

## عنوان مقاله:

NUMERICAL ANALYSIS OF TURBULENT FLOW AND HEAT TRANSFER FROM AN ARRAY OF PERFORATED TRAPEZOIDAL FINS

## محل انتشار:

اولین کنفرانس سالانه ملی مهندسی مکانیک و راهکارهای صنعتی (سال: 1394)

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## خلاصه مقاله:

Numerical investigation is made for three dimensional fluid flow and conjugate heat transfer from an array of perforated fins that are mounted on a flat plate. Incompressible air as working fluid is modeled using Navier-Stokes equations and PNG based  $k-\epsilon$  turbulent model is used to predict turbulent flow parameters. Temperature field inside the fin is obtained by solving Fourier's conduction equation. Flow and heat transfer characteristics are presented for Reynolds number of  $15 \times 10^4$ . Trapezoidal fins show a good performance for increasing heat removal rate, while reducing material and weight. Moreover the inspiration of putting holes along the flow through the fins can be very helpful in increasing heat removal and weight. Moreover the inspiration of putting holes along the flow through the fins can be very helpful in increasing heat removal and reduction the required material. These fin configurations contain a variety of taper ratio ( $\lambda$ ) i.e. form rectangular fin to sharp tapered fin. Based on the result, temperature distribution and fluid flow reversal around the fin are also demonstrated.

## کلمات کلیدی:

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/400683>

