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| Title | Difficulties of Computing Natural Convection Flow in an Open Cavity | | |
| Author(s) Name | M. Z. I. Bangalee, Roushanara Begum, M. Ferdows, Md. Matiar Rahman, Mir Shariful Islam | | |
| Contact Email(s) | raaz2015@yahoo.com | | |
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| Abstract |  |
| The buoyancy driven natural convection flow in an open cavity has become an important issue to study. In this study, the difficulties of computing natural convection flow in open cavity with an extended computational domain around the cavity are reported. The κ-ε turbulence model is used for the computation to capture the turbulence nature of the air flow inside the cavity. ANSYS CFX software is used to solve the governing equations in this study. Effects of different aspect ratio and different temperature at the left wall and thus the temperature difference between the left and the right walls are analyzed numerically as well. Average mass flow, temperature, velocity etc. at different location in the cavity for different boundary conditions are studied and reported. A comparison between the present work and a previous work is also reported here to validate the methodology. Finally, relations among non-dimensional parameters (e.g. Ra, Re, Pr, Nu numbers) are also presented. | |