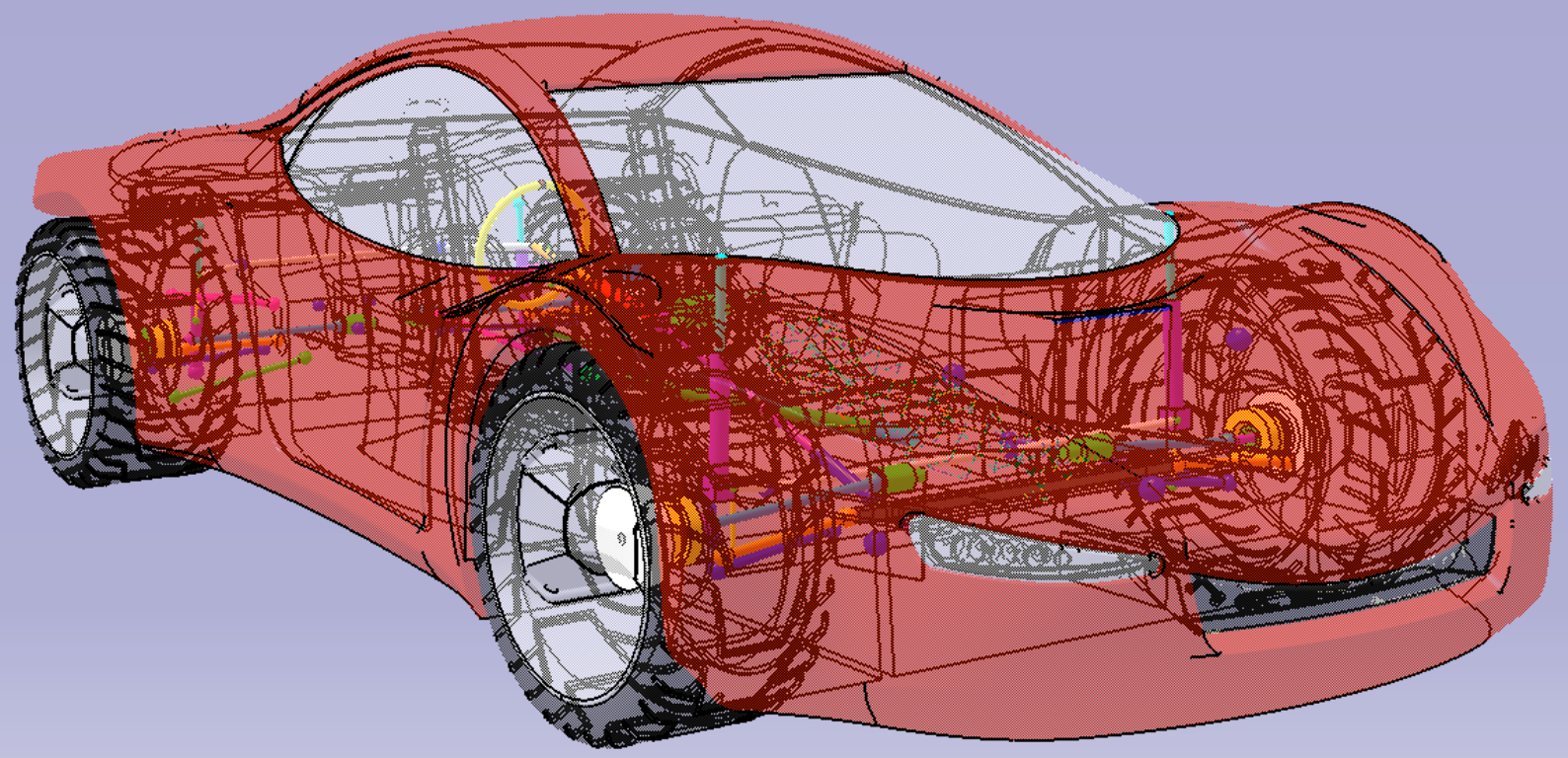
Leading partner in
Test & **Mechatronic Simulation**



LMS Virtual.Lab Motion

Optimize real-life performance of mechatronic systems

LMS Virtual.Lab Motion is a highly efficient, completely integrated solution used to build multi-body models that accurately simulate the full-motion behavior of complex mechatronic system designs.

LMS Virtual.Lab enables users to easily create a complete and accurate system model from scratch. They can also choose to import the geometry of models from any industry-standard CAD system. LMS Virtual.Lab Motion applies forces and motion to simulate the actual operational behavior of the new design, taking mechatronic (hydraulic, electronic, pneumatic, etc.) subsystems into account through efficient simulation schemes.

Built on more than 30 years of proven solver technology, the resulting simulation provides excellent input data to optimize the design's dynamic performance. The loads obtained can also be used for structural analysis, durability, and noise and vibration studies.

