

## عنوان مقاله:

An Analytical Solution for the Laminar Forced Convection in a Pipe with Temperature-Dependent Heat Generation

## محل انتشار:

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## خلاصه مقاله:

An analytical solution is presented for the case of laminar forced convection in a pipe with heat generation linearly dependent on the local temperature of the fluid. The flow is fully developed and the boundary conditions of the third kind. Within the general analysis presented, some particular cases are identified and discussed. A detailed analysis of the thermal entrance is given. It is shown that in the fully developed region the temperature distribution does not depend on the axial coordinate. An analytical expression of the fully developed Nusselt number is given. Finally, the practical significance of the problem is discussed.

## کلمات کلیدی:

Forced convection, Internal heat generation, Ohmic heating, Third kind boundary condition

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1384956>

