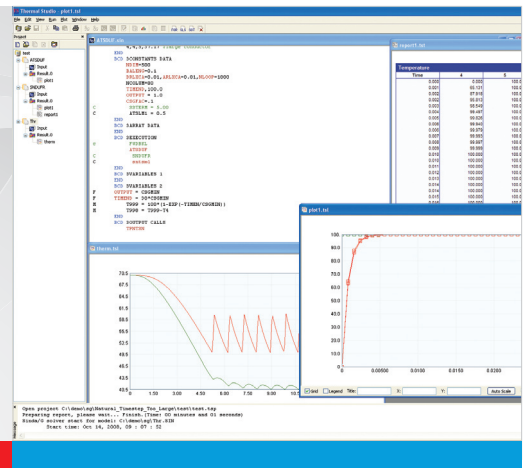


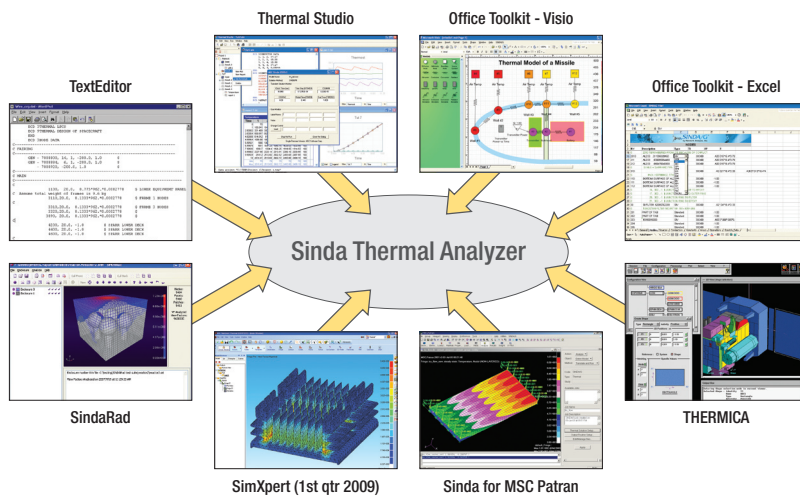
MSC Sinda

Flexible Enough for the Most Demanding Thermal Problems



Overview

MSC Sinda is a world class advanced thermal analyzer with a proven track record in the aerospace and high tech arenas. MSC Sinda technology is well suited to solve large thermal problems that may include various material and boundary condition nonlinearities. Iterative schemes make MSC Sinda more efficient in time and memory requirements than traditional finite element solvers. With industry proven efficient solver technology, users can simulate complex thermal models that may include conduction, convection, advection and radiation along with thermal contacts.



Capabilities

- Uses an intuitive RC network approach to building thermal models
- Works well for advanced thermal problems involving nonlinear materials, radiation, and other complex boundary conditions
- Integrates with a variety of pre-post processors and radiation codes to utilize existing models, reduce learning time, and increase total project cohesion
- Accepts programming logic to analyze any number or degree of “what-if” situations
- Easily sets up parametric analysis such as sensitivity, optimization, and test correlation to increase understanding of thermal consequences to design changes
- Is a proven tool in aerospace and high tech industries with a quarter century track record
- Has 25 steady state and transient solvers to converge almost any solution quickly and accurately
- Includes Thermal Studio; a Windows based GUI for creating and running models and viewing the results in tabular reports or x-y plots
- Transparently integrates into Patran, THERMICA, Visio, or Excel

One of MSC Sinda’s greatest strengths is its versatility. Any degree of logic from a simple convection equation to entire subroutines can be added to a Sinda model. Parameters, loads, and materials can be changed “on the fly” from the Thermal Studio interactive GUI. Thermal Studio can also be used to launch the solver, display the model, and plot the results.

Materials, Loads, and Advanced Features

Materials

- Constant, time, or temperature dependent materials properties

Loads

- Temperature loads that are time or cyclic dependent
- Heat loads can be time dependent, cyclic, temperature dependent, or thermostatic
- Convection including over 40 built-in correlations for modeling internal, external, and natural convection
- Radiation with time/temperature dependent properties

Key Advanced Features

- Variable Conductance Heat Pipe (VCHP) models
- 1-D incompressible pipe flow features for calculating the mass flow rate and Reynolds number and linking this with a thermal problem
- Thermostat heater/cooler models for on/off, proportional and PID controllers
- Ability to add Thermal Electric Devices (TED's)
- Phase change modeling of thermal storage and anti-icing simulation
- Ablation conductors for simplified modeling of ablative materials
- Numerous mathematical routines for interpolation, extrapolation and manipulation of tabular data
- Database containing thermal model data, heat flows and temperature data for interactive viewing after model runs
- Database for model and results data is based on an open source model, thus allowing easy access from public domain viewers and programming of API's in many languages

High performance plotting module plots 1000s of points quickly

Manages Sinda Models

Overwrite a result or save multiple results from a model

Dynamic reports automatically update when the model is rerun

Dynamic plots automatically update when the model is rerun

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