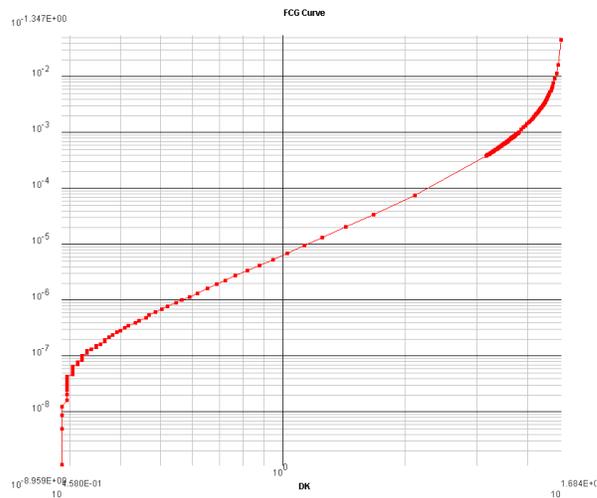
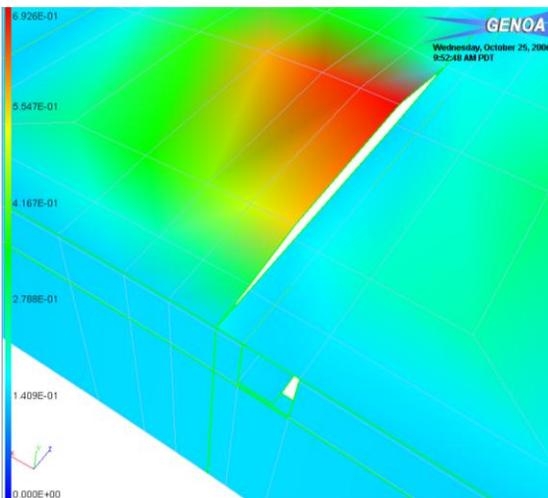


GENOA Fatigue with Fracture Mechanics

- Effectively evaluates the fatigue life of a metal structure by combining the Progressive Failure Analysis-Virtual Crack Closure Technique (PFA-VCCT) and Fatigue Crack Growth (FCG) modules together.
- Reliably analyzes the fracture development and growth in a metal structure along the predetermined path under the applied cyclic loading.
- The approach is fracture-mechanics based. It requires:
 - A predetermined fracture path based on either of the following: 1) experimental testing; 2) a preliminary GENOA/PFA analysis; or 3) the user experience. The predetermined path can be effectively prescribed using the GENOA GUI
 - A fatigue crack growth curve (da/dN vs. \sqrt{K} data) for the material under consideration. The curve can be obtained from tests, standard handbooks, or calculated by using GENOA-FCG for a specific panel thickness and stress ratio
- The S-N curve for the selected material (derived from tests or found in the open literature).
- Can be used with the GENOA-PA to account for the probabilistic nature of fatigue.
- The approach is restricted to linear elastic materials and shell elements.

Applications/Benefits

- Accurately evaluates the service life of metal structures subject to cyclic loads.
- Effectively analyzes the development of the fatigue failure initiation site in aerospace, automotive and other metallic structures.
- Accounts for the probabilistic nature of fatigue.



System Requirements

- Windows XP/Vista/7/8/10 (64-bit) or Linux (64-bit)
- Java 1.7 minimum Runtime Libraries
- Java3D 1.5

Minimum Configuration

With the minimum configuration, performance and functionality may be less than expected.

- 1 GHz or higher CPU, 4GB RAM, 10GB disk space

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More of Alpha STAR's Test Validated products:

MCQ: Composites, Ceramics, Metals, Nano, Chopped
GENOA: PFA, PFDA, UAB, URD, ABS, PCP, PA, Quasi
Static Fatigue & Random Fatigue, Harmonic & PSD
Fatigue, Fatigue with Fracture Mechanics, PFA_AGING,
VCCT, DCZM, Filament Winding, Jobspooler,
GENOA_CLOUD