} \right) + \frac{K}{\alpha} \left[\sqrt{(L_1 - 2c) \left(\frac{1}{B} + 2c \right)} - \sqrt{(L_1 + 2c) \left(\frac{1}{B} - 2c \right)} \right] + \frac{K_1}{\alpha} \left[\sqrt{(L_1 - S_1) \left(\frac{1}{B} - L_1 \right)} - I_{\Delta} \right] \quad (34)$$

in which I_{Δ} is expressed by

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$$I_{\Delta} = \int_{S_1}^{L_1} \frac{-\eta \left[\eta + \frac{1}{2} \left(\frac{1}{B} - L_1 \right) \right]}{\sqrt{\eta^2 - 4c^2} \sqrt{(L_1 - \eta) \left(\frac{1}{B} + \eta \right)}} d\eta. \quad (35)$$

C_1 , the only constant which is not determined in the above relations is given by

$$C_1 = \frac{1}{L_1 + \frac{1}{B}} \frac{2\alpha_1 U}{\alpha B} - \frac{K}{\pi} \left[\sqrt{(L_1 - 2c) \left(\frac{1}{B} + 2c \right)} - \sqrt{(L_1 + 2c) \left(\frac{1}{B} - 2c \right)} \right] - \frac{K_1}{\pi} \left[\sqrt{(L_1 - S_1) \left(\frac{1}{B} + S_1 \right)} - I_{\Delta} \right]. \quad (38)$$

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Supersonic flow around a ...

By making s_1 in (31) and (32) to tend towards c and S_1 towards $2c$, and introducing the results into

$$u^{(a)} = u_0 + \frac{2c^2}{x} v_0. \quad (28) \quad (28)$$

the author obtains the expression of the axial disturbance speed around the system considered. The author then briefly considers cases where the whole wing has the same angle of attack and the wing and the body have the same angle of attack. Finally, the author gives in Figs. 5 and 6 the variation curves of the axial disturbance speed for the trapezoidal wing provided with two conical bodies and for the rectangular wing provided with two marginal conical bodies. Where neither the bodies nor the wing have an angle of attack, the wing, however, is thick, having a symmetrical thickness characterized by $\pm \gamma_1$ slopes on the central section of the wing and $\pm \gamma_2$ on the marginal sections; the solution of the con-

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Supersonic flow around a ...

cal motion may be similarly obtained by using previous works (Refs. 1 and 2: Op.cit.). The axial disturbance speed for the upper plane, $u^1 = \text{Re } U^I$, is given by

$$\begin{aligned}
 u^1 = & -\frac{2Q_1^*}{\pi} \left(l_1 - \frac{c^2}{x} \right) \text{arg ch } \sqrt{\frac{(1 - \mathcal{B}X)(1 + \mathcal{B}L_1)}{2\mathcal{B}(L_1 - X)}} + \\
 & + \frac{2\gamma_1 U_\infty}{\pi} \text{arc cos } \sqrt{\frac{1 + \mathcal{B}X}{1 + \mathcal{B}L_1}} - i\psi^* + \frac{Q_1}{\pi} \frac{4c^2}{x+c} \frac{\sqrt{1 - \mathcal{B}^2 X^2}}{1 + 2\mathcal{B}c} \left\{ K(k) - \right. \\
 & \left. - F(\varphi_1^*, k) + \frac{2c}{x-c} [\Pi(\rho, k) - \Pi(\varphi_1^*, \rho, k)] \right\} - \frac{iKc^2}{x} - \\
 & - \frac{2(K+K_1)c}{\pi} \left(1 - \frac{c}{x} \right) \text{arg ch } \sqrt{\frac{(1 + \mathcal{B}X)(1 + 2\mathcal{B}c)}{2\mathcal{B}(2c - X)}} - \\
 & - \frac{2Kc}{\pi} \left(1 + \frac{c}{x} \right) \text{arg ch } \sqrt{\frac{(1 + \mathcal{B}X)(1 + 2\mathcal{B}c)}{2\mathcal{B}(2c + X)}} - i\psi + \\
 & + \frac{K_1}{\pi} \frac{4c^2}{x+c} \frac{\sqrt{1 - \mathcal{B}^2 X^2}}{1 + 2\mathcal{B}c} \left[K(k) + \frac{2\rho}{x-c} \Pi(\rho, k) \right], \quad (50)
 \end{aligned}$$

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Supersonic flow around a ...

in which $\psi^* = \frac{Q_1 c^2}{x}$ on the $l_1 < x = y < \frac{1}{B}$ segment and $\psi^* = 0$ beyond
 this segment; $\psi = \frac{K_1 c^2}{x}$ on the $s_1 < x = y < \frac{1}{B}$ segment and $\psi^* = 0$
 beyond this segment, while Q_1 , K , K_1 and φ_1^* are expressed by

$$Q_1 = \frac{\gamma_2 U_\infty}{\sqrt{1-B^2 l_1^2}}, \quad K = \frac{(\gamma_0 - \gamma_1) U_\infty}{\sqrt{1-B^2 c^2}}, \quad K_1 = \frac{(\gamma_1 - \gamma_2) U_\infty}{\sqrt{1-B^2 c^2}} \quad (51) \quad (51)$$

and

$$\varphi_1^* = \arcsin \frac{(1+Bc)(l_1-c)}{(1-Bc)(l_1+c)}, \quad (52) \quad (52)$$

respectively. There are 6 figures and 4 Soviet-bloc references. X

PRESENTED: July 5, 1960

SUBMITTED: October 22, 1960

Card 13/17

MATEESCU, Dan

Wings with enclosing surfaces in supersonic flow. Studii cerc
mec apl 13 no.5:1127-1156 '62.

