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

NIKE3D/PC

An Implicite, Finite Deformations Finite Element Code

NIKE3D/PC is a fully implicite three-dimensional finite element code for analyzing the strain static and dynamic response of inelastic solids, shells, and beams. A contact-impact algorithm permits gaps and sliding along material interfaces. By a specialization of this algorithm, these interfaces can be rigidly tied to admit variable zoning without the need of transition regions. Spatial discretization is achieved by the use of 8-node constant pressure solid elements, 2-node truss and beam elements, and 4-node membrane and shell elements. Bandwidth minimization is optional.

NIKE3D/PC is able to handle a variety of loading conditions including traction boundary conditions, displacement boundary conditions, concentrated nodal point loads, body force loads due to base accelerations, and body force loads due to spinning. Slide lines with interface friction are available. Elastic, orthotropic-elastic, elastic-plastic, thermo-elastic-plastic, soil and crushable foam, linear viscoelastic, thermo-orthotropic elastic, elastic-creep, and strain rate dependent material models are implemented. Nearly incompressible behavior that arises in plasticity problems and elasticity problems with Poisson's ratio approaching 0.5 is accounted for in the element formulation to preclude mesh lock-ups and associated anomalous stress states. Four node isoparametric elements are used for the spatial discretization, and profile (bandwidth) minimization is optional.

NIKE3D/PC has been applied to a wide range of large deformation, inelastic response calculations, by large number of users. Generally, the results have been quite satisfactory. Capabilities such as slide lines permitted the application of the program to problems that could not be solved without making significant simplifications. Arc length methods are used to solve problems that involve snap through buckling, plastic instabilities, and related problems where equilibrium is difficult to achieve. These problems cannot be solved with classical Newton type approaches since for a fixed load level it may be impossible to-achieve equilibrium. Arc-length methods provide a way of adjusting the load level so that convergence, i.e., equilibrium, is achieved.

NIKE3D/PC a three-dimensional version is available for general use. We at Galaxy Advanced Engineering Inc.(GAE). have taken steps to make this code available on your PC platform under Windows95/98/2000/XP/ME or NT as well DOS Operating Systems. To order the code, please contact our company at (650) 740-3244.