

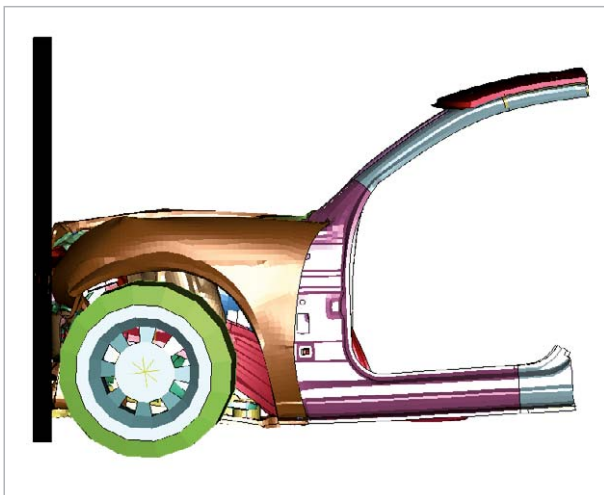


optiSLang® & LS-DYNA

Optimization and robustness analysis with optiSLang® & LS-Dyna.

Optimization

optiSLang is one of the most efficient toolboxes for multidisciplinary optimization, sensitivity studies, robustness and reliability analysis as well as robust design optimization. For optimization and robustness tasks, optiSLang can significantly increase the possibilities of LS-Opt for LS-Dyna. For instance, optiSLang can be used as a high-end tool for parametric optimization regarding discrete optimization and large optimization problems with more than 15 variables.

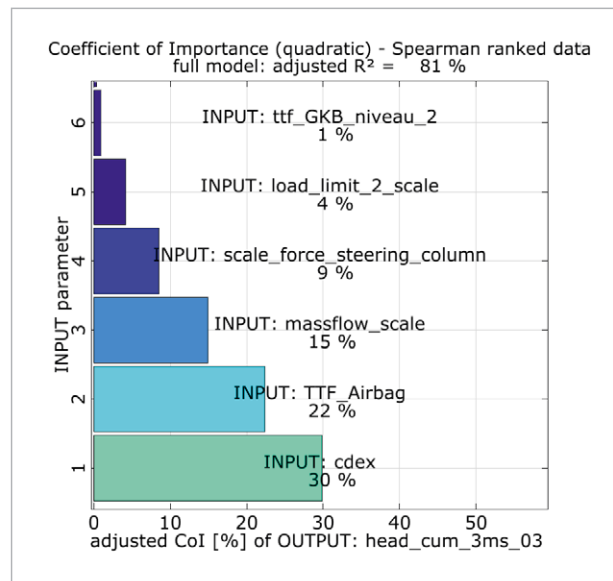


Simulation of crash behaviour

Robustness Analysis

Robustness analysis becomes more and more important in the virtual product development of the automotive industry. Thus, it is important that the robustness of a design towards natural scatterings and the influence of numerical noise onto the analysis results are examined. In this context, optiSLang can handle very complex analyses of safety components, e.g. for active and passive vehicle safety, passenger or pedestrian protection.

For several years, Dynardo has been introducing robustness analysis into the standards of virtual product development of several automobile manufacturers. For this process implementation and the integration into LS-Dyna, optiSLang has been improving continuously.



Coefficient of importance

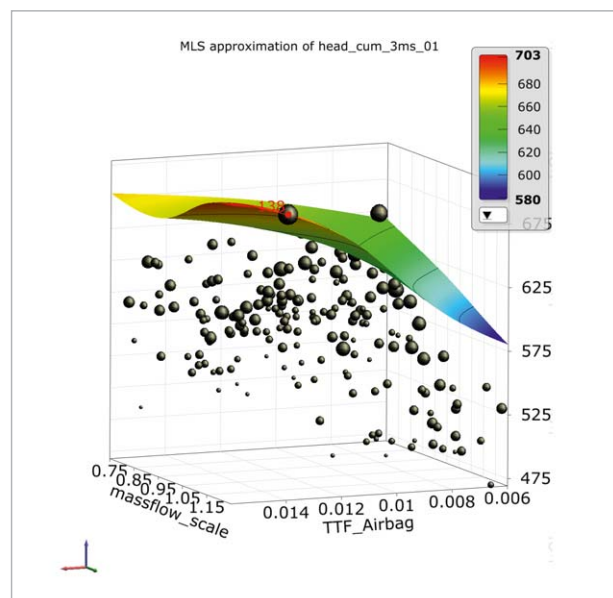


Illustration of influencing parameters onto the acceleration of a dummy

optiSLang® & LS-DYNA

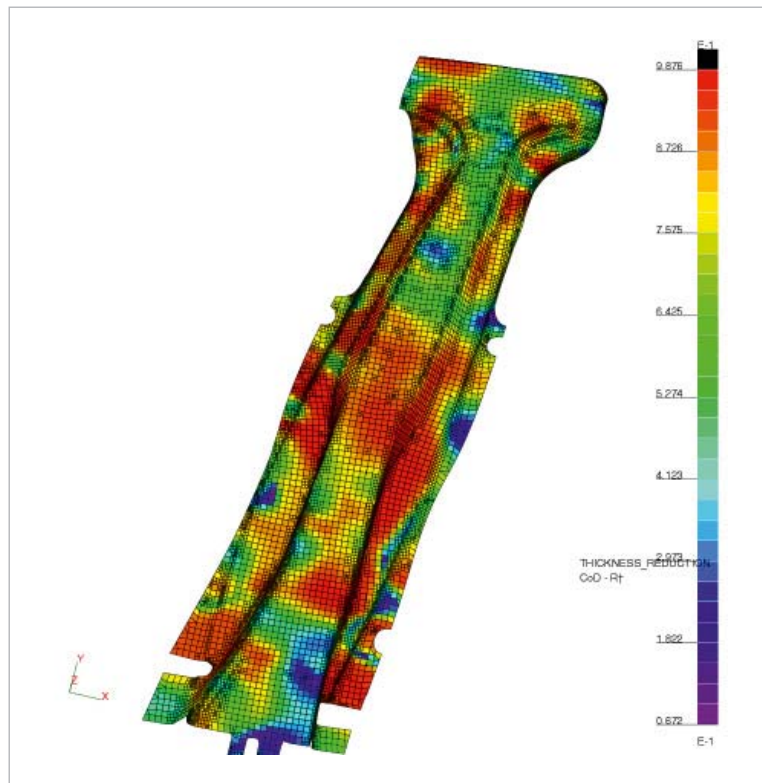
Optimization and robustness analysis with optiSLang® & LS-Dyna.

Integration into LS-Dyna

The integration of LS-Dyna calculations into optiSLang is done by a graphical parameterizing editor. Supported by the process integration of LS-Dyna, highly nonlinear physical behaviour of structures can be analysed and optimized.

Visualization

An important component of robustness analysis is the visualization of variations and correlations between input and output scatters. Dynardo has developed the post processor SoS - „Statistics on Structures“ that allows the analysis and assessment of statistical measures on finite element structures. SoS played a significant role for the acceptance of robustness analysis in FEM calculations.



Coefficient of determination for thickness reduction of a B-pillar



optiSLang®



LS-DYNA