The flexibility of individual components can be simulated with the help of integrated or external linear and non-linear FE solvers.

- → Simulate the real-life behavior of complex mechatronic systems with best-in-class solver technology
- → Calculate accurate loads for structural analysis, durability and noise and vibration studies
- → Correlate multi-body models with measurement data through unique hybrid technologies
- → Reduce need for expensive and/or difficult measurement campaigns

Making virtual simulation realistic
www.realworldready.com

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LMS Virtual.Lab Motion - Rev 11

Always innovative

Customized applications for template-driven simulation

LMS Virtual.Lab Composer allows the creation and easy customization of industry-specific applications, which streamlines the simulation process, from reading input data, through solving different design variants, to results post-processing. The applications are constructed using libraries of template models created in LMS Virtual.Lab Motion, typically built by a multi-body expert. LMS Virtual.Lab Composer supports drag-and-drop GUI creation, making it possible to rapidly design customized applications for the end-user.

Driving dynamics application for efficient vehicle simulation

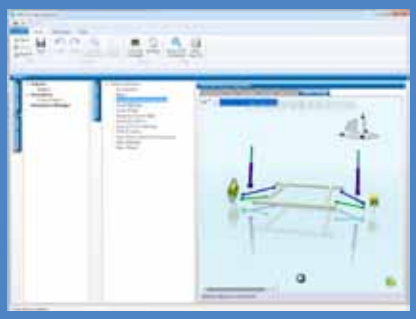
Built on the LMS Virtual.Lab Composer framework, the Driving Dynamics GUI provides a dedicated interface for all vehicle dynamics analysis. It allows vehicle selection, population, solution and post-processing for platform design. The application also helps users optimize vehicle subsystems (suspension, steering, driveline) for driving dynamics performance. Furthermore, it can be easily customized and tailored to in-house processes and simulation requirements.

Co-simulation: seamless integration of mechatronic subsystems

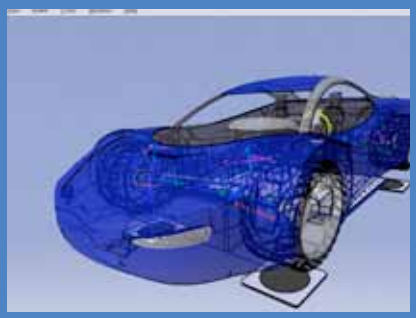
Today's product designs rely more and more on electronic, hydraulic or pneumatic subsystems. The complex interactions between the different subsystems – which may independently behave correctly – need to be simulated with ever-increasing accuracy and efficiency to systematically guarantee that the integrated end-product will actually function properly. LMS Virtual.Lab provides state-of-the-art co-simulation interfaces to LMS Imagine.Lab AMESim (typically for hydraulic, pneumatic or electric subsystem modeling) and Simulink (for controllers).

Other highlights

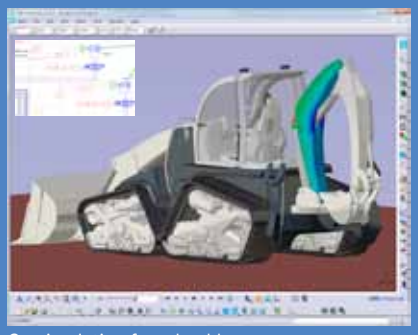
- Use your accurate multi-body models for the HIL testing of controllers as a result of Real-Time capability.
- Achieve accurate simulation of non-linear flexibility through the unique capability of co-simulation with non-linear Finite Element analysis.
- Accurately model your leaf spring in order to correctly take into account the leaves' geometry and mass properties, and the friction between leaves.
- Replace the full FE-model of an airplane fuselage with a condensed stiffness matrix to improve computational performance while still taking into account the flexibility of the fuselage.
- Increase your productivity significantly thanks to the multi-node batch solver.



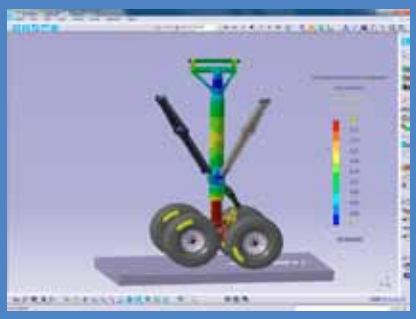
LMS Virtual.Lab Composer



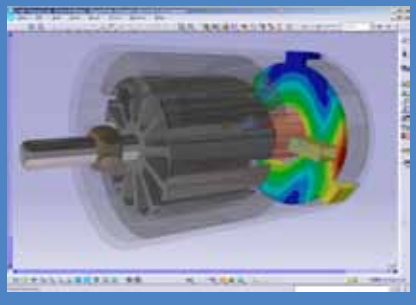
Model created with the Driving Dyanamic GUI



Co-simulation for a backhoe arm



Landing gear modeled as a flexible body



Electrical motor dynamic simulation

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