### **Abstract**

The augmentation of convective heat transfer of a turbulent flow using delta-winglet vortex generators (VG) in a triangular duct was experimentally investigated. Two side walls of the heated test section are electrically heated with a constant heat flux while the lower wall is indirectly heated. Single, double, and triple pairs of VG are utilized. Each pair of VG was punched on one wall of the test duct. The effects of the number of VG pairs, the VG angle of attack, the VG location from the leading edge of the test duct, the VG geometry, and Reynolds number are examined in this paper. The results indicate that the Nusselt number and friction factor are relatively proportional to the size, number, and the inclination angle of the VG. The Nusselt number increases and the friction factor decreases as the Reynolds number increases. The present results were compared with the available literature and they show good agreement. Correlation equations of Nusselt number and friction factor for turbulent flow are developed, for the cases studied, as a function of Reynolds number and VG angle of attack. © 2011 Wiley Periodicals, Inc. Heat Trans Asian Res; Published online in Wiley Online Library