

PACKAGE ID - 000287MLTPL01 TACO (2D AND 3D)

KWIC TITLE - Taco

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

COMPLETION DATE - 06/01/1984 **PUBLICATION DATE** - 03/01/1983

DESCRIPTION - A set of finite element codes for the solution of nonlinear, two-dimensional (TACO2D) and three-dimensional (TACO3D) heat transfer problems. Performs linear and nonlinear analyses of both transient and steady state heat transfer problems. Has the capability to handle time or temperature dependent material properties. Materials may be either isotropic or orthotropic. A variety of time and temperature dependent boundary conditions and loadings are available including temperature, flux, convection, radiation, and internal heat generation.

PACKAGE CONTENTS - Software Abstract; Media Directory; SAND-83-8212; Preliminary User's Guide for TACO2D; Media Includes Source Code, Auxiliary Material, Sample Problem Input and Output Data, Unix MakeFiles;

SOURCE CODE INCLUDED? - Yes

MEDIA QUANTITY - 1 CD Rom

METHOD OF SOLUTION - Finite element method. Iterative solutions of nonlinear PDEs with direct linear solutions at each iteration (modified Newton method)

COMPUTER - MLT-PLTFM

OPERATING SYSTEMS - Machine dependent

PROGRAMMING LANGUAGES - ANSI FORTRAN 77

SOFTWARE LIMITATIONS - The software memory and data storage requirements depend on the number of elements, nodes, etc. in the user's model. The limits are defined by the user's computing environment.

SOURCE CODE AVAILABLE (Y/N) - Y

UNIQUE FEATURES - Coupled conduction and enclosure radiation, thermal contact resistance, and bulk nodes. User subroutine option allows for arbitrary functional representations of independent variables.

HARDWARE REQS - Hardware requirements depend on the size of the problem the user desires to solve. The amount of memory and disk storage

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HARDWARE REQS - (CONT) necessary will depend on the complexity of the finite element model. Problems with tens of thousands of elements are routinely solved on current engineering workstations.

TIME REQUIREMENTS - Depends on model geometric and material complexity and number of time steps necessary to reach desired solution (from seconds to days).

REFERENCES - W. E. Mason, TACO3D - A Three-Dimensional Finite Element Heat Transfer Code, SAND83-8212, April 1983; W.E. Mason, Preliminary user's Guide for TACO2D, August 1984\ William E. Mason, Jr. POSTACO - A Post-Processor for Scalar, Two-Dimensional Finite Element Codes, UCID-17979, Rev. 1, February 1980; Bruce Eric Brown, Displaying the Results of Three-Dimensional Analysis Using GRAPE. Part One: Vector Graphics, UCID-18507, October 1979.

ABSTRACT STATUS - Submitted 8/8/97. Released AS-IS 3/25/98.

SUBJECT CLASS CODE - H

KEYWORDS -

COMPUTER PROGRAM DOCUMENTATION
T CODES
HEAT TRANSFER
TRANSIENTS
FINITE ELEMENT METHOD

EDB SUBJECT CATEGORIES -
990200

SPONSOR - DOE/DP

PACKAGE TYPE - AS - IS