SIMPACK and FEMFAT

SIMPACK's new interface to the durability software FEMFAT-MAX in connection with ANSYS was designed by INTEC in co-operation with ECS Steyr and MAN Nutzfahrzeuge AG.

The software FEMFAT, which is developed at ECS Steyr, performs fatigue analyses in combination with widely used finite element programs. Its extensive usage, over many years, in fatigue-related projects (analysis and testing) has proven FEMFAT's reliability.

SIMPACK's new durability interface will be released with the new SIMPACK version 8.6 within the SIMPACK post processor LOADS. Currently, the interface is being rigorously tested by comparison of calculated stress data with measured stress data at MAN, with the close support of INTEC. It's known that classical modal stress calculations require a lot of modes and modal co-ordinates which have to be calculated in the multi-body system software for later "stress recovery". Most of these modes have no influence on the dynamic behaviour of the multi-body system. For durability analyses, based on SIMPACK-simulations, the user must only consider modes which are relevant to the multi-body system; that is a small number of normal modes and frequency response modes. The unique feature of SIMPACK's durability software is the use of a combination of applied forces, reference motion and modal co-ordinates as output quantities. This allows the use of efficient SIMPACK models with a comparatively small number of modes.

After SIMPACK has written the time series of the applied forces, the reference motion and modal co-ordinates to RPCIII files, unit stresses corresponding to the time series are calculated by ANSYS. This process is eased, as the interface automatically generates all input files for stress calculations with ANSYS as well as the FEMFAT input file which is used to assign the time series with the corresponding unit-stresses.

The open design of the interface enables INTEC to adapt the interface to the customer specifications and to other durability and finite element software.

SIM PACK