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FATAM – tool for multiaxial fatigue lifetime estimation

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Material database module

- Store and manage multiple materials static and cyclic material properties.
- Tool for fatigue properties (parameters of fatigue curves) calculation from measured
- data in probabilistic form.
 - Direct import of material parameters

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Loading module

- Store and manage multiple loading scenarios.
- Possibility to define multiple loading paths: proportional loading, nonproportional loading,
- user defined path and set of "popular" predefined paths.
- Definition of critical point (f_node) in which lifetime estimation is carried on.
- Possibility to manually define f_nodes or import them from FEM simulation.

Multiaxial fatigue lifetime estimation

- Multiple multiaxial damage parameters implemented (Findley, McDiarmid, Dang-Van, MDC).
- Modular build with possibility to implement new multiaxial model.
- Various models for shear stress amplitude calculation under nonproportional loading (minimal enclosed circle, rectangular hull, maximal projection)
- Various settings for critical plane search.

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Results and exports

- Basic module for result visualization.
- Possibility to export results in formatted file.

References

Findley WN. Fatigue of metals under combinations of stresses. Trans ASME 1957; 79:1337–8.

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