

PACKAGE ID - 000818MLTPL00 F2D

KWIC TITLE - A Two-Dimensional Compressible Gas Flow Code

AUTHORS - Suo-Anttila, A.
Sandia National Labs., Albuquerque, NM (United States)

LIMITATION CODE -COPY **AUDIENCE CODE** - LIM

COMPLETION DATE - 04/14/1995 **PUBLICATION DATE** - 08/01/1993

DESCRIPTION - F2D is a general purpose, two dimensional, fully compressible thermal-fluids code that models most of the phenomena found in situations of coupled fluid flow and heat transfer. The code solves momentum, continuity, gas-energy, and structure-energy equations using a predictor-correction solution algorithm. The corrector step includes a Poisson pressure equation. The finite difference form of the equation is presented along with a description of input and output. Several example problems are included that demonstrate the applicability of the code in problems ranging from free fluid flow, shock tubes and flow in heated porous media.

PACKAGE CONTENTS - Media Directory; Software Abstract; SAND92-7343;
Media Includes Source Code, Sample Problem Input Data;

SOURCE CODE INCLUDED? - Yes

MEDIA QUANTITY - 1 3.5 Diskette

METHOD OF SOLUTION - The equations are solved with a staggered grid finite difference formulation.

COMPUTER - MLT-PLTFM

OPERATING SYSTEMS - Machine dependent

PROGRAMMING LANGUAGES - FORTRAN 77

SOURCE CODE AVAILABLE (Y/N) - Y

OTHER PROG/OPER SYS INFO - Some features of the code include; two energy equations, conduction and convection heat transfer, subsonic and supersonic flow, shock wave propagation, laminar and turbulent flow, porous media flow, variable gas and structure properties, general source terms for momentum and energy, multiple boundary conditions both internal and external, and automatic time step control.

REFERENCES - A. Suo-Anttila, F2D Users Manual: A Two-Dimensional Compressible Gas Flow Code, SAND92-7343, August 1993.

ABSTRACT STATUS - Submitted 4/13/95. Released screened 6/2/95.

SUBJECT CLASS CODE - H

E S T S C
ENERGY SCIENCE & TECHNOLOGY SOFTWARE CENTER
SOFTWARE ABSTRACT

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DATE 03/11/2002

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KEYWORDS -

COMPUTER PROGRAM DOCUMENTATION
F CODES
COMPRESSIBLE FLOW
GAS FLOW
HEAT TRANSFER
TWO-DIMENSIONAL CALCULATIONS

EDB SUBJECT CATEGORIES -

990200 420400

SPONSOR - DOE/DP

PACKAGE TYPE - SCREENED