GALAXY ADVANCED ENGINEERING, INC.
P.O. BOX 614
BURLINGAME, CALIFORNIA 94011
Tel: (650) 740-3244
Fax: (650) 347-4234
E-mail: bahmanz@aol.com

INGRID/PC

A Three-Dimensional Mesh Generator for Modeling Nonlinear System

INGRID/PC generates complete input files for the **TOPAZ3D/PC**, **NIKE3D/PC**, **DYNA3D/PC**, and **FACET/PC**. Geometries are described primarily using index space concepts, which came from the program INGEN. The idea used in INGEN was reworked into a new method, which is both simple and powerful.

Originally INGEN was developed at Los Alamos and was used for several mesh generation problems. INGEN was adequate for many problems; however, the experience with the program quickly showed some simple patterns, which occurred frequently. These patterns were turned into a preprocessor for INGEN and then used for more problems. Again the new input structure showed many patterns occurring which were automated. Finally the preprocessor was merged with INGEN and a simple graphics program. Some optimization was performed and a number of algorithms were added to produce **INGRID/PC**.

The **INGRID/PC** program requires less than 10% of the input that was required by the INGEN and the program performs well on a variety of linear structures problem, and for complex zoning as a preprocessor for all the above computer codes. The **TAURUS/PC** available from GAE also is an interactive post-processor, which can be used to provide temperature contour, temperature-time history and various geometry plots. The code deals with surface equations and surface intersections considerably and the ability to handle accurate models and hidden line algorithm is included which is efficient on the most complicated meshes.

INGRID/PC is based on the index space notation, which is used in INGEN. An additional type index notation, the "Index Progression," is added to index space notation. Index progressions provide a concise simple method for describing complex structures, and are used to input data to **INGRID/PC**. This information provides the user with the concepts necessary to use **INGRID/PC** effectively. A mapping does node generation in INGRID from Index Space onto the object of interest. Each region of object is referenced by these sets of indices in order to specify the minimum and maximum indices for a region in the Index Space. For a solid region, combinations of minimum and maximum indices should define all the corner nodes. To order these codes please contact our company at (650) 302-3993. The package runs under PC/Windows95/98/2000/XP/ME or NT Operating System.