

## Mixed Convection in a Vertical Porous Channel

J. C. Umavathi · J. P. Kumar · A. J. Chamkha · I. Pop

Published online: 17 April 2008  
© Springer Science+Business Media B.V. 2008

### Erratum to: *Transp Porous Med* DOI 10.1007/s11242-005-0260-5

1. Equations (1) and (3) should be replaced by the following equation

$$g\beta(T - T_0) - \frac{1}{\rho_0} \frac{\partial P}{\partial X} + \frac{\mu_{\text{eff}}}{\rho_0} \frac{d^2 U}{dY^2} - \frac{\nu}{K} U - \frac{\rho C_F}{\rho_0} U^2 = 0$$

2. Equation (7) should be replaced by the following equation

$$\frac{d^4 U}{dY^4} = \frac{\beta g}{\alpha C_p} \left( \frac{dU}{dY} \right)^2 + \frac{1}{K} \frac{d^2 U}{dY^2} + \frac{\beta g}{\alpha C_p k} U^2 + \frac{C_F}{\nu} \frac{d^2 U^2}{dY^2}$$

3. Equation (10) should be replaced by the following equation

$$Re = \frac{U_0 D}{\nu}; \quad Pr = \frac{\nu}{\alpha}; \quad Br = \frac{\mu U_0^2}{k \Delta T}$$

4. The year publication to be introduced in the following two references  
Srinivasan, V. and Vafai, K.: 1994, Analysis of linear encroachment in two-immiscible fluid systems, *ASME J. Fluids Eng.* **116**, 135–139.  
Vafai, K. and Kim, S.: 1989, Forced convection in a channel filled with a porous medium: an exact solution, *ASME J. Heat Transfer* **111**, 1103–1106.

---

The online version of the original article can be found under doi:10.1007/s11242-005-0260-5.

---

J. C. Umavathi · J. P. Kumar  
Department of Mathematics, Gulbarga University, Gulbarga, Karnataka 585 106, India

A. J. Chamkha  
Manufacturing Engineering Department, The Public Authority for Applied Education and Training,  
Shuweikn 70654, Kuwait

I. Pop (✉)  
Faculty of Mathematics, University of Cluj, CP 253, Cluj 3400, Romania  
e-mail: popi@math.ubbcluj.ro

5. Figures 2 to 7 should be replaced by the following graphs. Figures 8 to 10 should be removed.

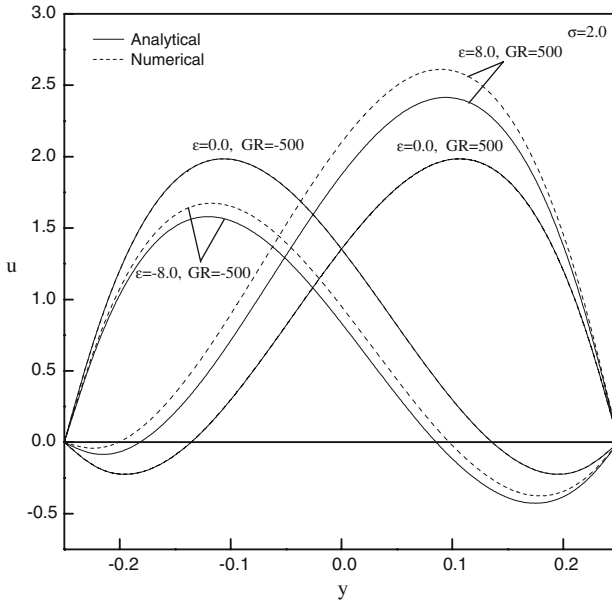


Fig. 2 Plots of  $u$  versus  $y$  in the case of asymmetric heating for different values of  $\epsilon$

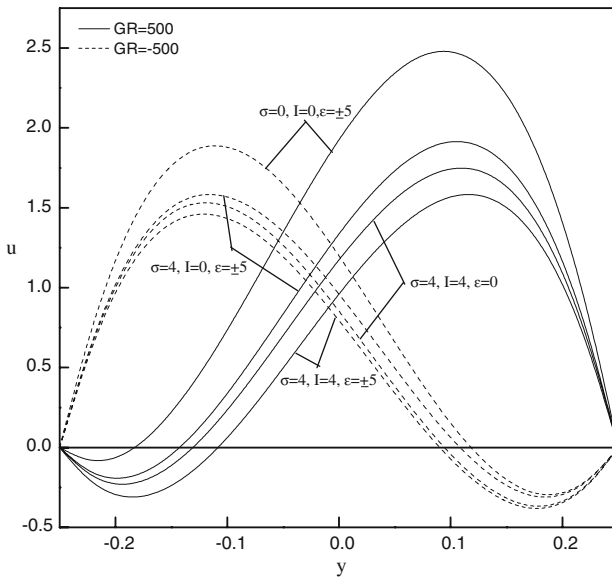


Fig. 3 Plots of velocity profiles versus  $y$  in the case of asymmetric heating for different values of  $\sigma$ ,  $I$ ,  $\epsilon$  and  $GR$

