SIMPACK SPACE

What is SIMPACK?

SIMPACK is a general-purpose multi-body simulation (MBS) software tool which is used to aid the development of any mechanical or mechatronic device, ranging from single components through to complete systems (e.g. wind turbines, vehicles, and high performance Formula 1 engines). All SIMPACK products are 100% compatible.
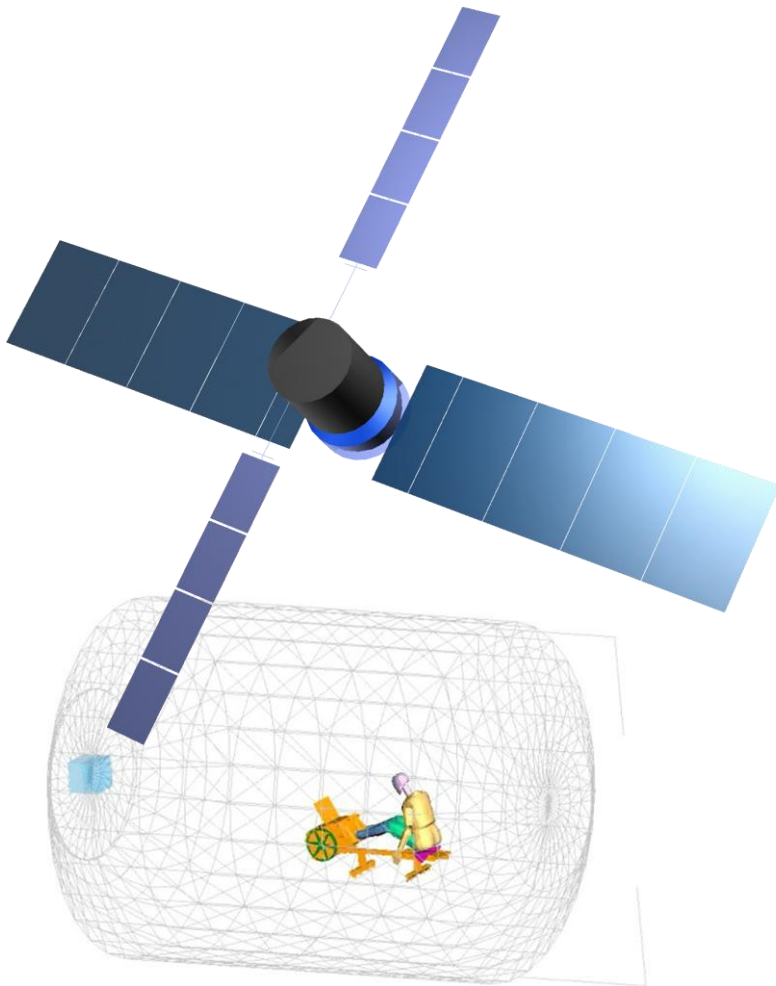
SIMPACK Space is tailored to the specific requirements of the aerospace sector.
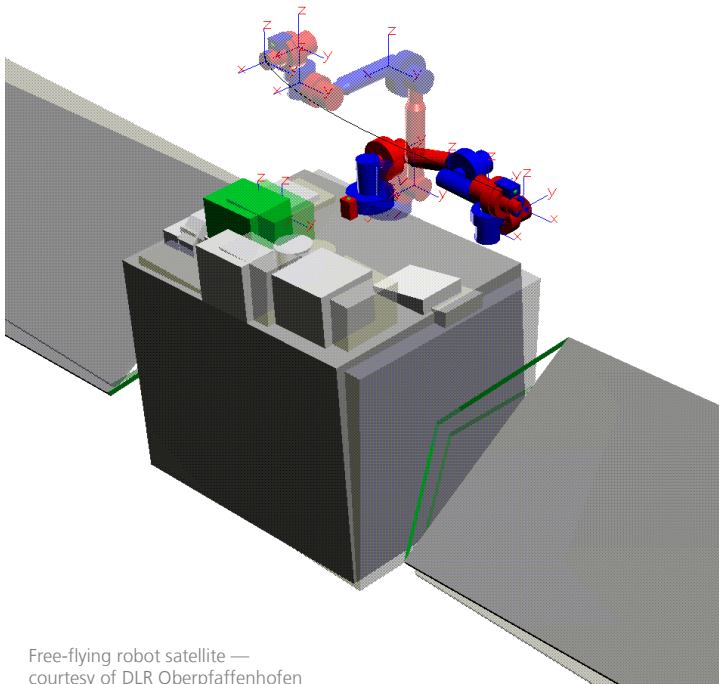
Applications:

- Simulation of any aeronautical design
- Open and closed loop systems
- Resonance analysis
- Stochastic and transient response
- Geometric and material modification
- Hardware-Software-in-the-loop
- Lift-off and touch down analyses
- Payload separations
- Planetary rover maneuvers
- Solar panel deployment, robotics, etc.

