

K-SUITE

Real time condition monitoring prioritize replacement, predict remaining service life for polymeric components

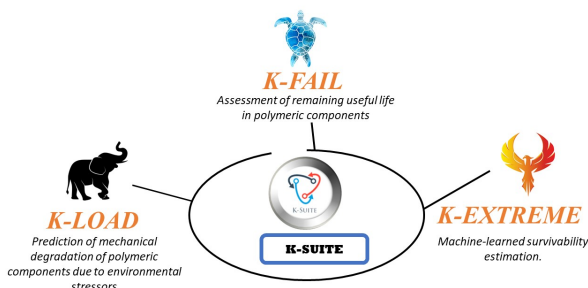
K-Suite, a modular computational framework, offers various tools to predict the effects of various damage processes on the mechanical behavior of polymeric components.

CHALLENGES

It is necessary to assess degradation and aging of polymeric components in space-crafts, nuclear power plants, automobiles, winged-crafts, rotor-crafts, and solar panels. An efficient software tool is necessary to make accurate aging and degradation predictions.

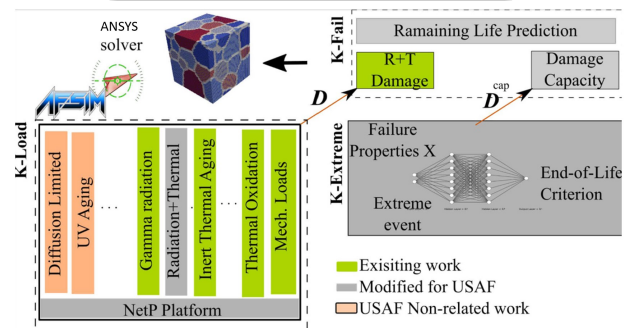
SOLUTIONS

Karax LLC offers an array of computational tools to meet your predictive modeling needs. K-Suite, our modular computational framework, can help guide your materials decisions with predictive tools for quantifying the effects of various damage processes on the mechanical behavior of polymeric components. K-Suite combines physics-based constitutive models and a machine learning engine to deliver reliable estimates for remaining useful life and survivability prospects of polymeric components subject to one-time, catastrophic events, in addition to real-time prediction of mechanical behavior from accumulated radiation, hydrolytic, and thermo-oxidative damage.



BUSINESS VALUE

1. System-level High-fidelity Simulation
2. Cost Reduction
3. Digital-Twining of Microelectronics
4. Assist Decisions
5. Subcomponent Design



TECHNICAL INFORMATION

K-Suite is a modular computational framework and can help guide your materials decisions with predictive tools for quantifying the effects of various damage processes on the mechanical behavior of polymeric components.

Key Modules:

- K-Load:** is a physically-based predictive tool for modeling the mechanical behavior of polymeric components that have been subjected to environmental damage.
- K-Extreme:** is a machine-learned engine that provides conservative estimates of survivability by calculating the minimum damage capacity needed to survive single-event effects (SEE)
- K-Fail:** Allows for the quantification of the remaining useful life of a polymeric component from the i) synergistic effects of radiation and thermal oxidation during service and ii) strength loss due to one-time extreme events.