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Testing lap joints prepared with unilateral seams. Malyepiteatud
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MATEESCU, D.; FLESERIU, I.; IVAN, M.; FLESERIU, E.; GADEANU, L.; DANILESCU, A.;
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Influence of considering the deformations caused by axial and cutting forces in the static calculation of a cupola with nervures and rings. Bul St si Tehn Tim 9 no.2:585-599 JI-D '64.

Comparative study of the effort distribution determined in different hypotheses of spatial cooperation of a cupola with nervures and rings. Ibid.:601-616

L 24126-66 FS(m)/EWP(m)/EWP(w)/EWA(d)/T-2/EWP(k)/EWA(h)/ETC(m)-6/EWA(?)

ACC NR: AP5014665

WH/EM

SOURCE CODE: RU/0019/65/010/002/0489/0504

AUTHOR: Carafoli, E.; Mateescu, D.ORG: Institute of Applied Mechanics of the Academy of the Romanian Peoples' Republic (Institut de Mecanique Applique de l'Academie de la Republique Populaire Roumaine)TITLE: A class of Delta wings whose incidence and slope vary in accordance with homogeneous functions under supersonic conditions

SOURCE: Revue Roumaine des sciences techniques. Serie de mecanique appliquee, v. 10, no. 2, 1965, 489-504

TOPIC TAGS: Delta wing, perturbation, function, wing incidence

ABSTRACT: Higher-order conic motions are applied to the study of triangular wings with variable incidence and slope (or corresponding vertical velocities), using homogeneous functions of various orders. To this end, the problem is reduced to a study of a wing having an unbroken interval of basic stops which makes it possible to use the results obtained by the authors in their previous studies. As practical examples, the expression is determined for the axial velocity of perturbation for a series of thin wings of symmetrical thickness whose incidence and slope vary in accordance with homogeneous functions of the order of zero and one. Orig. art. has: 60 formulas. [DW]

SUB CODE: 01/

SUBM DATE: 07Jan65/--Mar65

OTH REF: 002/

Card 1/1

L 34384-66 EWP(m)/EWP(w)/T-2/EWP(k) WW/EM

ACC NR: AP6022637

SOURCE CODE: RU/0019/66/011/003/0615/0634

AUTHOR: Mateescu, D.

ORG: Institute of Fluid Mechanics, Academy of the Socialist Republic of Rumania

TITLE: Supersonic flow around polygonal wings. Thin wings and wings of symmetrical thickness

SOURCE: Revue Roumaine des sciences techniques. Serie de mecanique appliquee, v. 11, no. 3, 1966, 615-634

TOPIC TAGS: supersonic aerodynamics, supersonic flow, aerodynamic characteristic, downwash, thin wing, delta wing, swept wing, lift coefficient, pressure distribution

ABSTRACT: The method of the hydrodynamic analogy developed by E. Carafoli for the study of wings in conical and high-order conical flows was used to investigate supersonic flows over thin polygonal wings and polygonal wings of symmetrical thickness in order to establish their aerodynamic characteristics. The analysis was carried out assuming that the downwash w (hence the incidence of the slope of the wing) on the upper surface of the wing is given in the form of a sum of homogeneous polynomials of various orders, and a general expression for

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L 34384-66

ACC NR: AP6022637

axial disturbance velocity was derived. This procedure was used to determine the pressure distribution and the lift of certain thin polygonal wings (sweptback, arrowhead, trapezoidal, double trapezoidal, pentagonal, and rectangular). Orig. art. has: 7 figures and 65 formulas. [AB]

SUB CODE: 20/ SUBM DATE: 24Jan66/ ORIG REF: 005/ OTH REF: 002
ATD PRESS: 5033

Card 2/2 *JD*

I 13033-66 FS(m)/EWP(m)/EWP(w)/T-2/EWP(k) FM

ACC NR: AP6029840

SOURCE CODE: RU/0019/66/011/004/0893/0923

AUTHOR: Mateescu, D.

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B

ORG: Institute of Fluid Mechanics, Academy of Sciences of the Socialist Republic of Romania (Institut de Mecanique des Fluides, Academie de la Republique Socialiste de Roumanie)

TITLE: Aerodynamic characteristics of polygonal wings of symmetrical thickness in supersonic flow

SOURCE: Revue Roumaine des sciences techniques. Serie de mecanique appliquee, v. II, no. 4, 1966, 893-923.

