

**A Numerical Study on Heat Transfer Enhancement by Pulsatile Flow  
in a Plate Heat Exchanger using Parallel Computation.**

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In the present study, the heat transfer enhancement by pulsatile flow in plate heat exchanger has been investigated numerically using parallel computation. The numerical study was performed in the range of the Strouhal number from 0.04 to 2 and the Reynolds number from 370 to 730. The results show that the pulsatile flow produces resonating vortex shedding at the sharp edges of the groove and a strong transient vortex rotation within the grooved channels. As a result, the mixing between the trapped volume in the grooved cavity and the main stream was enhanced. Good agreements between the predictions and measured data are obtained for the optimum frequency of pulsation and corresponding heat transfer enhancement.

Keywords: Plate Heat Exchanger, Triangular Grooved Channel, Pulsatile Flow,  
Parallel Computation

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