



Review of the master thesis

Name: Anna Fictumová

Title: Optimization of the virtual procedure of dummy seating in side impact protection

Anna Fictumová wrote her master thesis in the side impact protection department of vehicle safety at Audi AG in Ingolstadt. An essential part in today's occupant protection development is the virtual technical design of the restraint systems for occupants. Therefore, it is necessary to build-up simulation models of belted and seated dummies for a variety of different load cases. This requires the adjustment of the seat, the belt and the dummy. In order to get positions of the dummies and belts that are as realistic as possible, the adjustment and the seating of the dummies as well as the fitting of the seat belts are performed by several steps of dynamic simulations in PAMCRASH. At Audi, in order to reduce the work load, there exists a complex procedure which is semi-automated and which is incorporated in the preprocessing tool LoCo (Loadcase Composer). At the beginning of Anna's work, this procedure was poorly documented. Furthermore, the implementation in LoCo was not user friendly which made it difficult to be applied by the other group member companies or development partners.

Therefore, the first step was to draft a documentation of all steps that are necessary to run the seating procedure for a new car project. As a next step, Anna made suggestions how to ease and optimize the complex simulation procedure.

Since the seating procedure is a highly complex process, she had to obtain a deep insight into the structure of the procedure (written in several script-languages) as well as into PAMCRASH code. To ensure the academic level of a master thesis, Anna's work investigated how to improve the simulation model. She implemented gravity aspects to the simulation process and analyzed the results.

Anna fulfilled all the tasks which were committed as part of her master thesis. The presentation of her results is visually attractive and clear.

Finally, I evaluate the thesis by grade 2 and I recommend this thesis for a defence.

Ingolstadt, 10.08.2016



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