

**PACKAGE ID** - 001361UNIXW00 ATTILAVER2

**KWIC TITLE** - 3D Multigroup Sn Neutron Transport Code

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

**COMPLETION DATE** - 01/01/2001   **PUBLICATION DATE** - 01/26/2001

**DESCRIPTION** - ATTILA is a 3D multigroup transport code with arbitrary order anisotropic scatter. The transport equation is solved in first order form using a tri-linear discontinuous spatial differencing on an arbitrary tetrahedral mesh. The overall solution technique is source iteration with DSA acceleration of the scattering source. Anisotropic boundary and internal sources may be entered in the form of spherical harmonics moments. Alpha and k eigenvalue problems are allowed, as well as fixed source problems. Forward and adjoint solutions are available. Reflective, vacuum, and source boundary conditions are available. ATTILA can perform charged particle transport calculations using slowing down (CSD) terms. ATTILA can also be used to perform infra-red steady-state calculations for radiative transfer purposes.

**SOURCE CODE INCLUDED?** - Yes

**MEDIA QUANTITY** - Documentation consists of:; Abstract; Media Directory; README file. Media includes: source code, Technical Manual, User Manual, Test Input/Output, MakeFile, READMEATTILA, Utilities and Bibliography

**METHOD OF SOLUTION** - A standard spatial sweep with source iteration. The sweep equations are solved within each tetrahedron using LU decomposition on a 4x4 matrix.

**COMPUTER** - UNIX WORKSTATION

**OPERATING SYSTEMS** - UNIX

**PROGRAMMING LANGUAGES** - FORTRAN with some C preprocessor commands.

**SOFTWARE LIMITATIONS** - Only steady-state problems are supported, there is no time-dependent mode available at present.

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

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**OTHER PROG/OPER SYS INFO** - Two files included on CD: ATTILA.txt (which contains information given here) and estsc\_attila.tar which contains the system in 197 files. Follow instructions provided in directory: ATTILA/doc/readme.attila To compile, link, and run code.

**HARDWARE REQS** - System has been built on SUN-Solaris, IBM 590 AIX, Cray YMP, SGI IRIX64, and the INTEL Pentium.

**TIME REQUIREMENTS** - Solution time on a 200 MHz SGI Octane workstation is approximately 4 micro-s per phase space cell using the currently installed linear discontinuous spatial differencing.

**SUBJECT CLASS CODE** -

**SPONSOR** - LANL

**PACKAGE TYPE** - AS - IS