TOPIC TAGS: supersonic aerodynamics, drag coefficient, aerodynamic drag, pressure distribution, aerodynamic characteristic, aircraft wing, delta wing, swept wing

ABSTRACT: The method of hydrodynamic analogy developed by E. Carafoli and certain results obtained in the previous paper by the author (Revue Roumaine des Sciences Techniques. Mecanique Appliquee, v. 11, no. 3, 1966) are used to determine the pressure distribution and wave drag of polygonal wings of symmetric thickness in supersonic gas flows. Trapezoidal, double trapezoidal swept-back, arrow head, diamond shaped, and pentagonal wings of symmetrical thickness are considered and expressions for obtaining pressure and drag coefficients are established for each wing configuration. Orig. art. has: 6 figures and 180 formulas. [AB]

SUB CODE: 20/ SUBM DATE: 16Mar66/ ORIG REF: 007/ATD PRESS: 5066

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UDC: 533

L 08517-67 EWP(m)/EWP(w)/EWP(k) IJP(c) WW/EM

ACC NR: AP6035397

SOURCE CODE: RU/0008/66/023/005/1343/1353

AUTHOR: Carafoli, E.; Mateescu, D. 40

ORG: Institute of Fluid Mechanics, Academy of the Rumanian Socialist Republic
(Institutul de mecanica fluidelor al Academiei Republicii Socialiste Romania)

TITLE: The harmonic oscillatory movement of a wing²⁶ conical body system under²⁶ supersonic conditions

SOURCE: Studii si cercetari de mecanica aplicata, v. 23, no. 5, 1966, 1343-1353

TOPIC TAGS: harmonic oscillation, conic body, supersonic flow

ABSTRACT: This work studies the non-constant supersonic flow around the wing-conical body system where the harmonic oscillatory movement is of low frequency. Considering the case of the harmonic rotation oscillations of pitching and rolling, as well as of translation along the vertical axis, the problem is reduced through analogy with the case of detached wings to the study of constant conical movements of the order of 1 and 2 around the wing-conical body system. In order to determine these, the authors use the results obtained in their previous works. An expression of the coefficient of pressure is obtained with a view towards ascertaining the distribution of pressures upon the system under consideration. The problem studied here is applicable to the development of supersonic aircraft. Orig. art. has: 51 formulas and 3 figures.

SUB CODE: 20/ SUBM DATE: 25Mar66/ ORIG REF: 006/ OTH REF: 001/ ATD PRESS: 5104
Card 1/1 UDC: 533

ACC NR: AT6036651

SOURCE CODE: UR/0000/66/000/000/0276/0277

AUTHOR: Matsynin, V. V.

ORG: none

TITLE: Relationship between muscular bioelectric activity, oxygen consumption, and temperature in white rats subjected to excess gravity [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24-27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 276-277

TOPIC TAGS: biologic acceleration effect, oxygen consumption, animal physiology, biologic respiration

ABSTRACT:

Complex studies of muscle bioelectricity, oxygen consumption, and body temperature during centrifugation were conducted. White rats were exposed once to accelerations of 3, 5, 10, 20, 30, and 40 G for 3-5 min in six series of experiments.

The results showed that during the speeding up period and at the beginning of the acceleration "plateau" there was a statistically reliable increase

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ACC NR: AT6036651

in myogram voltage, which depended directly on acceleration magnitude and indirectly depended on exposure duration. The maximum increase in muscle bioelectrical activity (107 ± 26 — $179 \pm 52\%$) was observed in the 30- and 40-G tests. In 20-G tests, bioelectrical activity increased by $72 \pm 11\%$ while in the 3-, 5-, and 10-G tests there was a 20 ± 7 — $30 \pm 17\%$ increase. Muscular activity was similar to that observed during heavy muscular strain.

During 20-, 30-, and 40-G accelerations, bioelectrical activity of muscles progressively decreased. At the end of the acceleration "plateau," complete "bioelectric silence" was occasionally noted. After stopping the centrifuge, a change in the nature of muscular activity along with a steady increase in myogram voltage was noted. While preexposure myograms were tonic in nature, they assumed a phased or phasotonic character at the beginning of the postgravitational period.

Oxygen consumption also increased at the beginning of the "plateau," then decreased as acceleration continued. A direct relationship between increased oxygen consumption and the magnitude of acceleration was noted. In 20—40 G tests the increase was 120 ± 35 — $148 \pm 39\%$, while in 3—10 G tests it was 26 ± 11 — $63 \pm 10\%$. At the end of the "plateau" and during the first few

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minutes of postgravitation, oxygen consumption was minimal. It later increased to higher than normal followed by near normalization.

It is expected that muscular bioelectricity and oxygen consumption would increase body heat production. However, no such relationship was revealed in these experiments. Lowered body temperature during acceleration and continuing into the postgravitational period was observed even when bioelectricity and oxygen consumption were maintained on a higher than normal level. Thus, a disparity between expected and actual heat production was noted during acceleration. Such a disparity could hardly be attributed to increased heat production since earlier tests by the author showed that the amount of heat generated by white rats exposed to 20 G was almost two times less that generated by control rats. Apparently, the reason for the disparity between expected and actual heat production during hypergravity is disruption of thermal mechanisms.

[W. A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 3/3

L 10017-67 EWP(m)/EWP(w)/EWP(v)/EWP(k) IJP(c) WR/EM
ACC NR: AP6036267 SOURCE CODE: RU/0019/66/011/005/1229/1239

AUTHOR: Carafoli, Elie; Mateescu, Dan 51

ORG: Institute of Fluid Mechanics, Academy of the Rumanian Socialist Republic

TITLE: Harmonic oscillatory motion of a wing-conic fuselage system in a supersonic flow u

SOURCE: Revue Roumaine des sciences techniques. Serie de mecanique appliquee, v, 11, no. 5, 1966, 1229-1239

TOPIC TAGS: supersonic aerodynamics, conic flow, unsteady flow, aerodynamic roll, aerodynamic pitch, harmonic oscillation

