

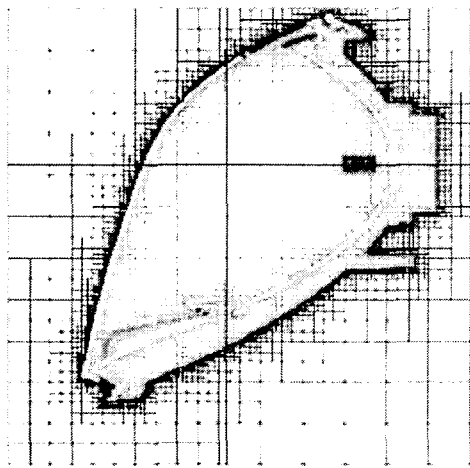
Numerical Analysis of Thermal Flow on Geometry-based Octree Mesh.

Jong-Youb SAH, Jae-Hyun JOO
Dept. of Mechanical Eng., Yeungnam Univ

Abstract

Thermal flow has been numerically investigated on geometry-based octree mesh. The conductive heat transfer of solid parts may be solved together with the thermal flow. The geometry-based octree mesh helps to reduce dramatically the man hours for preprocessing the flow analysis. It takes a few minutes that mesh is generated automatically for any complicated geometry. The geometry of the flow problem can be handled conveniently by any three-dimensional CAD system, because IGES format is supported. The various tests shows the good accuracy of the present problem. The PISO algorithm has been used as the flow solver. As a test case of real world problem, thermal flow of automotive headlamp has been solved successfully.

● JM model Mesh



Octree 11 X 11 X 11, level 5, N = 194만 개

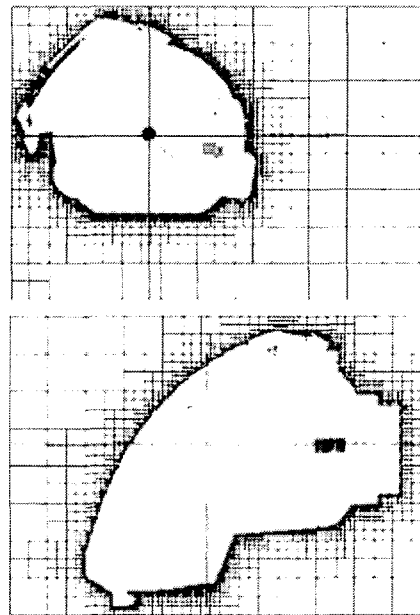


Fig. 1 Octree mesh for a headlamp

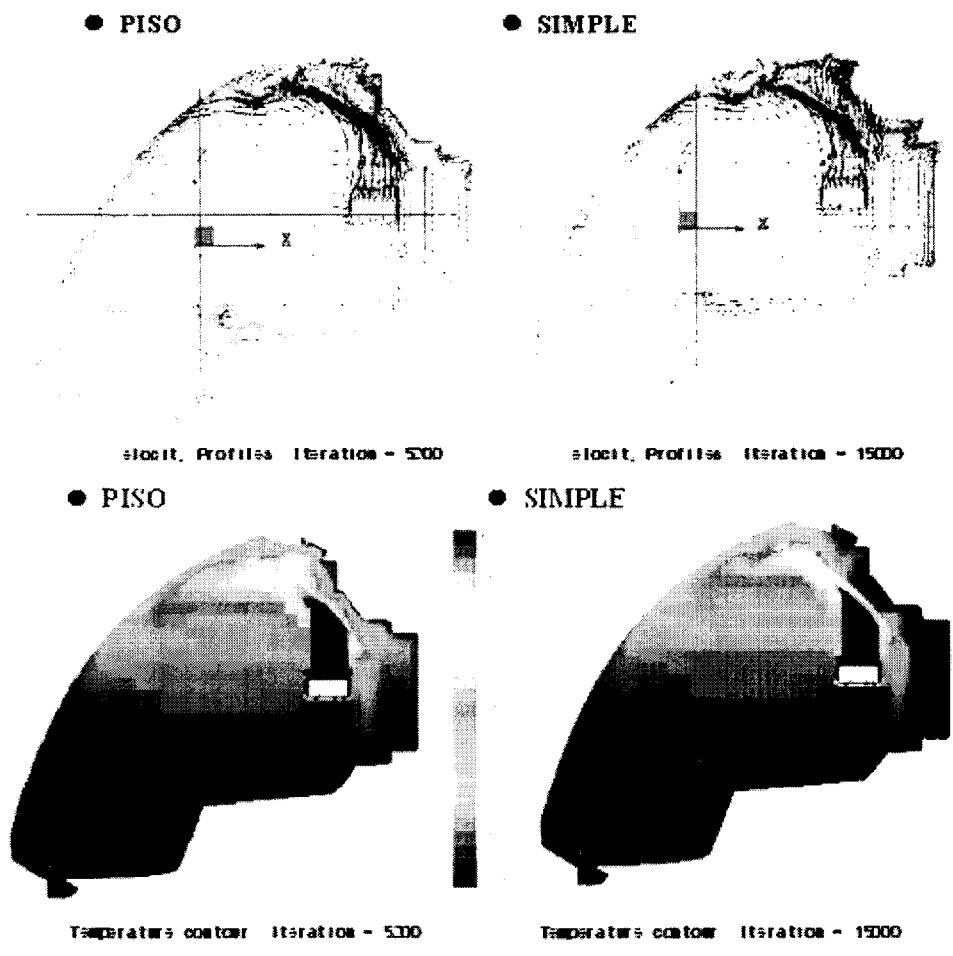


Fig. 2 Result of computation

Keyword: Thermal Flow, Octree Mesh, Headlamp, PISO Method