[1], @ [2]

[1] @
[2] @,
-495-132- (! -495-132-5870
e-mail: rmtcom@dol.ru

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3 @
@ @ @ [4]
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j_{opt} j_{opt}
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l/s 3 l - s - @ @
3

3 $j_{opt}^{(k)}$ (k -
$k = 1..N$ 3 N -
@

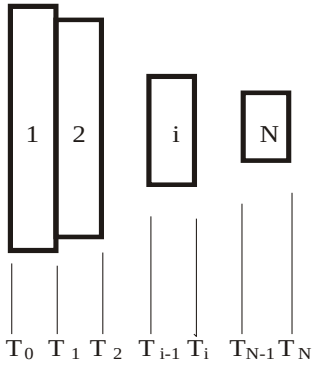

Рис 1. Нумерация каскадов и обозначение их температур многокаскадного модуля

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@ ψ T [2]:

$$\psi_{nT}^{(k)} + \psi_{pT}^{(k)} = \psi_{nT}^{(k+1)} + \psi_{pT}^{(k+1)}, \qquad k = 1 \ldots N-1 \qquad (1)$$

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@ @$\mu^{(k)}$ [4]:

$$\mu^{(k)} \frac{\partial \mu^{(k+1)}}{\partial T_k} + \mu^{(k+1)} \frac{\partial \mu^{(k)}}{\partial T_k} = 0\,, \quad k = 1 \ldots N-1\,, \qquad (2)$$

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T_{eff} @ α 3

@ ρ @ @ $\rho_c = \bar{\rho} - \delta_\rho$

$\alpha_c = \bar{\alpha} - \delta_a$ 3 c @ 3

@ @ @ @ @

3 @ @ [1] $\rho_h = \bar{\rho} + \delta_\rho$ $\alpha_h = \bar{\alpha} - \delta_a \dfrac{T_c}{T_h}$ 3

h @ 3 @ @ @

T_{eff} @

$$T_{eff} = T_{av} - \frac{\delta_\rho}{\bar{\rho}} \frac{(T_h - T_c)}{2} - T_c \frac{\delta_\alpha}{\bar{\alpha}} = T_{av} - \delta T\,, \qquad (3)$$

3 $T_{av} = \frac{T_h + T_c}{2}$. @ @ @

@ @ 3 @ -@ T_{av} T_{eff}

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@ T_{eff} .

T_k @

@ @

@ @ @[4].

@ $T_{pr}^{(k)}$

$$T_k = T_{pr}^{(k)} + \delta^{(k)}. \qquad (4)$$

@ $\delta^{(k)}$ @ 3 $\mu^{(k)}$ $\frac{\partial \mu^{(k)}}{\partial T_k}$ @

@ $T_{pr}^{(k)}$, 3 @ $\delta^{(k)}$

@ , @

$\delta^{(k)}$:

$$\delta^{(k-1)}\left(\mu^{(k+1)}\frac{\partial^2 \mu^{(k-1)}}{\partial T_k \partial T_k} + \frac{\partial \mu^{(k)}}{\partial T_k}\frac{\partial \mu^{(k+1)}}{\partial T_k}\right) + \delta^{(k)}$$

$$\left(2\frac{\partial \mu^{(k)}}{\partial T_k}\frac{\partial \mu^{(k+1)}}{\partial T_k} + \mu^{(k+1)}\frac{\partial^2 \mu^{(k)}}{\partial^2 T_k} + \mu^{(k)}\frac{\partial^2 \mu^{(k+1)}}{\partial^2 T_k}\right) + \qquad (5)$$

$$+\delta^{(k+1)}\left(\frac{\partial \mu^{(k)}}{\partial T_i}\frac{\partial \mu^{(k+1)}}{\partial T_{i+1}} + \mu^{(k)}\frac{\partial^2 \mu^{(k+1)}}{\partial T_i \partial T_{i+1}}\right) = \mu^{(k+1)}\frac{\partial \mu^{(k)}}{\partial T_i} + \mu^{(k)}\frac{\partial \mu^{(k+1)}}{\partial T_i},$$

$k = 1..N-1$, $\delta^{(0)} = 0$ $\delta^{(N)} = 0$.

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@ @ $\frac{\partial \mu^{(k)}}{\partial T_k} = \frac{\Delta \mu^{(k)}}{\Delta T_k}$

3 $\delta^{(k)}$ @

- T_k @

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@ @ $\delta^{(k)}$, @ T_k @

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3 @Bi-Sb @

! 3 @ @ ΔT_k

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: $T_0 = 300$ $T_3 = 210$

@ @ @ @ $\left|\alpha_n^{(1)}\right| = \alpha_p^{(1)} = 210$

$\left|\alpha_n^{(2)}\right| = \alpha_p^{(2)} = 230$ $\left|\alpha_n^{(3)}\right| = \alpha_p^{(3)} = 250$

	T_1,	T_2,	J_1, 2	J_2, 2	J_3, 2	μ
	261,98	232,37	22,73	19,27	15,13	16,87
	263,88	232,64	21,64	20,74	16,21	16,92

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@ 3

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@3 @

@ @ 3

3 @ @

@ μ @ @

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@ @
@ !

	μ_1	μ_2	μ_3
	2,645	2,606	2,448
	2,487	2,741	2,481

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@ 3
@ @ @
3 3 @

1. @ @ @
Ibid.
2. @
@ @ @ @
@ !)) " !) -177.
3. @
- 3 " ") " -297.
4. Drabkin I.A., Ershova L.B.. *Proc. of the 3rd European Conference on Thermoelectrics*, Nancy, 2005, p. 178.