ABSTRACT: The present paper is concerned with a study of supersonic, unsteady flows over a wing-conic fuselage system subjected to harmonic low-frequency oscillations. In this case, the motion of the wing-conic body system considered here (Fig. 1) is composed of the following three motions: 1) harmonic oscillatory pitch about the Ox_2 -axis; 2) harmonic oscillatory translation along the Ox_3 -axis; and 3) harmonic oscillatory roll around the Ox_1 -axis, assuming that these oscillatory motions are of small amplitude and that the transverse dimensions of the fuselage are sufficiently reduced with respect to the Mach cone. This problem is reduced to the study of three supersonic steady conic flows, two of which are pure conic flows over a wing-conic body system, but the third is a second-order conic flow over the same system. Solutions for these flows can be obtained by using the method developed previously

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ACC NR: AP6036267

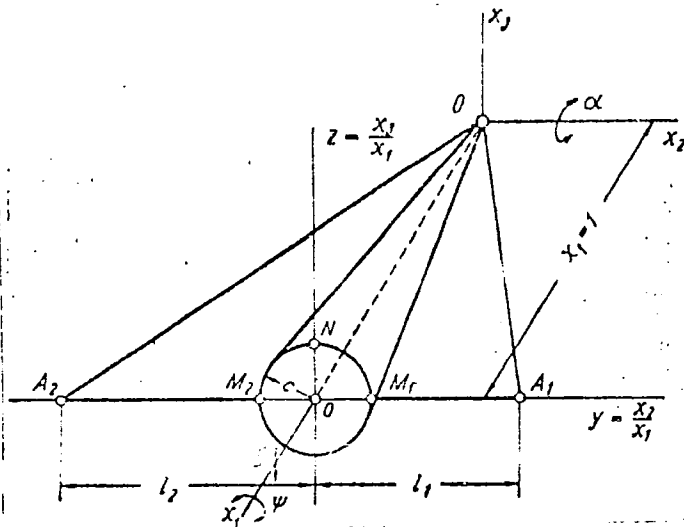


Fig. 1. Wing-conic body configuration

by the authors. The axial perturbation velocities for various positions of the leading edge of the wing with respect to the Mach cone were calculated, and an expression for the pressure coefficient in the cases of subsonic and supersonic

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L 10017-67

ACC NR: AP6036267

leading edges was derived from these calculations. Orig. art. has: 3 figures and 60 formulas.

SUB CODE: 20/ SUBM DATE: 29Mar66/ ORIG REF: 006/ OTH REF: 001/
ATD PRESS: 5105

Card 3/3 egk

MICU, D.; GROZEA, P.; MAXIMILLIAN, Stefania; SAFIRESCU, Eugenia;
GOCIU, Mariana; MATEESCU, Despina

Contribution to the cytological and enzymo-cytochemical study of
the normal and pathological lymph node. I. The normal lymph node.
Stud. cercet. med. intern. 2 no.2:219-226 '61.

(LYMPH NODES chemistry) (ENZYMES chemistry)
(LIPIDS chemistry) (GLYCOGEN chemistry) (NUCLEIC ACIDS chemistry)

MICU, D.; GROZEA, P.; SAFIRESCU, Eugenia; MAXIMILLIAN, Stefania;
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Contribution to the cytological and enzymo-chemical study of the
normal and pathological lymph node. The lymph node in acute
inflammation. Stud. cercet. med. intern. 2 no.3:351-359 '61.
(LYMPH NODES pathology) (ENZYMES chemistry)
(INFLAMMATION pathology)

MICU, D.; GROZEA, P.; MAXIMILLIAN, Stefania; SAFIRESCU, Eugenia; GOCIU, Mariana; MATEESCU, Despina

Contribution to the cytological and enzymological study of normal and pathological lymph nodes. III. Lymph nodes in chronic inflammation. Stud. cercet. med. intern. 2 no.4:527-537 '61.
(LYMPH NODES pathology) (ENZYMES chemistry)
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Contribution to the cytological and enzymocytochemical study of normal
and pathological lymph nodes. IV. Lymph nodes in reticulosarcomas and
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(LYMPHOSARCOMA chemistry)

(LYMPH NODES chemistry)

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Contribution to the cytological and enzyme-cytochemical study of
normal and pathological lymph nodes. V. Lymph nodes in malignant
lymphogranuloma. Stud. cercet. med. intern. 2 no.6:n.p. '61.
(HODGKIN'S DISEASE pathology) (LYMPH NODES chemistry)
(ENZYMES chemistry) (CYTOLOGY)

MATEESCU, D

SURNAME, Given Name

Country: Rumania

Academic Degrees: -not given-

Affiliation: *)

Source: Timisoara, Timisoara Medical, Vol VI, No 1, Jan-Jun 1961, pp 33-37.

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*) Work performed at the Surgical Clinic of "Brincovenesc" Hospital (Clinica de Chirurgie a Spitalului "Brincovenesc"), Director: F. MANDACHE.

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Contributions to the cytological and enzymocytochemical study of
normal and pathological lymph nodes. VI. Lymph nodes in leucosis.
Stud. cercet. med. intern. 3 no.3:357-366 '62.