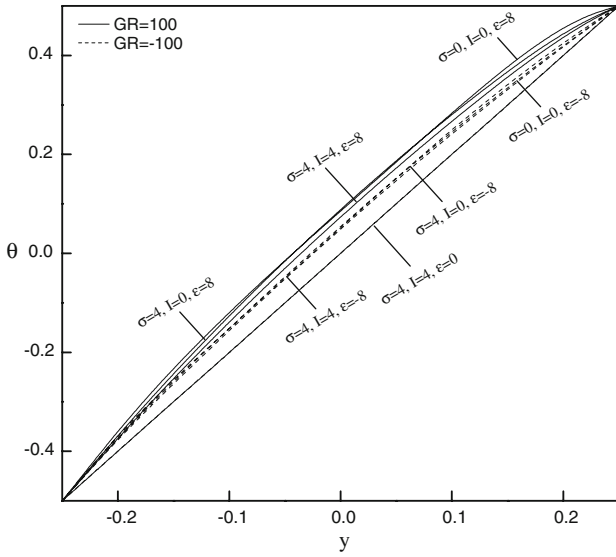


Fig. 4 Plots of temperature versus  $y$  in the case of asymmetric heating for different values of  $\sigma$ ,  $I$ , and  $\epsilon$

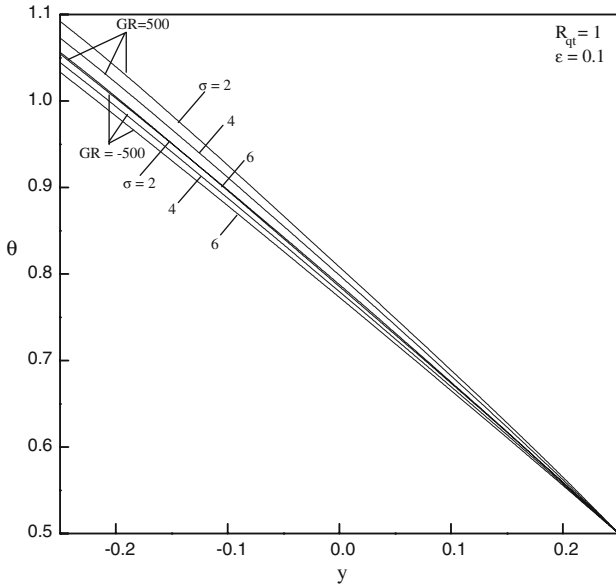


Fig. 5 Temperature profiles for different values of  $\sigma$  for isoflux–isothermal case

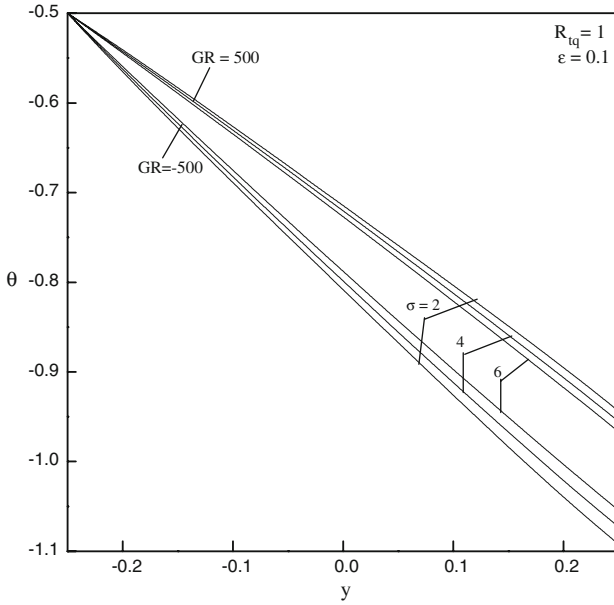


Fig. 6 Temperature profiles for different values of  $\sigma$  for isothermal-isoflux case

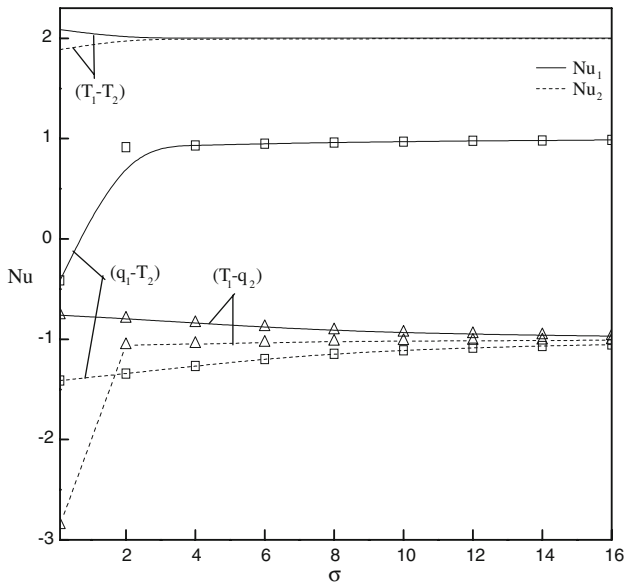


Fig. 7 Nusselt number for different values of  $\sigma$