

October 17-18, 2007  
The Radisson SAS Hotel  
Frankfurt, Germany

[www.mscsoftware.com/events/vpd2007/emea](http://www.mscsoftware.com/events/vpd2007/emea)

## MSC Software Virtual Product Development Conference 2007

EMEA (Europe, Middle-East & Africa)

*"Gaining Competitive Advantage Through Engineering Productivity"*

The Radisson SAS Hotel, Frankfurt Germany, 17-18 October 2007 (arrival 16-October)

### Overview

#### Tuesday 16 October (Pre-Conference)

**11:00-18:00 : Special Interest Consortium Meetings** (by invitation)  
- Adams/Car Users' Meeting & Composite Materials Special Interest Group Meeting

19:00 : **Main Conference Registration opens**  
19:00-22:00 – **Social Program : Welcome Reception – Buffet and Entertainments**

#### Wednesday 17 October (Day-1)

**PLEASE NOTE NEW OPENING TIME : 08:45hrs**

---

08:45 – 10:30 : **Session 1 – Management Track : Opening Keynotes** (Single Track)  
- *MSC Software, Daimler AG*  
10:30 – 11:00 : *Coffee break*

---

11:00 – 13:00 : **Session 2 – Industry Track : Industry Keynotes** : (3 Parallel Tracks A,B,C)  
*Track-A -Aerospace - Airbus, Alenia Aeronautica, Sogeti*  
*Track-B -Automotive - Audi, Red Bull Racing, PROSTEP,*  
*Track-C -Manufacturing - BOMAG, Carl Zeiss, IBM*  
13:00 – 14:00 : *Buffet Lunch*

---

14:00 – 15:30 : **Session 3 – Industry Track : Industry Applications #1** : (3 Parallel Tracks A,B,C)  
*Track-A -Aerospace - AgustaWestland, CSM Software, Aernova Engineering Solutions Iberica, Volvo Aero Corporation.*  
*Track-B -Automotive - Rieter Automotive Management AG, University of Newcastle upon Tyne, VI-grade, Toyota Motor Corporation*  
*Track-C -Manufacturing - Atomenergoproekt, Royal Institute of Technology, KTH, Siemens AG, Parker Hannifin GmbH & Co. KG*  
15:30 – 16:00 : *Coffee Break*

---

16:00 – 18:00 : **Session 4 – Industry Track : Industry Applications #2** : (3 Parallel Tracks A,B,C)  
*Track-A -Aerospace - Terma A/S Aerostructures, Heinkel Engineering GmbH, Khronichev State Research & Prod. Space Center*  
*Track-B -Automotive - DaimlerChrysler, Simertis, Piaggio & C. SpA,*  
*Track-C -Manufacturing - PJSC "Kolomensky zavod", EC Engineering, Freudenberg Fluidtechnic GmbH*

18:00 – 18:30 : *Break*  
18:10-18:40 : **Special Technology Session : Technical Preview - Open CFD** (Room Nikkei)  
18:30 – 20:00 : **Social Program : Cocktail Reception & Entertainments**  
20:00 – 23:30 : **Social Program : Gala Dinner – Dinner, Awards & Entertainments**

#### Thursday 18 October (Day-2)

---

08:30 – 10:30 : **Session 5 – Technology Track : Simulation Technology Keynotes** (Single Track)  
- *MSC Software, INCAT*  
10:30 – 11:00 : *Coffee break*

---

11:00 – 13:00 : **Session 6 – Technology Track : Simulation Technologies** (4 Parallel Tracks A,B,C,D)  
*Track-A – From Point Products to SimXpert*  
*Track-B – Integrating Simulation in the Enterprise : SimManager*  
*Track-C - From Engineering Tools to Multi-discipline Solutions*  
*Track-D - Meeting the CAE Challenge with SimOffice*  
13:00 – 14:00 : *Buffet Lunch*

---

14:00 – 16:00 : **Session 7 – Management Track : Closing Keynotes & Special Guest Speaker** (Single Track)  
- *IBM, HP/Intel, Microsoft Corporation., Special Guest Speaker -Dr,Ulrich Walter*  
16:00 *Conference Close & transportation*

---

### Agenda\* (Detail)

## Tuesday 16 October

### **Delegate Arrival**

### **Social Program**

19:00-22:00 (The Lobby & Terrace)

### **Welcome Reception & Entertainments**

Our registration desk will be open from 19:00-21:00 so if you join the Welcome Reception please take a moment to register and collect your Conference Information Pack.

## Wednesday 17 October

### **Technology Exhibition**

08:00-08:45 (Exhibition Foyer)

**Networking : Registration & Solution Partners' Technology Exhibition**

---

### **PLEASE NOTE NEW OPENING TIME : 08:45hrs**

08:45-10:30 (Room : Dow/Jones)

### **Session 1 : Management Track : Opening & Keynote Presentations** (Single Track)

Chaired by : Amir Mobayen, Senior Vice President EMEA, MSC Software

MSC Software executive management and their VIP guests will present current and future views of the MSC Software's company strategies, solution development plans, and experiences of Enterprise Simulation in industry environments. .

08:45-09:05 - **MSC Software Corporation** (USA),  
William Weyand, Chairman & Chief Executive Officer, (USA)  
"MSC Software : The Proven Leader"

Mr. Weyand assumed the role of chairman and CEO of MSC Software in February 2005. Mr. Weyand was Chairman and CEO of Structural Dynamics Research Corporation (SDRC) from 1997 to 2001. During that time, he redefined SDRC's strategic direction to capitalize on new growth opportunities, establishing the company as a market leader in Product Lifecycle Management (PLM) solutions. Under his direction, SDRC acquired seven companies. In 2001, he successfully facilitated the sale of SDRC to Electronic Data Systems (NYSE: EDS) for \$1 billion. Prior to joining SDRC, Mr. Weyand served as Executive Vice President of Measurix Corporation, where he refocused the company's sales strategy to increase its market share to more than 50 percent. Previously, he held several senior sales and marketing positions at Cygnit Systems, Avco Corporation and Chomerics. Mr. Weyand also serves on the boards of Riverstone Networks (Nasdaq: RSTN), Ascential Software (Nasdaq: ASCL), Pavilion Technologies Inc. and Radiance Technologies. He serves on the board of the Ohio River Valley Chapter of the Arthritis Foundation and as a trustee of Nichols College.

09:05-09:50 - **MSC Software Corporation** (USA),  
Glenn Wienkoop, President & Chief Operations Officer  
Presented by Steve Bodnar, Vice President, Marketing & Product Management  
"The Path Forward for Innovation"

Mr. Wienkoop joined MSC Software from BDNA Corporation where he served as the president and chief operating officer. Mr. Wienkoop has held the position of president and chief operating officer at Portal Software where he was responsible for all company operations and the development of a new enterprise corporate strategy. He served as president and chief operating officer at Structural Dynamics Research Corporation (SDRC) prior to its acquisition by EDS in 2001. During his tenure at SDRC he led the transformation from a packaged software provider to an integrated enterprise solutions provider with Teamcenter becoming the PLM leader ultimately resulting in SDRC's acquisition. Before SDRC Mr. Wienkoop was the division president at Cognex Corporation. He also held several executive positions at Honeywell-Measurix Corporation including division president, executive vice president of marketing and engineering, vice president corporate business development, and vice president of sales and services. Mr. Wienkoop completed executive programs at Massachusetts Institute of Technology, California Institute of Technology and Stanford University. He holds an MBA from the University of West Florida and a masters and bachelors degree in engineering from Georgia Institute of Technology.