Highlights:

- Unlimited flexibility
- Highly efficient algorithm and solver
- Extreme non-linear system behavior (e.g. shock-excitation)
- Acoustic and fatigue analyses in the frequency and time domain
- High-end interface to CACSD codes (MATLAB® and Simulink®)
- IPC co-simulation interface
- Batch jobs
- Automatic analysis reports
- Incorporation of user code

Two satellites attached with flexible connection, flywheel — courtesy of ESA

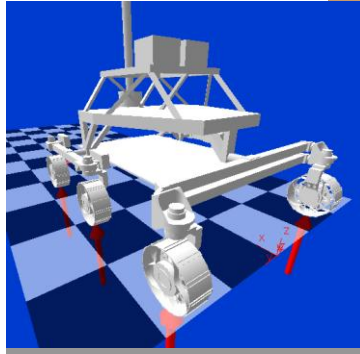Free-flying robot satellite — courtesy of DLR Oberpfaffenhofen

Features:

- Flexible body generation within SIMPACK
- Non-linear bending
- Importation of flexible bodies from FEM codes
- Posterior fatigue analysis with FEMFAT or FAT4FEM
- Durability
- Contact mechanics
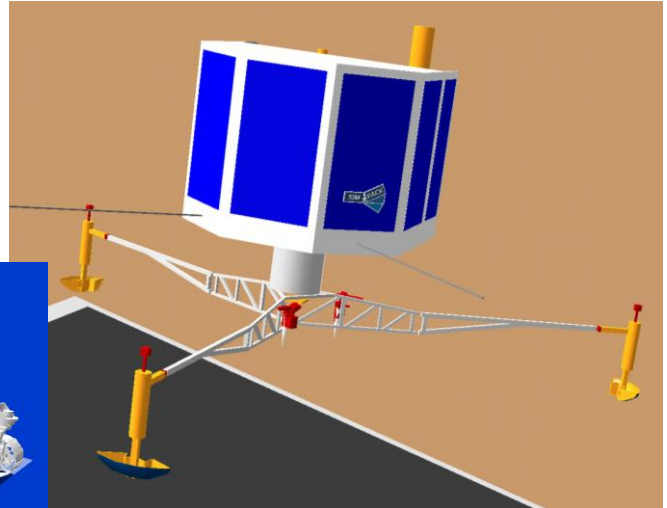- Optimization
- Code Export

Interfaces to:

- Aerodynamic software
- CAD software
- Control software
- FEM software
- Fluid dynamic simulation tools
- Fatigue analysis software
- Optimization tools
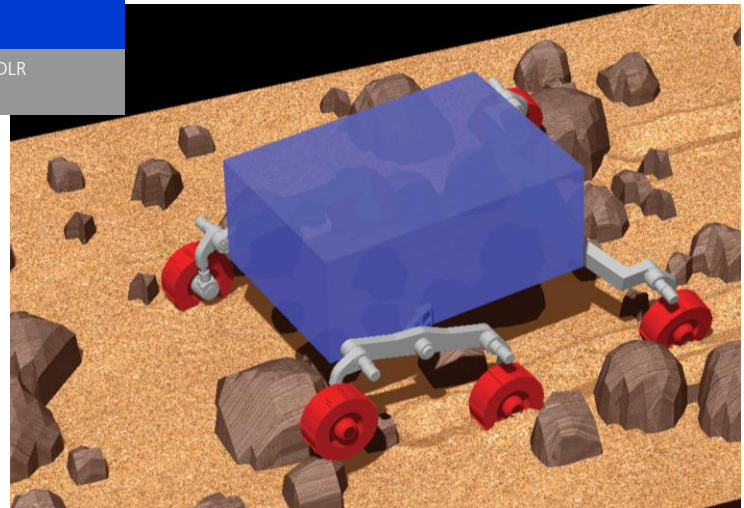- In-house software

Operating systems:

- Windows and Linux.
  See: www.SIMPACK.com/platforms.html

Rosetta Lander — courtesy of Max-Planck Institute

Mars Rover — courtesy of DLR Oberpfaffenhofen

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