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Mathematical modeling of steady-state processes of convective diffusion in regular structures under mixed boundary conditions. (Ukrainian, English) [Zbl 1313.74051](#)

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The authors discuss steady-state processes of admixture mass transfer in two-phase regular structures with allowance for the periodic character of convective phenomenon under mixed boundary conditions. For constructing exact analytical solutions to contact boundary-value problems of this kind, a method is adopted based on the application of different integral transformations in different contact domains. An analytical solution is obtained for the diffusion problem for a two-phase layer of regular structure with allowance for convective transfer in one phase and constant concentration on the boundary of this phase and for constant diffusive flow on the boundary of the other phase.

Reviewer: N. V. Nikitina (Kyiv)

MSC:

[74E30](#) Composite and mixture properties

[74F10](#) Fluid-solid interactions (including aero- and hydro-elasticity, porosity, etc.)

[74A30](#) Nonsimple materials

Keywords:

[material with complex structure](#); [solution of contact boundary-value problem on mass transfer](#); [exact analytical solution](#)