Mr. Bodnar has 17 years of marketing and product management experience in the CAD/CAM/CAE, PLM, and enterprise software industries. Prior to joining MSC Software, Mr. Bodnar has served in several executive roles including director of market development for EDS' PLM Solutions and as vice president of the collaborative solutions group at Structural Dynamics Research Corporation (SDRC). Before SDRC, Mr. Bodnar was the director of product marketing for Parametric Technology Corporation (PTC). Mr. Bodnar was a founding member of Auxilium, Inc. where he was the director of product management prior to its acquisition by PTC in 1999. He also served at Chrysler Corporation for 10 years in the engineering CAD/CAM/CAE group.

09:50-10:30 - **Daimler AG** (Germany),  
Alfred Katzenbach, Director Information Technology Management for Research and Development  
"PLM at Daimler"

The PLM landscape at Daimler is made up of hundreds of systems, which supports seamless product life cycle processes. Efficient interaction with PLM solutions on the supplier side is essential, which makes open standards more and more important. Evolution of the IT-landscape from point to point data exchange to a standardized access of services is strongly pushed on. As an example, Alfred. Katzenbach will illustrate the integration of CAE data management into a data backbone to realize an efficient PLM landscape on basis of standards and open IT solutions.

---

### **Technology Exhibition**

10:30-11:00 (Exhibition Foyer)

**Networking : Coffee Break & Solution Partners' & Technology Exhibition**

11:00-13:00

### **Session 2 : Industry Track : Keynote Presentations** (Tracks, A,B,C)

Invited executives from leading industry organisations share their experiences in the specification, deployment and management of enterprise-wide simulation environments.

### **Session 2 : Track A (Room : Dow) – Aerospace Industries**

Chaired by : Albrecht Pfaff, Vice President Aerospace industries EMEA, MSC Software

11:00-11:40 – **Airbus** (Germany)  
Jens Bold, Project Leader Composite Skill Improvement  
"Airbus Composites Training : Skills for Composites"

The technological evolution requires also a 'techno-cultural' evolution in the area of people's skills and knowledge development. This article concentrates on the specific skill development approach for A350 XWB, which is mainly based on knowledge share within Airbus experts and specialists. The A350 XWB will be a further main evolutionary

step in the use of composite technology. Facing this challenge Airbus has to widen the range of engineers being able to think in fibres. The Structure Academy responsible for the training inside the Centre of Competence Structure was asked to develop the necessary way for composite skill improvements. An innovative learning path was formed, based first on a knowledge cascade from the experts to the component specialists and then to the part designer and stress engineers and second very close to operational need. This innovative learning path will allow spreading the knowledge and experience Airbus has collected in the last two decades with primary composite structures also to strategic partners.

11:40-12:20 - **Alenia Aeronautica S.p.A.** (Italy)

Alessandro Franzoni, Chief Technical Officer

**“Virtualization as Business Enabler – ALENET PLM and Virtual Prototyping”**

The product virtualization is changing perspective from a vertical solution to an integrated business process. In this view, the management of this asset in terms of tools, methodologies, process, skills and organization is getting the new leverage for the technological advantage in the market new challenges. For instance, the product complexity, especially in Aerospace and Defense sector, is growing through the streams of the technology level and the business network spread in partnerships and supply chain. Moreover, from the component to equipment, a steep ramp-up is faced along the value chain up to the “systems of systems” concept. Therefore, the system engineering shall drive the implementation from the requirements assessment and the concept phase up to the manufacturing and operation implications for the lifecycle perspective complying with the stakeholders expectations. Finally, all the processes shall be governed now on a federative frame through an extended enterprise network.

12:20 13:00 – **Sogeti High Tech** (France)

Philippe Sottocasa, Technical VP-Sogeti High Tech

**“SimManager for Service Provider”**

Engineering Service market is a fast changing market, customers are looking for companies able to take over ever bigger Work-packages. At the same time simulation is becoming the key factor to enable time-to-market and costs reduction. To remain competitive, services providers need to combine: simulation expertise, autonomy (premises, Hardware, Software), offshore capabilities and a secure delivery process. To raise this challenge Sogeti High Tech has decided to implement an in-house SimManager Portal. After an audit and specific definition of the processes to be managed, the latter have been implemented in the MSC SimManager tool. Important and valuable customers, fully integrated in Catia V5, MSC Patran and other software, have been developed in order to facilitate the implementation of each to this new working method. This tool offers total traceability on an entire chain starting from CAD, FE Analysis or other and up to technical reports. Total control of the processes can be achieved and any type of data (CAD, meshing, analysis results...) can be found or retrieved and analyzed independent of its version.

## **Session 2 : Track B (Room : Jones) – Automotive Industries**

Chaired by : **Erich Buerge**, Vice President Automotive Industries EMEA, MSC Software

11:00-11:40 - **Red Bull Racing** (UK),

Steve Nevey, Business Development Manager

**“Title of Presentation Unavailable at time of Print”**

We regret that a detailed abstract was unavailable at the time of print. Please check the EMEA Conference website for any updates.

11:40-12:20 - **AUDI AG** (Germany),

Dr. Michael Holzner, Head of Body Pre-Development/Production Support/Strake Models/CAX-Methods

**“Design of Functional Modules by means of Virtual Product Development”**

One of Audi's strategic objectives is to become first worldwide in the automotive premium segment by 2015. This can only be accomplished by expanding the product basis considerably. Complexity is likely to explode due to heterogeneous and growing legal requirements, higher customer expectations and increasing competition. In order to manage this complexity technically and economically, innovative approaches have to be employed. One of these is the concept of functional modules. Beyond the well known module strategy, which mainly refers to geometrical and production aspects, functional modules also take into account the properties of vehicles, such as crash performance or acoustics. The key idea of functional modules is abstraction: instead of solving several individual problems, classes of problems are established, which enable higher level solutions and thus enhance productivity by using synergy effects. As a first example, the general concept of functional modules has been realized at Audi in the form of an adaptive occupant restraint system. In this context abstraction mainly relies on adaptivity, which additionally gives rise to functional enhancements. The functional design of this restraint system was predominantly accomplished by means of simulation techniques. Instead of a monolithic solution it is composed of several innovative partial solutions.

12:20 13:00 - **PROSTEP** (Germany),

Dr.-Ing. Rainer Bugow, CTO

**“SOA Industry Framework for PLM”**

SOA is a way of viewing business processes as a set of linked, reusable services to make a company's business operations more efficient, effective and collaborative. SOA is an efficient approach to meet the challenge in the implementation of PLM related integration solutions. PROSTEP's OpenPDM® integrates with the IBM SOA Foundation, creating a platform that elevates PLM Interoperability to a whole new level of simplicity and productivity with complete metadata and product structure mapping between heterogeneous engineering systems like CAD, PDM/PLM and CAE.

## **Session 2 : Track C (Room : WallStreet) – Manufacturing Industries**

Chaired by : **Kais Bouchiba**, Vice President Manufacturing Industries EMEA, MSC Software

11:00-11:40 - **BOMAG** (Germany),

Mr. Peter Erdmann, Manager TR

**“Finite Element Analyses in the Product Development Process at BOMAG”**

The requirements for construction equipment for soil compaction have increased during the past years regarding the compaction power, the application on different soil materials and the verifiability and documentation of the status of compaction of the soil materials. The realisation of all these aspects results in an increasingly higher complexity of the equipment. The use of simulation programs is an important tool during the target-oriented development of new technologies and new equipment for the soil compaction. BOMAG benefits from the use of MSC.MARC to simulate parts of the machines and the whole units during the design process and also the interaction between the compaction tools and the subgrade, because with MSC.MARC it is possible to solve contact problems and to describe the material behaviour of the soil regarding the characteristics of soil mechanics. The presentation will show typical examples of the numerical simulations during the design process at BOMAG..

