

**PACKAGE ID** - 000548IBMPC00 FESDIF

**KWIC TITLE** - Finite Element Scalar Diffraction Theory Code

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**LIMITATION CODE** -UNL                   **AUDIENCE CODE** - UNL

**COMPLETION DATE** - 09/01/1992   **PUBLICATION DATE** - 09/01/1992

**DESCRIPTION** - This computer code calculates the optical diffraction field for diffraction through two-dimensional apertures to aid optical system design. The code allows plotting of the diffraction field.

**PACKAGE CONTENTS** - Software Abstract; Media Directory; EGG-APO-10531;  
Media Includes Source Code;

**SOURCE CODE INCLUDED?** - Yes

**MEDIA QUANTITY** - 1 3.5 Diskette

**METHOD OF SOLUTION** - This code uses numerical integration methods to calculate diffraction fields based upon scalar theory diffraction formulations.

**COMPUTER** - IBM PC

**OPERATING SYSTEMS** - IBM PC or compatible

**PROGRAMMING LANGUAGES** - Fortran 77

**SOFTWARE LIMITATIONS** - There are really no inherent limitations in FESDIF because the code is dynamically dimensioned. Therefore, versions with increased array sizes are easily created.

**SOURCE CODE AVAILABLE (Y/N)** - Y

**UNIQUE FEATURES** - The unique features of the software are derived from the mathematical methods developed for implementation of the diffraction theory.

**RELATED SOFTWARE** - None.

**OTHER PROG/OPER SYS INFO** - Program requires Plot 88 for compilation.  
Only the source code is provided

**HARDWARE REQS** - This code in its current form requires about 250KB of memory for the source, 300 KB for the object file, 80 KB for the sld file, and creates an executable about 3.5 MB in length.

**TIME REQUIREMENTS** - Execution to solve a particular problem requires anywhere from a few minutes to tens of hours on an Intel 386 based

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**TIME REQUIREMENTS - (CONT)** computer with math co-processor running at  
16 MHz.

**REFERENCES** - Kraus, H.G. FESDIF - Finite Element Scalar Diffraction  
Theory Code, EGG-APO-10531, September 1992.

**ABSTRACT STATUS** - Abstract submitted 12/24/92. Released screened August  
1993.

**SUBJECT CLASS CODE** - W

**KEYWORDS** -

DIFFRACTION  
F CODES  
OPTICAL SYSTEMS  
FINITE ELEMENT METHOD  
COMPUTER PROGRAM DOCUMENTATION  
DESIGN  
DIFFRACTION METHODS  
APERTURES

**EDB SUBJECT CATEGORIES** -  
990200 661300

**SPONSOR** - DOE/IO

**PACKAGE TYPE** - SCREENED