

FEM models in System Simulations using Model Order Reduction and Functional Mockup Interface

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The integration of a three-dimensional FEM model (ANSYS) in a dynamic, component-based system simulation tool (CoSMOS) is described. In order to avoid high simulation times of a direct co-simulation while maintaining the relevant details of the FEM submodel at the same time, order reduction is applied to the FEM model. The reduced submodel is encapsulated in an FMU and finally imported in a system simulation. An example use case, which connects the thermal model of a C-arm to a temperature control model, is presented to demonstrate the workflow that is sketched in Fig. 1.

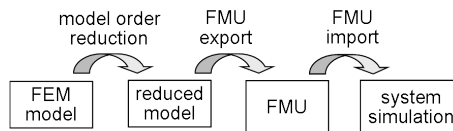


Figure 1: Workflow presented