11:40-12:20 - **Carl Zeiss SMT**, (Germany),

Dr. Armin Schoeppach, Principal Scientist

**“Finite Element Analysis is an Indispensable Tool in the Design of High End Optical Systems for Semiconductor Manufacturing to Minimize Risk and Reduce Costs”**

In the development of Lithography Optics, Finite Element Analysis is an indispensable tool for the qualification of systems prior to the manufacture of physical lenses. The analyses comprise elasto-mechanics, dynamics, thermo-elasticity and thermal analyses. As lenses are manufactured according to the “first-time-right” design philosophy and prototypes are omitted, the accurate prediction of displacements and deformations in the nm scale is required. It has turned out, that FEA fulfils this demand, enabling the mentioned design philosophy and thus reduces costs and minimizes risk but requires experienced analysts. In addition the accuracy can be improved by tests on component level for effects that are difficult to determine in advance. In complex structures such as Optical Components this applies for instance to numerous screwed connections, which even today cannot be modelled in detail without exceeding reasonable model sizes and calculation time. By comparing the measured displacements with those predicted the model can be tuned. Optical Interferometry for optical parts and Speckle Interferometry for mechanical parts are methods to measure displacements with sufficiently high accuracy. Once the model of the component is calibrated via tests, the prediction of full system models is very accurate.

12:20 13:00 – **IBM/MDTVISION** (Germany)

Mr. Heinz Rybak, Senior Consultant, Technical Lead for Cooperation IBM/MSC Software

**“Simulation Driven Design”**

For different reasons a tighter collaboration between product design and simulation is increasingly requested. It is not sufficient anymore to optimize these domains in themselves, even though corresponding efforts are still important. It is rather necessary to have a look on the adjustment of common processes, methods and data flows to fasten the product development process as a whole and to comply with requirements as for better reliability or higher quality. In this context a focus is set on the validation of early design concepts through simulation, which is enabled by cross domain process and workflow management, standardised design concepts and simulation methods

and also through integrated data management. The latter is among others needed to re-use existing design components and related simulation processes and to manage the tremendous increase of simulation cycles.

---

## Technology Exhibition

13:00-14:00 (**Exhibition Foyer**)

**Networking : Lunch & Solution Partners' & Technology Exhibition**

---

14:00-16:00

## Session 3 : Industry Track : **Industry Applications #1** (Tracks, A,B,C)

Selected speakers representing aerospace, automotive, and a range of manufacturing industries share their applications and experiences in using simulation technology to drive product development, optimize product performance, and shorten the design-to-manufacture process.

---

### Session 3 : **Track A** (Room : Dow) – Aerospace Industries

Chaired by : Yves Lombard, Directory Aerospace Industry Sales, MSC Software

14:00-14:30 - **AgustaWestland** (UK),

Rebecca Margetts, Engineer: Mathematical Modelling

**"Development of a Helicopter Drivetrain Dynamics Model in MSC Adams"**

*This study models the modal coupling between a helicopter drivetrain, surrounding structure and fuselage modes. Helicopter drivetrain dynamics have historically been modelled in Matlab or MSC Nastran. It was hypothesised that there is modal coupling between the drivetrain and the main rotor gearbox structure, which existing models did not identify, causing a yawing mode close to the blade passing frequency. The drivetrain was modelled in MSC Adams using equivalent point inertias and torsional springs, to give torsional modes only. This approach is fast and user-friendly, compared to detailed modelling of the components. The ADAMS results were validated against the existing models and flight test data. It was shown that MSC Adams models the drivetrain modal behaviour well, including the modal coupling between the drivetrain and main rotor gearbox structure.*

14:30-15:00 - **CSM Software** (India),

Vikas Kenchapura Revanna, Application Engineer,

**"Nonlinear Analysis for Assembly Load"**

*In a typical aerospace structure there are thousands of bolt fasteners. Assembly stresses are induced primarily due to two reasons. a) Closure of mismatch in bolt-holes due to manufacturing tolerances, errors etc. b) due to the process of bolt tightening. These stresses are dependent on gap closing sequence, bolt tightening sequence and contact friction and therefore are non-linear problems. This can cause defects in assembly, which affect the functionality. In this work an effort was made to simulate the pre-stress and misalignment due to closure and tightening for the first time analytically. Here a classification of the problem is made based on boundary type and a formulation is developed for a simple problem of simultaneous closure for a constrained-constrained closure problem. Subsequently, simulations are carried out to find stresses and deformations induced due to mechanical assembly carried out using bolt fasteners in a open-box problem and finally in a typical package problem. The commercial non-linear FE package MSC.Marc/Mentat is employed for numerical simulations.*

15:00-15:30 - **Aernnova Engineering Solutions Iberica** (Formerly Gamesa Desarrollos Aeronauticos), (Spain),

Federico Martin de la Escalera, Senior Engineer.FEM Manager,

Sandra Santos, Fatigue & DT Engineer,

**"Residual Strength Prediction Implementation Using MSC Nastran FE Code and the CTOA Criterion"**

*This paper presents a numerical implementation of a fracture mechanics criterion based on the CTOA concept. MSC.Nastran finite element code has been selected for this implementation. The resulting numerical tool helps to analyze crack growth and the associated strength variation in thin-walled panels (wing and fuselage), where the plasticity effect is particularly pronounced. This numerical tool has been validated through the analysis of crack propagation and the associated residual strength variation for several thin-walled panels (M(T) and C(T)) tested in previous studies and described in literature. This work summarizes the results obtained using this mathematical model. It is shown a description of the finite element model and the crack growth algorithm. A tests campaign is being undertaken in order to evaluate the CTOA parameter for compact specimens. The testing materials are aluminium alloys used in aircraft structures, such as 2024 T3 sheet bare aluminium alloy (0.063" thick). A correlation between numerical and test results is also shown. Finally, the test methodology is explained.*

15:30-16:00 - **Volvo Aero Corporation**, (Sweden)

Torbjörn Kvist, Manufacturing Technology - Fabrication and Simulation, 9634TN

Henrik Alberg,

**"Manufacturing Process Simulation – Current Application and Future Challenges"**

*High-quality, high-value manufacturers in the aerospace industry constantly seek to improve their product quality and reduce cost and lead times by producing 'right first time' products. In that perspective, manufacturing simulation using FEM will play a vital role in aero engine development and production planning, from the early design phase to the final design. The emerging methods and tools predict component behaviour during manufacturing and make it available to design and manufacturing engineers. This significantly improves quality and reliability of new designs while simultaneously shortening lead-time of the design phase. Further, lead to right first time product introduction and minimal recurring manufacturing costs as process capability will be understood and designed into the component. Volvo Aero uses manufacturing process simulation with FEM extensively (mainly welding and heat treatment), all the way from the early concept stage of product development to manufacturing support. Although many tools for manufacturing process simulation are available on the market today, several challenges still need to be resolved before complete simulation of all significant manufacturing stages can be fully achieved on industrial scale. Only when these three challenges have been addressed, can manufacturing process simulation be fully appreciated by the industry.*

