chosen so that the bulk temperature is identical with the experimental value". This statement lead to our interpretation of Hall's transformation. Indeed, if the bulk temperature of the inner rough region is identical with the experimental value, and this temperature is used in the evaluation of the temperature difference for the transformed Stanton number St_1, then our statement is correct.

Lyall thinks that the integration constants suggested by Hall are two: one for the calculation of the temperature difference and a different one for the calculation of the gas physical properties. If this is the case, then, again, our comment is not correct, but Hall's transformation is not self-consistent.

Altogether we think that Lyall's comments to our paper, although they do not touch the real core of the paper, are legitimate and could produce a clarification on different interpretations of Hall's transformation.

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REJOINDER TO THE COMMENT ON THE PAPER "COMBINED BODY FORCE AND FORCED CONVECTION IN LAMINAR FILM CONDENSATION OF MIXED VAPOURS—INTEGRAL AND FINITE DIFFERENCE TREATMENT"

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IN A COMMENT on a paper of this author [1], Schröppel and Thiele [2] claim that the local inverse Froude number $\xi = g^*x/u_\infty^2$ (where g^* is the gravity in x direction, x the running coordinate in flow direction and u_∞ the vapour speed at the edge of the boundary layer) is not appropriate to describe the limiting cases of the combined influence of forced and free convection on laminar film condensation at a flat plate. Their statements, however, are incorrect and are based on a misjudgement of this author's [1,3] as well as two further authors' [5,7] work.

Schröppel and Thiele [2] are wrong when they claim that, contrary to the statement in [1,3], the limiting cases $g^* = 0$ ($\xi = 0$) and $u_\infty = 0$ ($\xi = \infty$) do not yield similar solutions of the flow field. That this is indeed the case has been proved a long time ago by [4] for $g^* = 0$ and by [6] for $u_\infty = 0$, and has been accepted so far by all further works relating to this subject.

Furthermore the above authors are wrong and misjudge the results of [5, 7], when they claim that the latter works obtain non-similar solutions for the above cases. In [5], a different physical process is considered which however admits a similarity transformation exactly in one of the special cases considered above. The authors of [7], also being misinterpreted in [2], do not treat $u_\infty = 0$, as claimed in [2], but rather, on the contrary, investigate the effect of a finite flow velocity of the vapour, which naturally yields nonsimilar solutions since it corresponds to finite values of ξ. For the case of $u_\infty = 0$, the authors of [7] emphasize that they do obtain the same similar solutions as found previously in the literature.

As far as the finite difference treatment is concerned, the commentators misjudge the work of [1,3]. As is quite obvious from all the results presented in the above publications only finite values of ξ are considered in the numerical solution of the partial differential equations. For $g^* = 0$ the appropriate system of ordinary differential equations was solved separately to give the similar solutions presented in [3] which is clearly stated there. For $u_\infty = 0$ the appropriate solutions were available from the literature [6] and were not repeated, which is also clear from [1]. The essential point, that should be realized, however, is, that the solutions to the partial differential equations, depending on the value of ξ, extrapolate smoothly into the limiting cases of pure forced convection ($\xi = 0$) and pure body force convection ($\xi = \infty$) as can be seen clearly from the published results in [1,3]. This is significant, because it allows rough estimates to be made on the bases of values of ξ, whether in a practical case one effect may be neglected with respect to another. This in turn is important, just because of the similar nature of the solutions for the limiting cases, which, contrary to the nonsimilar case, can easily be worked into tables and diagrams of a universal nature [3].

It is hoped that these remarks will clarify the significance of the transformation used in [1,3]. It remains somewhat hard to grasp, however, how such well-established facts like the similar solutions of laminar film condensation for pure forced and free convection can still be called into question today, and how the use of a simple but not unusual transformation can give rise to such obvious misinterpretations of such obvious numerical work.

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