THE APPLICATION OF AN IGA BODY IN WHITE IN A HYBRID FULL CAR SIMULATION

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ABSTRACT –

With the IGA (Isogeometric Analysis) technological approach, among other things, the transfer processes from CAD to CAE can be simplified in the future and false predictions due to discretization effects can be reduced.
In recent years, IGA and the toolset in ANSA has increasingly developed into an setup that comes close to industrial use.

In order to test the use of IGA in industrial environments, a body in white that was previously modelled with „classic“ FE was also created in IGA and installed as a so-called hybrid model in an entire vehicle crash simulation. For this purpose, the CAD data used as base for the FE model creation, was now used to directly create IGA surfaces in ANSA.

The aim of implementing a body in white in IGA was, on the one hand, to look at the processes in terms of usability, automation capability and implementation quality and, on the other hand, how hybrid crash simulations behave in terms of computing time and stability.
In order to see different design effects in crash simulations, a front crash and a side crash were carried out and compared with previous FE models.

The presentation shows the entire process, from geometry conversion to overall vehicle simulation, and explains the findings from the individual steps in comparison with the FE model.