---

### Session 3 : **Track B** (Room : Jones) – Automotive Industries

Chaired by : Alexander Huwe,Account Manager, Automotive Industry, MSC Software

14:00-14:30 - **Rieter Automotive Management AG**, (Switzerland),

Claudio Bertolini, Project Leaders' Coordinator,

Francesca Avenati Bassi, Head of Simulation Group Rieter Automotive Italy

**"Tresuri/FE: A New Tool for the FE Simulation of Poroelastic Materials Fully Integrated in MSC Nastran"**

*Due to their dissipative properties, porous materials are extensively used in automotive acoustics for the purpose of passive noise control. The issue related to their optimization has led to the need of models suitable for the analysis of their dynamical behaviour and this has generated a considerable research effort for the development of both analytical and numerical models, all based on the system of equations initially developed by Biot. FE implementations of Biot's equations have been available in commercial software programs for more than 10 years now but, at least until recently, their application was confined to the analysis of small and academic systems. This paper presents a novel FE implementation of Biot's system of equations that is fully integrated in MSC.Nastran. This full integration was obtained by means of a DMAP that exploits as far as possible all the capabilities of MSC.Nastran and that drives an external program for the generation of the porous materials' FE matrices that can not be built directly inside MSC.Nastran itself. The main functionalities of the tool are presented, together with a few validation examples.*

14:30-15:00 - **University of Newcastle upon Tyne**, (UK),

Mahyar Mahinzaeim, PhD student / Research Associate

Dr.Reinhard Schmidt, Lecturer, University of Applied Sciences Osnabrueck

**"Some Problems Associated with the Collaborative Simulation of Active Vibration Regulation (AVR) Systems"**

*This work presents an investigation into the synchronisation problem associated with collaborative simulations of active vibration regulation (AVR) systems. A multi-body*

model of a convertible vehicle is derived approximating the dynamics of a complicated vehicle quite accurately. A robust AVR system in the presence of process uncertainties is then designed aiming at attenuating the magnitudes of the first two eigenmodes of the system considered. Subsequently, the AVR algorithms are implemented on a virtual test rig in MSC.ADAMS/Car®, providing a means for conducting AVR relevant simulations by combining MSC.ADAMS/Car® and MSC.ADAMS/Controls® with MATLAB/Simulink®. The sampling time is chosen such that good synchronisation between MATLAB/Simulink® and MSC.ADAMS® is allowed for in the frequency range of interest. The results from these indicate the viability of the approach considered for attenuating the vibration amplitudes of the first two eigenmodes.

15:00-15:30 - **VI-grade/ESTECO srl**, (Italy),  
Mauro Poian, M.Sc. CAE Consultant Engineering Dept. ESTECO srl  
Diego Minen, Technical Director  
Luca Onesti, CTO, ESTECO  
Federico Urban, Sales and Marketing Director, ESTECO

**“Integration of VI-grade and ESTECO Technologies for Accurate Multibody System-Level Simulation and Optimization”**

Intensive use of simulation techniques for understanding dynamics, improving comfort and predicting vehicle road loads has become very popular within the automotive engineers community in recent years. Yet several further progresses are foreseen before those virtual practices could seamlessly integrate with the on road testing activities, in order on one side to improve the vehicle simulation accuracy, and on the other to reduce the test campaigns preparation time and number. The presentation shows how VI-grade solutions and a Multi-Disciplinary optimization environment like modeFRONTIER will help the automotive engineers to a) unify the vehicle data base definition and access, b) correlate the detailed and the simplified vehicle model simulation results and c) generate realtime-capable/stand-alone/HW-targeted simulator programs for SIL and HIL applications. A considerable side effect of this highly improved computing performance is that multiple simulations could run now in much reduced time, keeping almost intact the accuracy.

15:30-16:00 - **Toyota Motor Corporation**, (Japan),  
Dr.Masashi Arakawa, Assistant Manager,  
Hiroo Yamaoka, Project General Manager,  
Ichiro Suzuki, Group Manager,

**“New Interior Noise and Vibration Analysis Methodology using Full Vehicle Model”**

The interior noise generating mechanism of Engine induced booming noise is difficult for engineers to grasp intuitively due to their invisibility in real world. From this reason, CAE is utilized as a substitution for mechanism analysis and the deformed shape visualization. In current NVH CAE, main contributing panels are specified by the panel participation analysis. However, it does not show any clues for directly improvement countermeasures expect for the detected panels. Therefore a new method that can explain the influence among input points, any arbitrary points of the principle body structures and interior noise and can clarify root causes is necessary. This paper proposes a new energy analysis methodology and the transmitted energy state visualization for better understanding of the vibration mechanism. Also, the basic technique for decomposing the transfer function from input point to driver's ear is shown. Finally, the application example to a vehicle using this technique is illustrated.

---

### Session 3 : **Track C** (Room : **WallStreet**) – **Manufacturing Industries**

Chaired by : **Bob Daverveld**, Team Leader Manufacturing Sales, MSC Software

14:00-14:30 - **Atomenergoproekt**, (Russia),  
Liudmila Feoktistova, Engineer,  
Dr.Alexander Roleder, Head of Bureau,  
Dmitry Mikhaluk, Head of Department, St. Petersburg State Polytechnical University

**“Finite Element Analysis of the Response Spectra for NPP Reactor Building under Seismic, Aircraft and Blast Impacts”**

Utilization of the latest VPD technologies is essential for designing Nuclear Power Plants (NPP), especially when different extreme dynamic factors need to be taken into account. The aim of the current project was to determine the Reactor building floor response spectra (FRS) for Pressurized Water Reactor (PWR) NPP in the frameworks of the Master Project development. This problem is of much importance as FRS are used as input data for designing NPP equipment. The following types of dynamic load have been considered: seismic, aircraft and blast impacts. FRS have been calculated in MSC.Nastran using detailed 3D finite-element model developed in MSC.Patran. In order to develop the Master Project it was necessary to perform computations for various ground types on potential NPP sites. Therefore, considering the large amount of computations carried out, it was important to optimize the numerical procedure. As a result of the project, it has become possible to design universal equipment for PWR NPP.

14:30-15:00 - **Royal Institute of Technology, KTH**, (Sweden),  
Dr. Kjell Andersson, Docent

**“A Parallel Kinematic Robot for Serving an Injection Moulding Machine”**

Increased need of automation and flexible production means new applications and higher performance requirements for industrial robots. Current (serial) robot technology is limited, parallel kinematic structures have the highest potential for improvement. A conventional serial robot has the structure of an open kinematic chain. The outer axes will have their drive lines located in the moving system, i.e. considerable inertia. Parallel kinematic robots have another structure. From the fixed base, a number of arms and links are coupled in parallel to the Tool Centre Point. All drive motors/gearboxes can then be located on the fixed base. Ball joints means link loads restricted to pure tension/compression, further improving the stiffness/mass ratio. The forthcoming paper will present an analysis of a gantry-tau parallel robot for an application where it will be placed to serve an injection moulding machine. A critical part of this type of robots is the joints. A parameter variation study will be performed on this gantry-tau concept to study how the joint load is influenced.

15:00-15:30 - **Siemens AG**, (Germany),  
Heiko Hoffmann, Simulation Engineer

**“Use of MSC Adams in the Development of Medium Voltage Switchgears”**

The Siemens PTD M (Power Transmission and Distribution – Medium Voltage) produces gas insulated medium voltage switch gears. They are used in the primary energy distribution level to switch the power supply systems. The kinetic elements in this switch gears need special attention. To avoid wear and loss of contact material by arcing it is necessary to have an optimized movement of the contacting elements. These motions are created by multi joint gears with several spring elements. By using ADAMS it was possible to get some impressions about the behavior of these gears and its components. In Order to this it was possible to find weak points in the dimensioning of the gears, to optimize existing systems and to avoid long testing in development.

