

# Mechatronics simulation on system level: BroSAnT approach

Sergey Petkun<sup>1</sup>

<sup>1</sup>Brose Fahrzeugteile GmbH & Co. Kommanditgesellschaft, Hallstadt, Max-Brose-Straße 2, D-96103 Hallstadt

At present, the modelling of mechatronics system is “buzz” word in simulation world. There are a lot of different concepts how to get the problem, dealing with many physical domains: mechanics, electrics, electronics and software, under control. In principal, all approaches to model mechatronics system can be divided in two classes: “all in one” and “combination of domain specific tools”. Analysing the results of mechatronics simulation gives us already first hints to general requirement to such simulation: very important time of modelling for construction and simulation duration. The depth of modelling is the most important part for such simulation. Right relation should be found between precisions of modelling different counterparts of the whole model. Not less important is the criterion how close the model behaviour is to “reality”. The question “how precise is the model ?” is not correct without specified estimative criteria. The system analysis has character of multi criteria because the model behaviour will be estimated from different point of views: mechanical, electrical and etc. from such point of view, BroSAnT (Brose System Analyse Tool) tries to realise the new conceptual solution. The origin of false thinking is the meaning that the system modelling should be made by experts in calculation of specific domains. Joint activities between the application experts from different domains and simulation developer can lead to successful modelling concept. Only from system view, the modelling level of corresponding domain counterpart can be right determined. For successfully using of simulation, the time taken from problem definition until result analysis should be below as product development cycle. It requires a number of prepared models, which leads to choose appropriate modelling language.