(LYMPH NODES chemistry) (LEUKEMIA chemistry)
(CYTODIAGNOSIS)

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MATEESCU, GEORG

Distr: 4E3d

Investigations in the cyclobutane series. VII. Dibenzotricyclo[4.2.0]octa-3,7-diene and dibenzocyclo[4.2.0]octa-3,7-diene. Margareta Avram, Dolina Dinu, Georg Mateescu, and Costin D. Nencitzescu (Acad. R.V.R., Bucharest, Romania). *Chem. Ber.* 93, 1789-94 (1960); *CA* 54, 8664f. Benzocyclobutadiene (I) in *stata nascendi* dimerizes in the presence of Ni(CO), (II) to 3,4,7,8-dibenzotricyclo[4.2.0]octa-3,7-diene (III). III on warming was converted, with cleavage of the middle cyclobutane ring, to 1,2,5,6-dibenzocyclo[4.2.0]octa-3,7-diene (IV), which, with Br₂ underwent ring contraction to 2,5-dibromo-3,4,7,8-dibenzobicyclo[4.2.0]octa-3,7-diene (V). 1,2-Di-Br deriv. (30 g.) of I and 8.5 g. II in 300 cc. dry Et₂O shaken 0.5 hr. manually and 3 hrs. mechanically with 600 g. 0.5% Li-Hg (or 1800 g. 0.5% Na-Hg), the Et₂O layer decanted, the Hg sludge washed with Et₂O, the combined Et₂O solns. washed with H₂O and filtered from 7.6% yellow solid contg. 16% N, and the filtrate worked up yielded 7.8 g. III, m. 133° (ligroine or Et₂O). III (1 g.) in 20 cc. *o*-C₆H₅Cl₂ refluxed 4-5 hrs. under N and evapd. *in vacuo* gave 0.73 g. IV, m. 109° (sublimed *in vacuo*). IV in EtOAc ozonized and treated with H₂O, gave phthalic acid and phthalic anhydride. IV (0.1 g.) in 2 cc. MeOH treated with satd. aq. AgNO₃ gave IV·AgNO₃, m. 222° (EtOH). IV (0.1 g.) in a little C₆H₆ treated with PhCN·PdCl₂ in C₆H₆ gave IV·PdCl₂, m. 224°. IV (1 g.) in 5 cc. CH₂Cl₂ treated slowly with stirring at -5 to 0° with 1.5 g. Br in CH₂Cl₂, kept 0.5 hr. in the cold, and evapd. *in vacuo* yielded 1.72 g. V, m. 157° (ligroine, b. 60-80°). V (300 mg.) in 150 cc. dry Et₂O shaken 0.5 hr. with 10 g. 0.5% Li-Hg, filtered under N from the Hg sludge, washed with H₂O, and worked up yielded 90-120 mg. 4,5-benzotricyclo[6.4.0.0^{2,3}]dodeca-1,4,7,9,11-pentaene (VI), m. 78-80°; upon recrystn. the m.p. rose and the O-content of the material increased. VI kept 12 hrs. in air or treated several hrs. with an air jet in Et₂O soln. gave the peroxide (VII), m. 135° (decompn.). VII hydrogenated over Pd-C gave a hydrocarbon, m. 105°, contg. 91.07% C and 8.06% H. VI (90 mg.) and 50 mg. maleic anhydride heated 5 min. at 80-90° and extd. with Et₂O gave 30 mg. hygroscopic adduct, m. 250-5°. VI and *N*-phenylmaleimide gave (similarly) an adduct, m. above 250° (decompn.). V (2 g.) in 5 cc. glacial AcOH and 1.09 g. KOAc refluxed 12 hrs., filtered, and dild. with H₂O, and the product isolated with Et₂O yielded 1.3 g. 2,5-di-AcO analog (VIII) of V, m. 192° (MeOH). VIII (0.13 g.), 0.112 g. KOH, and 5 cc. EtOH refluxed 2 hrs. gave 0.0778 g. 3,4,7,8-dibenzobicyclo[4.2.0]octa-3,7-diene, m. 133°; the mother liquor (concd.) gave orange-yellow crystals, C₁₈H₁₆, m. 130° (MeOH and EtOH). The infrared absorption spectra of these compds. were discussed.

F. W. Hoffmann

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1-Bu (RW)
K-44 (ND)
1-JA (MA)

BALABAN, A. T.; MATEESCU G. D.; NENITZESCU, C. D. [Nenitescu, C. D.]

Pyrylium salts obtained by diacylation of olefins. Pt. VI.
Acetylation of benzy] ketones. Rev chimie 6 no.2:295-302 '61.

1. Laboratory of Organic Chemistry, Polytechnical Institute,
Bucharest 2. Membre du Comité de rédaction et rédacteur en chef,
"Revue de chimie " (for Nenitescu)

BALABAN, A. T.; MATEESCU, G.; NENITESCU, C. D., acad.

Pyrylium salts obtained through olefin bisacylation. Pt. 6. Acetylation of benzyl ketones. Studii cerc chim 9 no.1:211-218 '61.
(EEAI 10:9)

1. Laboratorul de chimie organica, Institutul Politehnic, Bucuresti.
2. Comitetul de redactie, STUDII SI CERCETARI DE CHIMIE, redactor responsabil (for Nenitescu).

(Pyrylium compounds) (Diphenylpropanone)
(Acetylation)

MATEESCU, Gheorghs; AVRAM, Margareta; DINU, Doina; NENITESCU, Costin D., acad.

Infrared spectrum of dibenzotricyclooctadiene. Studii cerc chim 9
no.3:427-434 '61.