15:30-16:00 - **Parker Hannifin GmbH & Co. KG**, (Germany),  
Dr.Manfred Achenbach, Manager Analytical Service / FEA

**“Development of Robust Fuel Circuit Sealing Systems, defining the Problem and Achieving a Solution using MSC Marc”**

Fuel vapour can be emitted in various ways. An important source of emission is the fuel line, including fuel rail / fuel injector interface. These components loose a considerable amount of fuel via vapour emission during the vehicle service life: especially through couplings, connection components and seals. Rubber components, such as seals, have a high permeability compared with metals, due to their internal molecular structure. The fuel losses caused by permeation, which by 1990 had reached approximately 36% of all hydro-carbon emissions in Europe, are now subject to more stringent environmental legislation in order to protect the environment. It is the challenge for the world-wide automobile industry to meet the more rigorous emission requirements by using suitable design improvements at sealing interfaces. This paper shows how FEA can contribute to the analysis of existing seal designs and find an optimal as well as a robust design for the sealing task described to reduce fuel emission in order to protect the environment and to fulfil future legislation requirements. The efficiency of the LT seal has been simulated by advanced modelling with MSC.Marc.

---

### Technology Exhibition

16:00-16:30 (**Exhibition Foyer**)

**Networking : Coffee Break & Solution Partners' & Technology Exhibition**

---

16:30-18:00

### Session 4 : Industry Track : **Industry Applications #2** (Tracks, A,B,C)

## Session 4 : **Track A** (Room : Dow) – Aerospace Industries

Chaired by : Laurent Chec, Aerospace Industry Sales, MSC Software

16:30-17:00 - **Terma A/S, Aerostructures**, (Denmark),  
Poul Dürre Pedersen, M.Sc., Stress Engineer, Composites Specialist,  
Dr. Flemming Mortensen, Dr., Manager, Engineering, Aerostructures  
Philippe Courrier, M.Sc., Design, Composites

### **“Utilization of MSC Patran & Laminate Modeler for Design of Aerospace Composites to be Manufactured Right the First Time”**

Aerospace composites industry sets demands on design and manufacture approaches. Terma A/S, Aerostructures R/D uses MSC Software for advanced modelling techniques and complies to these demands and implement challenging manufacturing requests. This presentation will show manufacturing aspects and challenges to the use of Laminate Modeler for generating reliable manufacturing data, also to demonstrate the development phases and the outcome using a Virtek projection system. This includes traditional initial sizing with quasi isotropic material properties in preliminary design and analysis stages, buildup overview and initial ply drop visualization. General ply and laminate modelling for analysis purposes in critical design stages subjected to composite design rules and customer requirements. Detailed ply modelling to implement manufacturing approaches and semiautomated generation of reliable manufacturing data. Acute angles with tows to maintain structural load transfer and laminate quality. Compensating for thick laminate with ply flat patterns generated on offset doubly curved and tubular geometry. Checking flat pattern quality for numerical error and anormality and generating precise material consumptions estimates. First article inspection of plies and 3D layup using laser position system.

17:00-17:30 - **Heinkel Engineering GmbH & Co. KG**, (Germany),  
Marielle Rufin, MEng.MEng., Composite Stress Engineer,

### **“Simulation of Main Lug for Tests”**

Main lugs are the parts connecting the VTP (Vertical Tail Plane) to the fuselage. The VTP lug is a hollow thick CFRP component. Fuselage lugs are metal components. Lugs are connected together via a bolt. The test component is composed of VTP front lug, fuselage front lugs, bolt, part of VTP skin with ribs, stringers, and spars. Bolt and lugs have been meshed with mainly hexahedral elements. For VTP lug, homogenized CFRP properties have been calculated using Laminate Builder. Skin Properties have been made using Laminate Modeler because of complex layering. The fine mesh test component has been included into the whole meshed VTP. Overall displacements have been calculated. Submodelling has been used for calculating forces acting in the lug and strain distribution in the component. These forces have been applied on a model of the test component with the test rigs in order to get the same strain distribution. MSC.Patran is a good software for thin and thick laminate definition. Laminate Builder and Laminate Modeler are easy to use and offers lots of possibility for creating laminate properties.

17:30-18:00 - **Khrunichev State Research & Production Space Center**, (Russia),  
Dr.Sergey Petrokovskiy, Deputy of General Designer,  
Vladislav Polinovskiy, Leading Engineer-Designer

Dr. Yury Bukhvalov, Khrunichev State Research & Production Space Center.  
**“Virtual Development of Composite Lattice Structures for Space Vehicles”**

Space-launch vehicle mass reduction is a very important design problem. One of the most effective ways to solve this problem is to use composite constructions in rocket design. Cylindrical and conic composite lattice structures compared to “sandwich” or integrated constructions can withstand considerable bigger stresses. That is why Russian State Research and Production Space Center named of M.V. Khrunichev (Khrunichev Center) uses composite lattice frameworks for second and third stages of launch vehicle “Proton-M” (which is used for launches of spacecrafts of several states). Khrunichev Center developed three multipurpose composite lattice payload adapters for mounting a spacecraft onto a launch vehicle. Optimization of lattice structure design was carried out with application of MSC.Nastran, MSC.Marc, Adams and Patran software. Comparison of the results of physical experiments and simulation shows its good correspondence. Usage of MSC Virtual Product Development Technologies in design process of composite lattice constructions allows to substantially decrease the design period and a number of physical tests of products.

---

## Session 4 : **Track B** (Room : Jones) – Automotive Industries

Chaired by : Moh Sabeur, Account Executive Automotive Industry, MSC Software

16:30-17:00 - **DaimlerChrysler**, (Germany),  
Dr.Alexa Nawotki, Research Engineer,  
Bernd Ehrenberg,  
Dr.Edgar Gerteisen,

### **“The Challenge to Master a Multitude of CAE Processes”**

The simulation data management (SDM) may be regarded from a puristic data storage viewpoint. Albeit, additional benefit is exploited if data can be associated with its generating processes within the SDM system. By such means complex process chains may be built by the system. Subsequently, such chains can be traced from the very right hand result back to the source, a functionality that is available in form of the audit trail inside the SimManager system. However, the proper modelling of the complete multitude of CAE processes becomes very involved, even though the characteristics of many are connatural to a large extend. The challenge from the modelling side becomes to define mostly generic process elements that may be applied to different situations, the challenge from the system side is to support a general methodology that is flexible enough to effortlessly adapt to the end users need.

17:00-17:30 – **Simertis GmbH** (Germany)  
Dipl.-Ing. Holger Haut, CEO

### **“Example of a New Developed MSC.ADAMS Plug-in to Give an Efficient Solution to Customers”**

The MBS software is often focused on the aviation, automotive and rail industry. Special products for the creation of very good models are available. But sometimes there are no tools for special models available. Other industries, like the mining industry, are even not having such plug-ins. This presentation demonstrates the very efficient use of MBS with new developed plug-ins by the Simertis GmbH for MSC.ADAMS. As an example of such a plug-in an analysis of an excavator is shown. The presentation deals with the requirements and workflow for such solution, showing the easy way to get a model, doing the simulation and the full automated post-processing.

17:30-18:00 - **Piaggio & C. SpA**, (Italy),  
Riccardo Testi, CAE Analyst

### **“CAE Analysis of a Muffler Support”**

Piaggio is currently developing a big scooter equipped with an 850 cc twin engine. The first full-scale physical prototypes showed failures of the exhaust pipes, due to the muffler's vibrations. A new muffler support system was devised and its main component's functionality was to be assessed before manufacturing additional physical prototypes. The analysis was carried out with the combined use of different CAE packages, FEA, MBS and Durability, finding out the weaknesses of the initial design and verifying the effectiveness of the ensuing design modifications.

