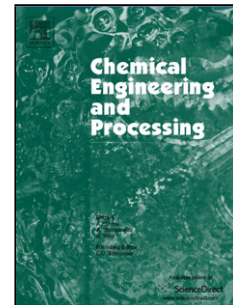


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Authors: Amit Bartwal, Abhishek Gautam, Manoj Kumar, Chidanand K. Mangrulkar, Sunil Chamoli



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Thermal performance intensification of a circular heat exchanger tube integrated with compound circular ring - metal wire net inserts

Amit Bartwal^a, Abhishek Gautam^b, Manoj Kumar^a, Chidanand K. Mangrulkar^c, Sunil Chamoli^{a*}

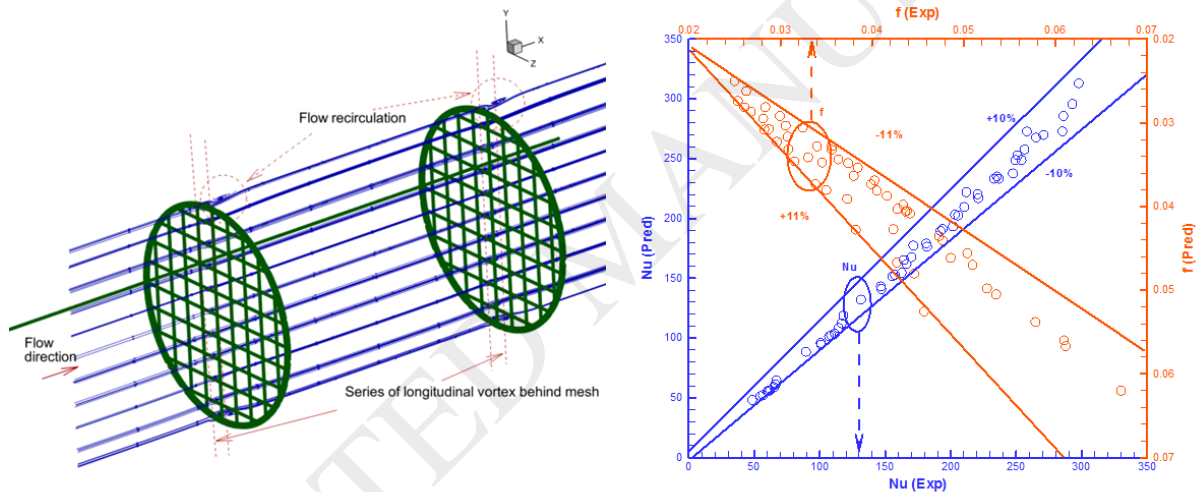
^a Mechanical Engineering Department, DIT University, Dehradun, Uttarakhand, India.

^b Mechanical Engineering Department, Tula's Institute, Dehradun, Uttarakhand, India.

^c Mechanical Engineering Department, Visvesvaraya National Institute of Technology (V.N.I.T.), Nagpur, India.

Email: mech.chamoli@gmail.com Ph: +91 – 9897870171

Graphical abstract



Abstract

Numerous studies have been recorded in developing the miniature heat transporting devices by the use of passive heat transfer enhancement technique. In the same context, a new novel insert geometry has been developed, which can enhance the convective heat transfer rate by the disruption of the thermal boundary layer. The circular ring with wire net inserts has been selected as the heat transfer enhancement insertion devices in the present research work. Three values of wire net grades ($G = 4, 9, \text{ and } 16$) and the three values of pitch ratios ($PR = 2, 3, \text{ and } 4$) are selected to investigate their effects on heat transfer (Nu), friction factor (f),

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