1. Institutul de chimie al Academiei R.P.R., Sectia de chimie organica,
Bucuresti. 2. Redactor responsabil "Studii si cercetari de chimie"
(for Nenitescu).

MATEESCU, Gh.D.; AVRAM, Margareta; NENITESCU, C.D., acad

Infrared spectra of some additional products of cyclooctatetraene with different phylodienes. Studii cer chim 10 no.1:65-72 '62.

1. Laboratorul de chimie organica al Institutului Politehnic si Centrul de cercetari speciale al Ministerului Sanatatii, Bucuresti.
2. Membru al Comitetului de redactie si redactor responsabil, "Studii si cercetari de chimie" (for Nenitescu).

MATEESCU, G.D.; AVRAM, Margareta; DINU, Doina; NENITZESCU, C.D.
[Nenitescu, C.D.]

Infrared spectrum of dibenzotricyclooctadiene. Rev chimie 8
no.1:13-20 '63.

1. Institute of Chemistry of the Academy of the R.P.R. Bucharest.
- ~~2.~~ Member of the Academy of the R.P.R. (for Nenitescu).

AVRAM, Margareta; MATEESCU, G.D.; DINU, Doina; DINULESCU, I.G. :
NENITZESCU, C.D. [Nenitescu, C.D.] Member of the Academy of the R.P.R.

Investigations in the cyclobutane series (VIII). Rev chimie 8
no.1:77-86 '63.

1. Institute of Chemistry of the Academy of the R.P.R., Bucharest.

NEBITESCU, C.D., academician; AVRAM, Margareta; POGANY, I.I.; MATEESCU, Gh.D.
FARGASIU, Malvina.

Synthesis and thermal decomposition of tricyclo -

[4.2.2.0^{2.5}]-deca-3.7.9-triene. Studii cerc chim II no.1:
7-18 '63.

1. Sectia de chimie organica a Centrului de cercetari chimice
al Academiei R.P.R., Bucuresti.

L 48240-65 FSS-2/EEC-4/EEC(t) Pn-4/Pp-4/Pac-4

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ACCESSION NR: AP5014063

RU/0005/64/008/005/0209/0216

AUTHOR: Oprescu, Nicolae (Engineer); Rosu, Jean (Engineer); Mateescu, George (Engineer)

TITLE: Current problems of broadcasting. Meeting of the first study group of the OIRT

SOURCE: Telecomunicatii, v. 8, no. 5, 1965, 209-216

TOPIC TAGS: wire communication, communication equipment, communication conference

ABSTRACT: (Author's English summary modified): A report on the current problems of wire broadcasting as discussed at the first study group of OIRT, and a review of the most recent equipment and maintenance procedures in the field. The meeting was attended by representatives of Bulgaria, Czechoslovakia, East Germany, Mongolia, Poland, the USSR and Rumania.

was attended by representatives of Bulgaria, Czechoslovakia, East Germany, Mongolia, Poland, the USSR and Rumania, and took place in Bucharest in March 1964. Orig. art. has 8 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: EC

NO REF SOV: 000

OTHER: 003

JPRS

Card 1/1

77

DEBULESCU, Ilie G.; AVRAM, Mircea; MARIN, George; PODARU, Costin D.

Research in the mathematical physics. Rev. Roum. Math. Pures et Appl.
no. 5:357-364, 1962

1. Center of Mathematical Physics, Faculty of Mathematics, P. Poni
St., no. 1, Bucharest.

MATEESCU, I., ing.

Some considerations on the materials for pipelines. Petrol si gaze
12 no.11:509-514 N '61.

(Petroleum--Pipelines)

MATEESCU, Ion

Petrographic study of the Lupac Basin coal. Anuarul Comit geol
32:481-525 '62.

MANGERON, D.; JASIULIONIS, A.; MATEESCU, Liliana

New matrix methods for studying mechanisms and machines. Pt. 1.
Rev mec appl 9 no.4:869-881 '64.

1. Polytechnic Institute, Iasi (for Mangeron). 2. Lithuanian
Academy of Agricultural Sciences (for Jasiulionis). 3. "Al. I.
Cuza" University, Iasi (for Mateescu).

MANGHON, D.; JASINLEKIC, A.; MICHALIS, Liliana

New matrix methods in the study of phenomena and matrices. . .
Studi per nuove applicazioni. 1961-63. 160.

1. Polytechnic Institute, Inst. for Manghon. . . Academy of Agricultural
Sciences for the Littoral. . . (for Jasinleki. . .) . . . "Cura"
University, Inst. (for Manghon).

MATRESCU, M., ing.; DAVIDEANU, R.

Commemorative Scientific Session of the Gh. Asachi Polytechnic
Institute, Iasi. Ind text Rum 14 no.5:220 My '63.

MESROBEANU, I., prof.; MATEESCU, Maria

The scientific work of Professor Ion Cantacuzino. Mikrobiologia (Bucur) 8 no.6:501-515 N-D'63

1. Director al Institutului "Dr. I. Cantacuzino", (for Mesrobeanu). 2. Sef de laborator la Catedra de microbiologie I, I.M.F., Bucuresti, (for Mateescu).

*

NITULESCU, M.; MOCIORNITA, C.; DINCA, A.; VIRCOL, L.; VOICU, Gh.; MIHAILESCU, Gh.; NAE, D.; BARBAT, V.; MIHAIL, M.; MUSETESCU, P.; CORBAN, V.;
MATEESCU, M.

