

Abstract

A research project entitled “Finite Element Method for Interdisciplinary Flow, Thermal and Structural Analyses” has been performed. The research work includes the development of the new finite element formulation for improving solution accuracy in each analysis discipline including their interaction. New finite element equations corresponding to the differential equations in the different disciplines have been derived. Several finite element computer programs have been developed to evaluate the performance of the new finite element formulation. An adaptive meshing technique has also been developed to further increase the analysis solution accuracy, and at the same time, to reduce the computational time and computer memory. Output from this research project have been summarized and published for a total of 19 technical papers in International Journals and one textbook. In addition, 17 master degree students and four Ph.D. students were graduated. The three new researchers in the team have their academic status changed from Lecturer to Assistant Professor, and Assistant Professors to Associate Professors.