---

## Session 4 : **Track C** (Room : WallStreet) – Manufacturing Industries

Chaired by : Werner Kauffmann, Team Leader Manufacturing Sales, MSC Software

16:30-17:00 - **PJSC “Kolomensky zavod”**, (Russia),  
Vladimir Savochkin, Head of Bureau  
Nina Romanenko, Leading Engineer,  
Svetlana Marchevskaya, Engineer

### **“Experience of VPD Technologies Application in Railway Locomotives Development at PJSC “Kolomenskiy Zavod”**

Development of modern diesel and electric locomotives is impossible without wide application of engineering analysis systems. For the products with life cycle of 30 years a mistake cost in a project can be extremely high. The wide application of the Virtual Product Development (VPD) Technologies allows to minimize the risk of such mistakes. PJSC “Kolomenskiy Zavod” has developed a new 6-axle electric locomotive EP2K for the Russian railways which is intended for hauling passenger trains with speed up to 160 km/h. MSC.Nastran and Marc software were widely used for virtual modelling and strength, reliability and durability analysis of its' main parts and units, in particular, the comprehensive analysis and optimization of locomotive's wheels. The purpose of that researches was to develop and optimize the design of complex wheels taking in

account the combined loading of wheels in case of ordinary and emergency (panic) braking. Based on the results achieved the design of wheel disc was optimized. Electric locomotive wheels designed with application of MSC VPD Technologies have successfully validated by laboratory and physical tests and that has confirmed the right choice of wheel's design.

17:00-17:30 - **EC Engineering**, (Poland),  
Grzegorz Lasko, CAE Engineer

**"Influence of Suspension Parameter Uncertainties on the Comfort Coefficient & Other Ride Parameters in a Five Pieces Tram"**

The objective of this paper is a description of the simulation procedure of virtual multibody test on rail vehicles, focused on analyzing the influence of suspension parameters uncertainty on the chosen vehicle ride parameters and in particular on the comfort coefficient. Method of introducing the suspension parameters uncertainties and passenger distribution uncertainties to multibody models of rail vehicles was presented. Simulations were performed with MSC Adams Rail and additional program created in Matlab. Calculation scheme was illustrated by test performed on five pieces tram model. Usage of this method allows improving design process and determining the influence of uncertain parameters on ride quality, comfort coefficient, wheel-rail contact force and other ride parameters.

17:30-18:00 - **Merkel Freudenberg Fluidtechnic GmbH**, (Germany),

Dr.Guido Wüstenhagen, Manager  
Mr. Dieter von Borste, Product Development,

**"MSC Marc at Merkel Freudenberg Fluidtechnic GmbH"**

Sealing elements have become a very important part of our technical world. Nearly all industrial areas these days have the requirement to separate or seal machinery components from the various media available in the market. With so many varied applications existing, with such a large range of requirements, the number of different seal designs and sizes available is vast. In the process of application engineering and product development the use of Finite Element Analysis is crucial. This paper will show the integration of the MSC Software in this process: The capability for designing layout programs. The capability for supporting the application engineering and product development. The capability in combination together with other simulation programs.

---

## Interactive Presentations

Interactive presentations will be displayed in the Technology Exhibition area throughout the Conference.

\* **Institut für Fertigungstechnik und Werkzeugmaschinen (IFW)**, (Germany),

Dr.Berend Denkena, Prof. Dr.-Ing.

Armin Wedler, Dipl.Ing.

Anke Hackbarth, Cand. Mech.

**"A Compliant Actor driven by Pneumatic Actuators: CO-Simulation using MSC Adams and MATLAB/SIMULINK"**

"KoSePro" is a cutting edge research project at the IFW Hanover aided by the German Federal Ministry of Education and Research (BMBF). A sub-project is the design and development of a compliant, adaptive end-effector for industrial robots. The actuation of the end-effector is performed by fluidic muscles, which are highly nonlinear. The kinematic of the end effector as hand of the robot, is designed as a Hexapod. This design as a full 6 Degree of Freedom Micro Robot makes high demands on the control system. In this research the multi-body simulation of the end-effector is done using MSC.ADAMS' Adams/View. The control and the calculation of the forces generated by the pneumatic muscles is analytically modeled using Mathworks Matlab/Simulink. In addition the valves, the air column and the alteration of the pressure are simulated using Matlab/Simulink. Data exchange is done via state variables. In multiple Co-simulations effects like friction and gravitation can be varied to point out their influences. The aim of this Co Simulation will be to verify as well as parameterizes mathematical Models from the Actuators to be able to provide a model based control.

\* **A.A. Bochvar Research Institute of Inorganic Materials (FSUE VNIIM)**, (Russia),

Dr.Gennady Kulakov, Laboratory Chief,

Alexander Kosaurov, Leading Engineer

**"Modeling of Fuel Element Units for PWR and Research Reactors under MSC.Marc & Mentat 2005R3"**

The technology of engineering analysis is polished for some regimes of PWR fuel element functioning, which is necessary for technical designing. The authors is proved a principle possibility of a solution of the following problems (using MSC.Marc 2005 r3): - simple force loading of fuel element plug fitting; - thermo-mechanical multi-contact interaction of fuel tablets with fuel element plug fitting at non-stationary operating modes; - research of influence of cracked fuel fragments on stress and strain distribution; - development of a cladding shape out-of-roundness under external pressure because of creep; - researching of a pressing regime and a fuel tablet cooling during manufacturing; - researching of a clamp functioning The modelling of functioning research reactor fuel elements is performed and the stress-strain distributions are received. The Influence of technology factors on durability of U Mo base dispersion fuel is analysed.

\* **Indian Institute of Science ( IISc )**

Venkatesh Murthy, Former Project Assistant, Aerospace Engineering Department

Nukaraju.R., Scientist D, Indian Satellite Research Organization ( ISRO ),

**"Fatigue Analysis of Multi-material Solar Cell Inter-connector"**

Solar cells are rectangular used to power satellites which go around the earth in orbits. Solar cells are general arranged in an array in a solar panel. These solar cells are connected by a special type of connectors which transmit the power from one cell to the other. Satellites in their orbit go around the earth and are exposed to sun for certain period of the cycle and are in the region of the earth's shadow for the remaining period. The main aim of the study is to calculate the mechanical stresses in the inter-connector due to thermal loading and estimate the fatigue life of the inter-connector due to these stresses. A 3-D thermo-mechanical analysis of the solar cell panel is carried out for the two temperature conditions without considering the inter-connector. From this analysis the deformations of the solar cell is obtained. The inter-connectors are either made of single material or multi-material in layers. The inter-connectors are also modelled using 3-D hexa elements. The mechanical loading on the interconnector is the deformation in the solar cells due to thermal loading. In this paper multi-material inter-connector is analyzed and a procedure is presented to evaluate the fatigue behavior of this type of inter-connector.

\* **PROSTEP** (Germany)

Dr.Harald Liese, Team Manager, CAA

Dr.Josip Stjepandic, Head of Competence Centre, CA Technology

Dr.Alain Biahmou, Senior Consultant, CAA

**"Closing the Gap between Design and Simulation by KBE Technology"**

Due to the increasing complexity of technical products and the decrease in "time to market" the urgent need for the optimisation of cross-skill engineering collaboration demands short-term solutions. One of the most important solution is the interoperability between design and simulation. In this presentation we will therefore introduce an approach to federate the established engineering tools and processes on the basis of commonly shared engineering models rather than to integrate or to harmonize them in a long-term and highly complex development process. The underlying systems are CAD (CATIA, UG NX) and FEM, Simulation (MSC NASTRAN, SIMULINK). Besides an introduction to this new collaboration approach this presentation will provide an overview of the state-of-the-art IS and AI technologies capable to contribute to the conceptual design and IP protection and point out the individual shortcomings.

