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Longitudinal conduction effects on both the fluid and the wall of a porous microchannel. IAN MONSIVAIS, National Autonomous University of Mexico, JOSE LIZARDI, Autonomous University of Mexico City, FEDERICO MENDEZ, National Autonomous University of Mexico — In previous works, the conjugate heat transfer problem was studied in a porous microchannel between parallel plates, subjected to a uniform heat flux on the external wall of the microchannel; the parameter $\alpha_c/\varepsilon h^2$ was a dimensionless conjugate heat transfer parameter in the wall, played a crucial role in the temperature profiles of both the fluid and the wall. However, in this work another parameter α_c/ε^2 is analyzed, which fulfills the role of being a dimensionless conjugate heat transfer parameter in the fluid. Therefore, it is necessary to analyze in a coupled way, the transversal and longitudinal heat conduction effects on the porous medium and on the microchannel wall.

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