

## New SIMPACK Release 8.5

The new SIMPACK release v8.5 presses ahead with the concept of SIMPACK 8: Superior Solver Technology combined with simple and easy modelling. After having decided "What are you intending to do", the countless modifications enable you to achieve your goals faster and more reliably.

Although the new version 8.5 still has the 8 in front of the point, the new version is significantly improved in comparison to the earlier version 8.0. What is the meaning of this nomenclature? The successful concept of the software remains unchanged but the contents are improved, optimised and have been extended in many places through completely new software modules. The SIMPACK-developers have the ambition that the users can give their full attention to the task in hand and not on the handling of the software.

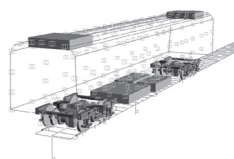
SIMPACK users will easily come to grips with the new software even when they are confronted with a completely new file browser. Users will quickly become convinced that SIMPACK version 8.5 is, apart from being more user friendly and reliable, a higher performance and a more modern partner.

In addition to the many new features,

of which only a few covered in this article, a completely new Plug-In, SIMPACK NVH (Noise-Vibration-Harshness), is available with SIMPACK v8.5. This product enables the computation of high frequency vibration, and also features the further enhanced Linear System Analysis, as well as a series of useful modelling elements and computational techniques for use in the time domain; see the article on page 10.

### Function Expressions

SIMPACK v8.5 enables the user to write a multitude of mathematical and kinematical expressions to define force elements, output vectors and time excitations within SIMPACK. Function Expressions have access to values which change during the simulation. For example the displacement vector between two markers can be used within particular force elements according to the user defined function.



## Congratulations on Their First Victory

▶ See page 19

### Benchmark

M. Deeg/J. Pollmächer  
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### MBS - Benchmark

### Applications

Dr. Anton Stribersky  
Siemens TS HR, Vienna

### Metro Train Vienna with SIMPACK

### Engineering

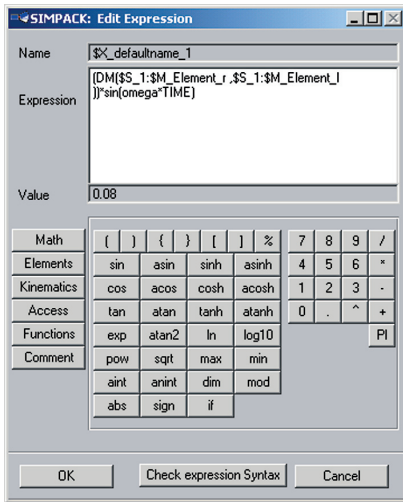
Dr. Lutz Mauer  
INTEC GmbH

### INTEC - Ihr Partner für Consulting und Engineering

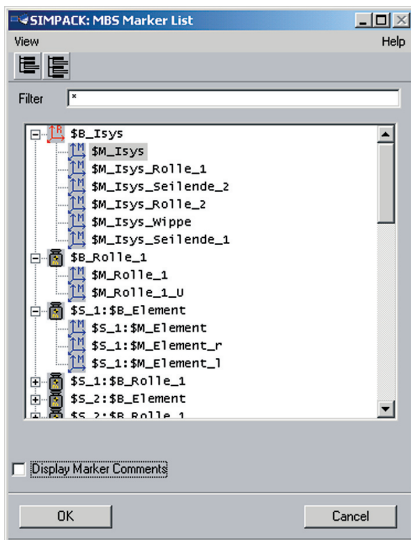
### Software

Johannes Gerl  
INTEC GmbH

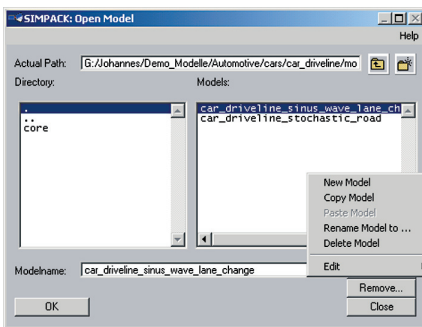
### New Plug-In for v8.5: SIMPACK NVH



Window for Function Expressions



Marker Selection List



File Browser

## New Static Equilibrium Solver

SIMPACK wouldn't be SIMPACK, if new innovations in the area of solver technology weren't available with a new SIMPACK release. The Newton method used to calculate the static equilibrium position has been optimised to become particularly robust, especially when dealing with closed loop systems. The newly developed Solver-Modus Driven Equilibrium enables the user to perform a series of static equilibrium calculations depending on excitation inputs. The results can be plotted and animated in a similar way to normal time integrations or kinematic analyses.

## Marker Selection

A completely new selection method for markers has been integrated into the SIMPACK v8.5 pre-processor. The user need only to select a body in order to list all markers defined on that particular body, a functionality similar to the Explorer from Microsoft Windows. A similar feature has implemented for the selection of joints.

## User Routines

SIMPACK's User Routines have been completely redesigned for version 8.5. Because the users' program routines are now stored in a shared library, the effort necessary for creating and updating has been drastically reduced. The dependency on earlier SIMPACK versions can be completely eliminated by the one-time conversion to the new user routine architecture. A set of new access functions is now available which allows user routines to be programmed much more easily.

## Complete Compatibility with MotionView

With version 8.5, SIMPACK is completely compatible with ALTAIR's Pre- and Post-Processor MotionView (Version 5 and higher). For those who prefer to use a pre-processor, which differentiates between an expert user and user, SIMPACK models for automotive applications can now be generated directly from MotionView. SIMPACK can now also export simulation results for plotting and animating in the MotionView, HyperGraph and HyperView-Player suite of ALTAIR Engineering, Inc. products.

## Presentation, Training

In the course of the SIMPACK User Meeting 2001 (in Bad Ischl, Austria), INTEC will be offering a training course to bring users up to date with SIMPACK v8.5. If you would like to know more about using Function Expressions, or the highly modified modules (for example the new three-dimensional track module), or in particular the new style in programming user routines, then you would be most welcome to attend the seminar. Detailed information concerning the seminar can be obtained by sending an email to: [sabine.engert@simpack.de](mailto:sabine.engert@simpack.de). (Please contact INTEC beforehand if you would like to receive some advice on how to convert user routines to the new format). We are happy to further expand the capabilities and user friendliness of SIMPACK and are confident that you will be pleased with the new and updated features in SIMPACK v8.5