\* **DEM Solutions Ltd** (UK)

Dr.John Favier, DEM Solutions Ltd

**"Application of the EDEM-ADAMS Coupling in the Mining Industry"**

There has been huge growth in the mining industry over the past five years. Demand for copper, platinum, uranium and iron ore is at unprecedented levels. Productivity increases are driving the use of CAE software in the industry. EDEM, the discrete element modelling software from DEM Solutions, is at the forefront of this drive for simulation technology. A coupling between EDEM and MSC-ADAMS has been developed in order to improve dragline productivity. Factors such as lightness, strength, wear, fill efficiency and spillage are being investigated in order to reduce downtime and improve soil removal. The simulations have resulted in quantifiable improvement in dragline downtime. As a result the EDEM-ADAMS coupling is proving to be an essential tool for the mining industry.

\* **Sogeti High Tech** (France)

Harvind Bhugaloo, Head of Fatigue & Damage Tolerance

**"High Speed Impact two bay crack large Damage Propagation in CFRP Structures"**

Sogeti High Tech has largely invested and has been involved since 1997 in the numerical simulation and analysis of composite structures. Relying on this experience in the field of composites, an investigation is currently under study to look into the possibilities to simulate numerically a high speed engine fan blade impact on an aircraft composite fuselage. A rapid dynamic analysis coupled with damage propagation under LS-DYNA or Radioss simultaneously with GENOA was performed. The dynamic effects of an impact including fuselage pressurisation were investigated to evaluate the post impact damage propagation/failure modes into the composite structure.

---

## Technology Exhibition

18:00-18:30 (*Exhibition Foyer*)

**Networking : Break & Solution Partners' & Technology Exhibition**

18:10-18:40 – *Room Nikkei*

## Special Technical Session

*"Preview - Open CFD : MSC.Software Plans for SimXpert CFD Workspace"*

---

## Social Program

18:30-20:00 (*The Lobby Terrace*)

**Pre-Dinner Cocktails & Entertainments**

20:00-23:30 (*Room : Dow/Jones*)

**Gala Conference Dinner, Awards, & Entertainments**

Join fellow Conference delegates, MSC employees, and our Solution Partners for a Gala evening, including dinner, awards ceremony and entertainments.

00:00 Transportation Provided

---

## Thursday 18 October

### Technology Exhibition

08:00-08:30 (*Exhibition Foyer*)

**Networking : Technology Exhibition**

---

08:30-10:30 (*Room : Dow/Jones*)

## Sessions 5 : Technology Track : **Simulation Keynotes** (Single Track)

*Chaired by : Bert Knops, Director Enterprise Solutions Group EMEA, MSC.Software*

*Dedicated Technology Sessions provide an in-depth review of both current and future solution developments in key simulation areas. Product and Industry specialists from MSC Software, and our Solution Partners, will describe new technology enhancements which will help you to drive product innovation, performance and reliability.*

08:30-09:15 - **MSC.Software Corporation** (USA),

Ted Pawela, Director Global Product Management Interoperability, MSC.Software

**"Enabling the Path Forward to SimEnterprise"**

*Based in Ann Arbor, Michigan, Ted Pawela works within the MSC.Software worldwide Product Marketing Group and is Director for Global Product Management Interoperability.*

09:15-10:00 - **MSC.Software Corporation** (USA),

Reza Sadeghi, Senior Vice President & CTO

**"Engineering Tools to MD Solutions - Enabling Leadership for Competitive Advantage"**

*Dr.Sadeghi is currently the CTO of MSC Software, with responsibility for strategy and development of all MSC core technologies (Nastran, Marc, Adams and Dytran). Prior to the merger of MARC Analysis Research Corp. and MSC Software, he was responsible for the company's overall operations. Before joining MARC Analysis Research Corporation, he was responsible for the simulation methods group at Goodrich aerospace, where he led the development of a number of math based tools for design and manufacturing of commercial and military jet engine nacelle structures. He has more than 10 years of teaching experience in the field of Computational mechanics and math based modelling. He has been asked to serve on a number of science and technology review boards, among them the U.S. Department of Energy and the U.S. Department of Defense, as well as authored a number of papers in the field of computational mechanics and math based modelling.*

10:00-10:30 – **INCAT**

Wolfgang Schoepkens, VP EMEA

**"Title of Presentation Unavailable at time of Print"**

*We regret that a detailed abstract was unavailable at the time of print. Please check the EMEA Conference website for any updates.*

---

### Technology Exhibition

10:30-11:00 (*Exhibition Foyer*)

**Networking : Coffee Break & Solution Partners' & Technology Exhibition**

---

11:00-13:00

## Session 6 : Technology Track : **Simulation Technologies** (Tracks, A,B,C,D)

**Session 6 : Track A** (*Room : Dow*) – **From Point Products to SimXpert**

*Chaired by : Alfred Boulos, Manager Pre-Sales, Enterprise Solutions Group, SimEnterprise, MSC.Software*

### Presenters :

Alfred Boulos, Manager Pre-Sales, Enterprise Solutions Group, SimEnterprise, MSC.Software

Fredrik Sjogren, Senior Technical Consultant, Enterprise Solutions Group, SimEnterprise, MSC.Software

Christophe Noiret, Senior Technical Consultant, Enterprise Solutions Group, SimEnterprise, MSC.Software

*In this session MSC experts will discuss the latest changes, trends and evolution in simulation and how realizing engineering gains through the use of a common data model can provide today's enterprise with a genuine competitive advantage. Experts analysts will learn about SimXpert's comprehensive capabilities to perform linear and*

*nonlinear structural, crash, thermal, and motion simulations using a common data model; they will understand how to capture their best practices in the form of reusable templates that can be shared with other experts and designers across the engineering enterprise.*

**11:00-11:30 – “Motion Solutions”**

*This session will present industry leading solutions for system level analysis of assemblies. Recent advances in current solutions including ADAMS and ADAMS/Car will be discussed and demonstrated, along with new MD ADAMS and SimXpert Motion solutions that provide additional value. MSC experts will show real-world examples of the path forward to the future of motion simulation.*

**11:30-12:00 – “Structures Solutions”**

*This session will showcase the world's most widely used finite element analysis solutions. Recent advances in MSC.Patran and MSC.Nastran will be discussed and demonstrated using industry use cases, and new solutions based on MD Nastran and SimXpert Structures will be shown that will highlight the path forward to the future of structural analysis.*

**12:00-12:30 – “Nonlinear Solutions”**

*This session will focus on the world's most reliable and robust solutions to nonlinear structural problems including Contact, Crash, Drop Tests, Metal Plasticity, Fluid-Structure Interaction, and Elastomeric Analysis. Recent advances in MSC.Marc and MSC.Dytran will be discussed and demonstrated using industry use cases, and new solutions based on MD Nastran and SimXpert will be shown that add the benefits of template based automation and advanced preprocessing*

**12:30-13:00 – “Coupled Analysis Solutions”**

*This session will highlight complete multi-discipline analysis of real-world problems using MSC's new SimXpert and MD solutions. Using real use-cases from automotive, aerospace, and other industries, MSC experts will discuss and demonstrate why coupled analysis is required and what is required to provide reliable and realistic results. Our experts will also show how customers can complement their existing tools take the path forward to a future in coupled analysis.*

---

**Session 6 : Track B (Room : Jones) – Integrating Simulation in the Enterprise : SimManager**

*Chaired by : Stefan Mayer, Senior Manager, Simulation Data Management, EMEA, MSC.Software*

**Presenters :**

Ted Pawela, Director Global Product Management Interoperability, MSC.Software  
Michael Schlenkrich, Director Product Management Interoperability, EMEA, MSC.Software

**11:00-11:30 – “Simulation Data Management”**

*Simulation models, results, and data are typically scattered across individual engineers desktops and shared drives, making it difficult to find or reuse information when it is needed. Storing, protecting, and making this data accessible to those who need it, on-demand, is a recognized requirement to enable simulation to have maximum business impact. Simulation data management systems must enable early design validation, involve the global supply chain, and improve simulation speed and reliability while protecting sensitive information and intellectual property. This session compares various approaches to solving the simulation information problem and highlights important considerations in implementing a systematic approach to simulation data management.*