Monograph on the hydrology of the hydrographic basins of the Iza, Viseu, Sapinta, Tur Rivers.

MATEESCU, M.

RUMANIA/Chemical Technology - Chemical Products and Their Application, Part 4. - Synthetic Polymers, Plastics. H-28

Abs Jour : Ref Zhur - Khimiya, No 7, 1958, 23203

Author : Dan C. Costescu, M. Mateescu, N. Oprescu.

Inst : -

Title : Studies of Polyvinylacetate Series. Lower Vilylacetate Polymers Produced by Polymerization in Aqueous Suspension.

Orig Pub : Studii si cercetari chim., 1955, 3, No 3-4, 301-312

Abstract : The Application of butylaldehyde as a regulator of chain growth in the equimolecular amount with respect to the initiator (benzoyl peroxide) allows to produce lower vinylacetate polymers by polymerization in aqueous suspensions, whiel they are usually produced by polymerization in solution in the industry. The main advantages of the suggested method are: economy and a lesser danger of ignition and poisoning. The polymerization degree is checked by

Card 1/2

RUMANIA / Chemical Technology. Chemical Products and H-29
Their Application. Plastics.

Abs Jour: Ref Zhur-Khimiya, No 1, 1958, 2996.

Author : ~~Mateescu, M.~~

Inst : ~~Not given.~~

Title : Buttons From Synthetic Polymers.

Orig Pub: Tehn. noua, 1958, 5, No 151, 2.

Abstract: It is pointed out that polyamides (nylon and
relon type), amino plastics, particularly those
on the basis of melamine-formaldehyde resins are
the best materials for manufacturing buttons (in
RNR) [Rumania People's Republic] a technology for
button production from amino plastics resembling
those made from natural horn has been worked out.
-- L. Pesin.

Card 1/1

Mateescu, M.

RUMNL. / Chemical Technology. Chemical Products and H
Their Application. Lacquers. Paints. Coat-
ings.

Abs Jour: Ref Zhur-Khimiya, No 9, 1959, 33384.

Author : Grossman, R., Mateescu, M.

Inst : Not given.

Title : A New Paint for Marine Vessels.

Orig Pub: Tehn. noua, 1958, 5, No. 151, 8.

Abstract: No abstract.

Card 1/1

M. MATEESCU

Thermoplastic polymer systems containing several types of monomers. I. The binary alloys of styrene and styrene-butadiene copolymers. D. C. Costescu, I. Ursuleanu, M. Mateescu, N. Opreacu, and D. Cornilescu. *Acad. rep. Populare Romine, Studi cercari chim.* 6, 75-80 (1958). Styrene-butadiene copolymers of monomer ratios 80/20, 70/30, 25/75 were prepd. and found to be inferior in plastic properties to the simple homopolymers. Alloys of polystyrene with several of the above copolymers were prepd. and tested. They formed more resistant systems than the copolymers. The best suited alloy proved to be one of polystyrene and butadiene-styrene 75/25 copolymer. II. Alloys from copolymer systems of styrene-acrylonitrile and butadiene-acrylonitrile. D. C. Costescu, I. Ursuleanu, M. Mateescu, N. Opreacu, and D. Cornilescu. *Ibid.*, 87-88. The 70/30 styrene-acrylonitrile copolymer is already known and this monomer ratio is again proven the best. The 50/50 alloy of butadiene-acrylonitrile with styrene-acrylonitrile can be used at high temps. J. Segal.

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MATEESCU, M.; GRIGORESCU, R.; HERZOG, A.; IONESCU, F.; IURGENCO, V.;
VLADLEANU, M.

Obtention of polyvinyl butyral. Rev chimie Min petr 13 no.9:523-527
S '62.

CAIMANOVICI, Bella; IONESCU, Fl.; HERTOG, Ana-Maria; MATELSCU, Mihaela;
BADULA, Elena

Separation of hydrochloric acid from acetic acid by means
of cation exchangers. Rev chimie Min petr 15 no.2:107-110
F '64.

RUMANIA

SATHARI, C., Colonel, Medical Corps; IONASCU, Al., Lieutenant-Colonel, Medical Corps; FILIPESCU, S., Medical Corps; FERA, D., Colonel, Medical Corps; MATEESCU, M., Colonel, Medical Corps; and SCHILERU, R., Medical Corps.

"Contributions to the Study of Active Anti-Tetanus Immunity Following Booster Shots, with Implications for New Methods of Prevention"

Bucharest, Revista Sanitara Militara, Vol 16, Special No., 1965; pp 326-329

Abstract: Data on 59 volunteers whose titres were measured before and after booster tetanus vaccination, the persistence of immune bodies was most unpredictable and in some cases remained rather high even after 22 years following vaccination; however, boosters rapidly increased titres, most intensively in those whose previous titre was quite low. 1 table.

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- 24 -

MATEESCU, Nicolae (Bucuresti)

Growing comestible mushrooms on school plots. Natura
Geografie 12 no. 6:119-125 N-D '60.

MATEESCU, N.
SURNAME (in caps); Given Names

29

Country: Rumania

Academic Degrees:

Affiliation: Research Center for Bacterial Fertilizers (Centrul Experimental de Ingrasaminte Bacteriene).

Source: Bucharest, Stiinta si Tehnica, No 7, Jul 1961, pp 26-27.

Data: "How the Edible Mushroom Mycelium Is Obtained."

