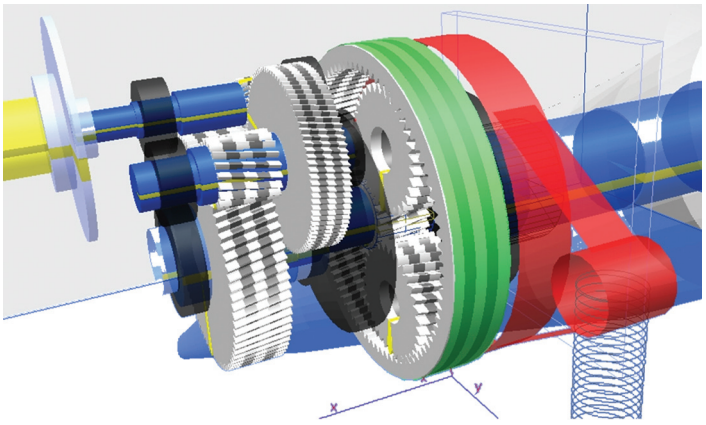


Fig. 2: Detailed SIMPACK model

- Torsion, bending and axial degrees of freedom must be considered.
- Simulation models with only rotational degrees of freedom can be used (if the calculation results are verified with measurements).
- For certain analyses, the simulation of a run-up must be conducted in the time domain.

In part, such new requirements are arising from current EU co-funded research projects that are concentrating on the validation of simulation models through measurement. Together with manufacturers of wind power plants and transmissions, research institutions and universities, GL is involved with the PROTEST research project.

One emphasis is the measurement of a drivetrain of a wind power plant of the megawatt class. At the same time, results arising from simulations with SIMPACK are compared with the measurement results. Further information is available at the Internet site for the project (see www.protest-fp7.eu).

CONCLUSION

In order to obtain a more in depth view of the dynamic behavior of complex systems (e.g., the drivetrain of a wind power plant), a clear trend to more complex and validated simulation models is imperative.
SIMPACK is high-performance and reliable simulation software is an important tool for achieving this goal.

INFORMATION

For more information about GL and renewables please see:
www.gl-group.com/GLRenewables

REFERENCES

[1] IEC IEC 61400-1 "Wind turbine generator systems – Part 1: Safety requirements", 1999. 2nd edition, February 1999.
[2] IEC 61400-1 "Wind turbines – Part 1: Design requirements", 3rd edition, August 2005.
[3] Germanischer Lloyd, Hamburg, Germany: "Guideline for the Certification of Offshore Wind Turbines", 2005 Edition.
[4] Germanischer Lloyd, Hamburg: "Guideline for the Certification of Wind Turbines", Edition 2003 with Supplement 2004.
[5] Germanischer Lloyd, Hamburg: "Guideline for the Certification of Wind Turbines", 2010 Edition.

SIMPACK Academy Events in 2010

MBS NUMERICS ACADEMY, 14.–16.09.2010, in Andechs, Southern Germany

Prof. Dr. Martin Arnold, Institute of Mathematics, Martin Luther University Halle-Wittenberg and Dr. Gerhard Hippmann, Solver Technology, SIMPACK AG

"Multi-Body System Numerics" aims to enable the calculation engineer to understand the capabilities and limits of numerical methods in multi-body dynamics. Elaborate presentation of the theoretical background is combined with software issues as well as practical examples and tips.

WIND TURBINE AND DRIVETRAIN ACADEMY, 05.–07.10.2010, in Gross Schwansee, Northern Germany

• Part 1: Dynamics and System Design of Wind Turbines, 05.–06.10.2010

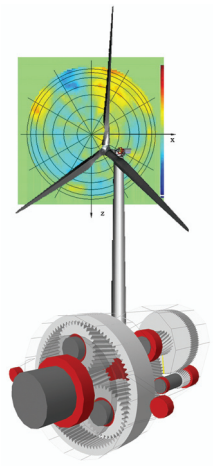
Prof. Martin Kühn, ForWind — University of Oldenburg and Stefan Hauptmann, University of Stuttgart

This course combines theoretical background with recent industrial experience to provide a comprehensive introduction to state-of-the-art wind turbine dynamics and design from a system´s view-point.

• Part 2: Design and Analysis of Drivetrains in Wind Turbines and Other Large Industrial Applications, 06.–07.10.2010

Prof. Berthold Schlecht and Thomas Rosenlöcher, Technical University of Dresden

This course covers the dimensioning and design of drivetrain systems and their components. In addition, the advantages and accuracy of multi-body simulation (MBS) will be shown.



For more information and registration please visit: www.SIMPACK.com/SIMPACK_academy.html