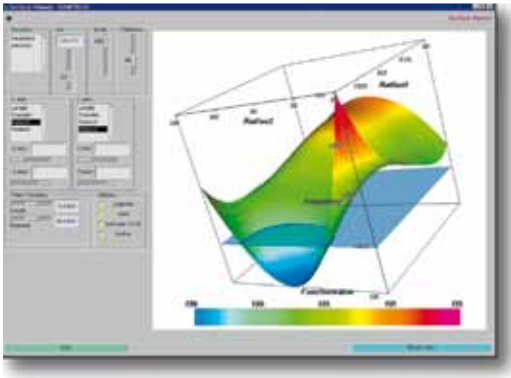


Response surfaces

They are obtained by model approximation (Polynomial and Polynomial schemes) using previously calculated points coming from DOE.

Optimization of such surfaces (explicitly defined w.r.t. the design variables) is particularly fast. Visualization tools and analysis features help designers to select the most suitable alternative.

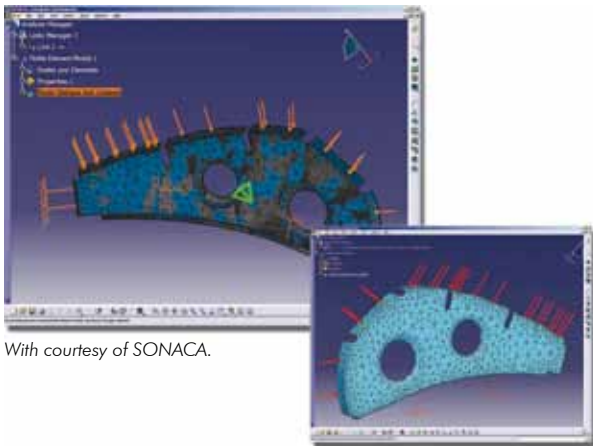
Response surfaces allow you to perform complementary analysis without re-run parts of analysis, reducing drastically analysis time and costs. It can also be used as a quick approach leading to a more accurate optimization.



Database and interpolation

BOSS quattro allows to store all points computed by its internal engines in order to:

- Re-use them without new analysis, if needed;
- Identify the «best point»;
- Use them to build interpolation functions: Radial Basis Functions, Krig Functions or neural network.



With courtesy of SONACA.

Benefits

Automatic multi-disciplinary, multi-model optimization leading to better design:

- Find the optimal values
- Evaluate the parameter pertinence
- Reduce design time and reduce risk of errors by task automatization
- Find solutions with respect to your schedule of conditions

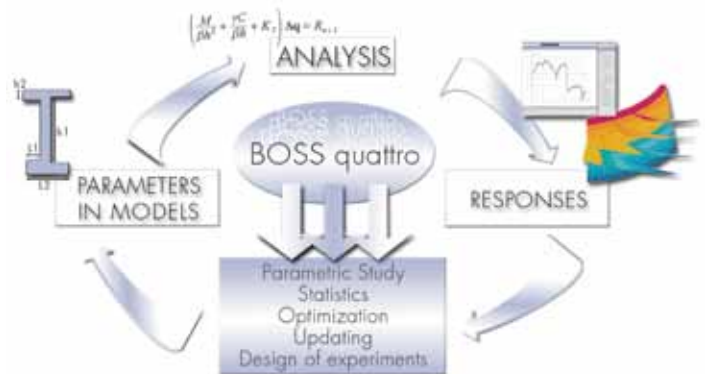
INTERFACES

BOSS quattro is designed to work at the CAD level by recognizing sets of functions (i.e. ready stresses, displacements...) based on geometrical entities. Consequently, the problem definition remains coherent even in case of remeshing after iteration.

BOSS quattro interfaces are available in standard, freeing you from writing any line of code, but provides also neutral interfaces allowing you to couple quickly your "in-house" applications.

Moreover, you can customize your optimization environment just by selecting the requested drivers to interface with the CAD or FEA software you use (i.e. CATIA V4 & V5, SAMCEF, SAMCEF Field, MSC NASTRAN, ABAQUS, EXCEL...).

