

Abstract Submitted
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Thermal Management of Electronic Chips in a Channel Using Input Power to Control Flow Velocity ESAM ALAWADHI, Kuwait University — In this research, thermal management control of electronic chips is investigated using the input power. The examined system consists of two-parallel plates containing three heated chips attached on the lower plate. Time-dependent heat flux is supplied at the base of the chips to simulate a real operation for an electronic device. The value of the channel's inlet velocity is varied with the heat flux variations. The problem is solved as a conjugate heat transfer problem, and the finite element method is utilized to solve the problem. The effects of the heat flux oscillating period and amplitude, and Reynolds number are investigated. The heat flux applied to the chips is varying harmonically, but the channel's inlet velocity was kept time-independent. Results indicate that the variations of the heat flux significantly affect the Nusselt number at the surface of the chips exposed to the flow. Dynamics changing of the flow streamlines and the temperature contours are presented.

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