Authors:

MATEESCU, N., Chief Researcher (Cercetor Principal.)

LUBRICI, C., Researcher (Cercetor).

100-100000

Dr. M. N. Nicolae, Director, Institute of Pathology

"A Dangerous Disease in the Cultivations of People
Inhabiting in the Russian People's Republic."

Washington, D.C. Health Affairs, Vol. 13, No. 1, 1984,
1984, pp. 81-84.

Abstract: This article reports on a disease which affects the ...
also discussed the ...
for the collection and ...
included ...

MATEESCU, N.

The absolute measurement of thermal neutron flux. Studii cerc fiz II
no.1:83-96 '60. (EEAI 10:1)
(Neutrons) (Gold) (Cadmium)

MATESCU, N.; DUTESCU, N.

A device for measuring diffusion length of the neutrons in liquids.
Studii cerc fiz 12 no.3:661-666 '61.

1. Institutul de fizica atomica, Bucuresti.

(Neutrons) (Diffusion) (Liquids)

s/058/62/000/010/024/093
A061/A101

AUTHORS: Teutsch, H., Mateescu, N., Pirlogea, P., Rădulescu, C., Timiș, P.,
Vasiliu, V.

TITLE: Characteristics of the curved slit neutron beam chopper at the
Institut atomoy fiziki (Atomic Physics Institute) (Bucarest)

PERIODICAL: Referativnyy zhurnal, Fizika, no. 10, 1962, 14, abstract 10B103
("Studii și cercetări fiz. Acad. RPR", 1961, v. 12, no. 3, 667 -
674, Rumanian; summaries in Russian and French)

TEXT: The design of a mechanical neutron beam chopper is described. The
principal chopper characteristics (transmission function and relative determina-
tion error of transit time $\Delta t/t$) are given.

[Abstracter's note: Complete translation]

Card 1/1

MATEESCU, N.; NAHORNIAK, V.

Measuring the diffusion length of thermal neutrons in the water
at the temperature range of 20° to 50° C. *Stadi cerc fiz* 13
no.3:473-476 '62.

1. Institutul de fizica atomica, Bucuresti.

TEUTSCH, H.; MATEESCU, N.; TIMIS, P.

Determining full effective section of lead in the region of cold neutrons. Studii cerc fiz 13 no.3:477-478 '62.

1. Institutul de fizica atomica, Bucuresti.

S/058/63/000/003/009/104
A160/A103

AUTHORS: Origorescu, I., Lazarovici, G., Mateescu, N., Sandru, P.

TITLE: The calibration of Co^{60} sources by the method of the $\beta\gamma$ -coincidences

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1963, 49 - 50, abstract 3A389
("Studii și cercetări fiz. Acad. RPR", no. 3, 1962, v. 13, 579 -
604, Rumanian; summaries in Russian and French)

TEXT: Reported are the results of using the method of the $\beta\gamma$ -coincidences for the calibration of Co^{60} sources. The recording of the β and γ -radiation is performed with the help of Geiger-Müller counters. The correct measuring of the γ -background in a β -counter is indicated. Various factors which limit the accuracy of the source calibration by this method are discussed. Correcting formulas for accounting for these effects are presented.

[Abstracter's note: Complete translation]

Card 1/1

GRIGORESCU, L.; LAZAROVICI, C.; MATEESCU, N.; SANDRU, P.

Calibration of the Co^{60} sources by the method of β - γ coincidences. Studii cerc fiz 13 no.4:579-604 '62.

1. Institutul de fizica atomica, Bucuresti.

MATEESCU, N.; NAHORNIAK, V.

Determination of diffusion parameters of thermic neutrons in
poisoned water. Studii cerc fiz 14 no.3:271-275 '63.

1. Institutul de fizica atomica Bucuresti.

MATEESCU, P., ing.

"Canalization of the Moselle River." Meteorologia hidrol gosp 7
no.1:78 '62.

ANASTASESCU, Gh., Dr.; POPA, N., dr.; GHEORGHESCU, B., dr.; MATEESCU, R., dr.

Verification of the diagnosis of focal infection by intradermoreaction using material from the site of infection; desensitization therapy with tonsillar implant in tonsillectomized patients. Med. int., Bucur. 9 no.1:94-97 Jan 57.

(FOCAL INFECTION, diagnosis

intradermoreaction, using material from site of infect.)

(TONSILS, diseases

focal infect., diag., intradermoreaction using material from site of infect.)

^c
MATEESCU, S.

General review of the water economy in the People's Republic of Rumania. p.70

KHIDROTEKHNIKA I MELIORATSII, Sofia, Bulgaria, Vol. 4, no. 3, 1959

Monthly List of East European Accessions (EEA) LC, Vol. 6, No. 10, /1959
Uncl. Oct.

MATEESCU, Scarlat; SOLOVITSKY, Genst.

pedological research on the Suceava Plateau, the Lespezi-Zvoristea-Gura Humorului-Cimulesti sector. Dari seara sed 49 pt. 2:309-321 '61-'62[publ. '64].

1. Submitted May 27, 1961.

MATEESCU, S.

Laboratory diagnosis of inframicrobial epidemic hepatitis. Stud.
cercet.inframicrobiol., Bucur. 5 no.1-2:41-47 Jan-June 54.
(HEPATITIS, INFECTIOUS, diagnosis,
liver biopsy & serol. tests)
(LIVER,
biopsy in infect. hepatitis)