Its native interfaces with major CAE and FEA systems make BOSS quattro the perfect complement, enlarging basic capabilities of those systems.



OPTIMIZATION ALGORITHMS

The strong point of BOSS quattro is to provide powerful optimization algorithms, which can solve complex problems combined or not, such as gradient methods (CONLIN, SQP, GCM, etc.) or genetic algorithms:

- Multi-objective problems with user-driven objective weight;
- Constrained or unconstrained problems;
- Feasible design search;
- ...

Genetic algorithms (i.e. the zero-order algorithm) broaden BOSS quattro application and let you manage new kinds of problems:

- With discrete variables, even integer or non-numerical design variables;
- Discontinuous functions;
- Global optimum search.

DOCUMENTATION

For direct access to information, the Users Guide and Help manual (including many examples) are available via your favorite navigator (HTML).

PLATFORMS

BOSS quattro is available on most Unix, Linux and Windows platforms.

About SAMTECH

SAMTECH is a European specialist in the development and worldwide marketing of Computer Aided Engineering software, commonly called "simulation" or "Virtual Prototyping" software. It is well established that as well as increasing the quality of the design, such software not only enables drastic reductions in product development cycle and consequently the associated costs, but also dramatically reduces the need for expensive physical testing.

"General-purpose software tools": this SAMTECH offer includes the general linear and implicit non-linear Finite Element Analysis package SAMCEF with the CAD/CAE modeling environment SAMCEF Field, the general explicit and fast dynamics code EUROPLEXUS; the task management and optimization platform BOSS quattro; TEA Mecano and TEA Thermal CAA V5 Based as non-linear thermo-mechanical solution embedded in CATIA V5 and SAMCEF Gateway CAA V5 Based, the SAMCEF integrated interface within CATIA V5.

SAMTECH most recent product, CÆSAM, is a high level CAE centric Application Framework allowing the customization and the management of the whole engineering process, involving any commercial software and in-house skill tools. This environment based on Knowledge Based Engineering concept encapsulates customer skills and knowledge into Analysis Processes and Analysis Methods and ensures reusability of models in order to reduce Time-to-Market.

"Professional products": this SAMTECH offer is based on its general-purpose software tools and is dedicated to specific domains of application such as rotor dynamics (SAMCEF for Rotors), modeling of pipes for automotive industry (TEA Pipe), modeling of high voltage substations, electrical lines (SAMCEF for Power Lines and Substations), prediction of dynamic loads on wind turbine drive trains (SAMCEF for Wind Turbines)...

"Third party and customized solutions" like the SAFE tool (fatigue analysis of aeronautic structures) and the Application COMPOSITES (analysis of aeronautical structures made of composite materials) from AIRBUS, where SAMTECH provides its clients with services such as development, reengineering, packaging and deployment of proprietary professional solutions on the customer site.

"Customized multi-physics solutions", based on OOFELIE. OPEN ENGINEERING, the SAMTECH subsidiary, which allows SAMTECH to be present in the multi-physics design markets and to provide services for the development of original highly coupled analysis solutions covering specific needs, commercializes OOFELIE.

Visit www.samtechcom for further details on SAMTECH Product/Service offer!

Some references

Space

ASTRIUM ST, SAFRAN GROUP, ESA / ESTEC, CNES, ALENIA, ISRO...

Aeronautics

AIRBUS, SPIRIT AEROSYSTEM, AVIC-GROUP, SABCA, SONACA...

Aero engines

TECHSPACE AERO, SAFRAN GROUP, GTRE, MTU...

Automotive

DAIMLER, PORSCHE, PSA, TOYOTA, DELPHI AUTOMOTIVE, MITSUBISHI, TATA DAEWOO...

Energy

AREVA, EDF, GENERAL ELECTRICS, SIEMENS, REPOWER...

Defense

MBDA, GIAT INDUSTRIES, FORGES DE ZEEBRUGGE...

Miscellaneous

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