



$$3. \quad \frac{\partial}{\partial x} \left(a e^{\beta x} \frac{\partial w}{\partial x} \right) + \frac{\partial}{\partial y} \left(b e^{\mu y} \frac{\partial w}{\partial y} \right) = f(w), \quad ab > 0.$$

Heat/mass transfer equation for inhomogeneous anisotropic media with volume reaction.

Functional separable solution for $\beta\mu \neq 0$:

$$w = w(\xi), \quad \xi = (b\mu^2 e^{-\beta x} + a\beta^2 e^{-\mu y})^{1/2},$$

where the function $w(\xi)$ is determined by the ordinary differential equation $w''_{\xi\xi} - \xi^{-1} w'_{\xi} = Af(w)$, $A = 4/(ab\beta^2\mu^2)$.

References

Zaitsev, V. F. and Polyanin, A. D., *Handbook of Partial Differential Equations: Exact Solutions* [in Russian], Mezhdunarodnaya Programma Obrazovaniya, Moscow, 1996.

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