**11:30-12:00 – “Simulation Process Management & Automation”**

*Eliminating physical prototypes and putting simulation on the critical path of product development can only happen when engineers and managers can be completely confident in their analysis results. While simulation technology is proven to be capable of providing realistic results, the methods and processes by which these results are created are tremendously inconsistent despite the existence of documented best practices. This session details how best practices and simulation processes can be captured in reusable templates, shared in global engineering environments, and audited over time to continuously improve confidence and reliability in simulation.*

**12:00-12:30 – “Integrating CAE in the Engineering Enterprise”**

*Simulation information and processes must fit into the larger product development process in order to have maximum impact on the engineering business. This session, hosted by MSC, IBM, and ProStep, details how simulation is integrated with PDM, requirements management, systems engineering, and other enterprise systems. The role of Service Oriented Architecture (SOA) and other IT considerations will be discussed, including a live demonstration of SimManager integrated with WindChill PDM, using OpenPDM technology and leveraging IBM's Service Oriented Architecture.*

**12:30-13:00 – “Materials Data Management”**

*Simulation results are only as good as the materials data that goes into the models that produce these results, but most companies today cannot easily assure themselves of the source or validity of materials data. Linking test engineers, laboratories, and materials databanks to simulation models and results is critical in making simulation reliable. This session showcases current and future solutions for capturing materials test data, processing it for use in simulation, making it available for use when it is required, and establishing a complete simulation audit trail. MSC experts will show real customer examples of materials data management and discuss the benefits achieved.*

---

**Session 6 : Track C (Room : WallStreet) - From Engineering Tools to Multi-discipline Solutions**

*Chaired by : Edwin de Vries, Technical Manager, MSC.Software*

**Presenters :**

Edwin de Vries, Senior Manager, Enterprise Solutions Group, Solution Services, MSC.Software  
Joachim Schwoppe, Manager, Enterprise Solutions Group, Engineering Solutions, MSC.Software  
Marco Veltri, Senior Technical Consultant, Enterprise Solutions Group, SimEnterprise, MSC.Software  
Gerald Himmler, Senior Technical Consultant, Global Services Post-sales Support, MSC.Software

**11:00-11:30 - “Applications of Simulation Chaining”**

*Engineers are often forced to use multiple simulation solutions and compromise solution accuracy when simulating multiple events. This session highlights how the chained analysis approach facilitates multidisciplinary solution capabilities of the MD Solutions solvers.*

**11:30-12:00 - “Integrated Linear and Nonlinear Contact”:**

*Contact problems are one of the most common and challenging faced by engineers today. CAE analysts typically spend considerable time in the set up of these problems alone. This session showcases the ease of set up for contact problems in our MD Solutions and various features that assist users to solve even the most complex problems.*

**12:00-12:30 - “Durability of Composites”**

*Composites are being widely used across all industries. However, failure and de-lamination of composites are areas of critical importance for a robust design. Multidisciplinary issues involving composites and their failure are presented in this session.*

**12:30-13:00 - “Noise and Vibration (N&V) and Acoustics”**

*Noise and Vibration issues are of crucial nature for any designer, especially in automotive and aerospace industries. For accurate solutions, the model should account for the multidisciplinary nature of the problem. This session discusses how MD products from MSC.Software provide superior solutions for this class of problems.*

---

**Session 6 : Track D (Room : Nikkei/Dax) - Meeting the CAE Challenge with SimOffice**

*Chaired by : Thomas Keller, Director Channel Sales, EMEA, MSC Software*

**Presenters :**

Tim Kuhlman, MSC Software  
Clinton Stone, MSC.South-Africa

**11:00-12:00 : “SimOffice - Meeting the CAE Challenge”**

*Small and medium sized businesses in the manufacturing sector are facing ever increasing pressure to deliver more to their customers. They're required to deliver more*

engineering content in their products while maintaining the slimmest of margins. Get an understanding of how MSCs SimOffice provides the best CAE platform solution that maximizes existing Microsoft based IT infrastructure and existing design engineering staffs to meet those challenges, now and into the future.

12:00-13:00 : **"SimOffice - Real World"**

MSCs SimOffice is designed to meet the majority of the CAE requirements facing a small and medium sized business in manufacturing. Based on industry's most recognized and advanced simulation technology MD Nastran and the first Microsoft Vista certified CAE environment, SimOffice can get it done. See some real examples demonstrating how SimOffice is being used today.

---

## Technology Exhibition

13:00-14:00 (**Exhibition Foyer**)

**Networking : Lunch & Solution Partners' Technology Exhibition**

---

14:00-16:00 (**Room : Dow/Jones**)

## Session 7 : Management Track : **Keynote Presentations & Conference Closing**

Chaired by : Massimo Montenegro, Director Internal Sales, EMEA, MSC.Software

14:00-14:25 - **IBM** (Germany)

Ulrich Nauman, Global Business Services, Automotive Business

**"Innovation in PLM: Beyond Boundaries"**

*More than ever, companies in a wide variety of industries must drive accelerated innovation in their products, processes and business models to sustain competitive advantage. This poses new challenges everyday for the partners and suppliers to automotive, aerospace, heavy equipment and industrial products manufacturers, who must help clients look beyond traditional spaces and explore every possible avenue to reduce time-to-market and seize share. IBM works with a wide variety of partners to bring the benefits of integrated PLM solutions to bear on existing product development processes, while enabling improved coordination, enhanced innovation, and overall increased productivity across the enterprise.*

14:25-14:50 – **Hewlett-Packard Ltd**

Jeremy Purches, HPC Engineering Segment Manager - EMEA

**"HPC in CAE: Trends, Paradoxes and Solutions"**

*This presentation will review a number of High Performance Computing trends and paradoxes in the Computer-Aided Engineering segment, including customer examples and case studies. Trends spanning technologies (processors, OS, etc), architectures (SMP, clusters, etc) usage (buying patterns, utility computing, ..) and others will be explored and commented on.*

14:50-15:15 – **Microsoft Corporation**

Speaker to be confirmed.

**"Title of Presentation unavailable at time of print"**

*We regret that a detailed abstract was unavailable at the time of print. Please check the EMEA Conference website for any updates.*

15:15-16:00 – **Special Guest Speaker**

Dr.Ulrich Walter, Astronaut & Professor of Institute of Astronautics, Munich University, Germany

**"Space travel opens really completely new horizons. It unites humans and at the same time different ways of thinking."**

*Dr.Ulrich Walter has been a Professor at the Institute of Astronautics at Munich University teaching and researching satellite technology since March 2003. In 1993 he successfully completed his assignment as a science astronaut and research specialist for the German D-2 Mission, living the dream of many scientists, traveling in space for 10 days on board the space shuttle Columbia and the European Space Station. After his spaceflight he worked for another four years at DLR, managing a space imaging database project. He has published more than 40 scientific articles in various international journals and from 1998 till 2003 he presented the science TV programme MaxQ. He has been awarded the Officer's Cross of the Order of Merit of the Federal Republic of Germany and the Wernher von Braun Medal. In addition to talking knowledgeably about new technologies and space flight Ulrich Walter offers audiences deep insight into the physical and mental preparation and the self motivation required to become an astronaut. Dr Walter inspires audiences with his highly engaging presentations lavishly illustrated with photos from his voyage into space.*

16:00

**Conference Close and Transportation**

---

\* Agenda may be subject to change. Please return to the MSC Software website regularly for updated information.