

Romax drives Hexagon | MSC Software into eMobility



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Dear Readers,

Welcome to this our latest edition of Engineering Reality magazine which focuses on eMobility and the latest software suite to join our portfolio at MSC Software, Romax Technologies. Romax is the market leader in design, analysis, testing and manufacture of the simulation of gearboxes, drivetrains and bearings for conventional and electric drivelines. They became part of Hexagon's Manufacturing Intelligence division and the MSC business unit in June this year. Their former founder and CEO, Dr. Peter Poon, who is now a MSC Software Fellow and is still a thought leader for his industry in his 80s has been interviewed for this magazine to offer his insights into a range of electro-mechanical drivetrain challenges along with an outline of the history of Romax and the future of this pivotal technology sector for so many industries. The Romax Nexus suite of software and design solutions perfectly matches our burgeoning portfolio of multi-disciplinary physics software and CAE for manufacturing solutions along with Hexagon's hardware synergies. Two user stories

from Romax round off our focus on Romax this edition from Hyundai (page 10) in Korea and GKN (page 14) in the UK to illustrate the return on investment that Romax offers.

Talking about our newest software offering reminds me that our flagship structural FEA software, MSC Nastran, has reached a significant milestone this year; we've instigated our inaugural MSC Nastran Excellence Award for 2020. We are expecting this annual Award to be a showcase of application of our tried and trusted structural analysis software that is still the gold standard for FEA simulation in many industries. This year I am so pleased to see that Andrzej Pietrzyk of Volvo Car Corporation in Sweden has won the Award thanks to some innovative MSC Nastran simulations of vibro-acoustics for realistic modeling of a car's audio system to capture high frequency and airborne sound simulations (page 98). Two Runners Up (page 100) also won prizes for work on simulating mechanical vibration characteristics of DNA-wrapped single-walled carbon nanotube composites (Tokyo University Department of Physics, Japan) and structural and aeroelastic design of aircraft configurations (DLR, Germany). The judging panel thought all the shortlisted papers were of a very high standard and illustrated how MSC Nastran is pushing the boundaries of various sectors of the FEA market still. I am also excited to see that we have our first Textbook review in this magazine by James Pura on Dominique Madier's excellent new real-world applied FEA textbook that features many MSC Nastran examples (page 102).

We do have some fascinating commentaries in this magazine. I would encourage you to read an informative and market leading one by my colleagues Kais Bouchiba and Keith Hanna along with our partner, Kambiz Kayvantash of CADLM, to provide a very informative opinion piece on how Artificial Intelligence and Machine Learning are impacting the CAE Industry today and what MSC Software offers in this rapidly evolving discipline (page 62). There are also commentaries on Life Sciences (page 36) and Sustainability

(page 52) from our team.

MSC's Adams system dynamics software is still the gold standard in its field, and we continue to invest heavily in its development. It features heavily in this edition with stories from Tata Motors (page 24), Ford (page 32) and Adams Drill (page 39). In addition, the University of Perugia in Italy (page 43) have a wonderful story on how Adams is being used in criminal cases and health & safety analyses to show how human bodies fall down staircases. Finally, the Universities of Craiova (page 43) and Carleton (page 84) highlight some cutting-edge activities in exoskeleton modeling and landing gear simulations.

This magazine edition also sees several excellent cutting-edge applications and one that caught my eye was a subject dear to my heart, sustainability, featuring Korean skyscrapers designed with our Cradle CFD software (page 16) to have wind turbines embedded into the building's upper floors to take advantage of wind power at source on the building! Changan Auto in China also outline how they use MSC's SPDM software, SimManager to handle all their CAE simulation workflows (page 20). There are also virtual manufacturing and costing applications for Simufact at Metal 3D (page 76), FTI at Boehm (page 76), and cutting-edge Generative Design from my colleague Gereon Deppe (page 81). Our virtual test drive software, VTD for ADAS and autonomous scenarios, features a story on trams and off-road transportation (page 78) and Tata (page 24) that I urge you to read along with. GM's Actran story (page 27) shows some excellent acoustic simulations.

Finally, our new Director of MSC Partnerships, Sam Wade, outlines his vision for developing our partner ecosystem and announces our first partner software in our MSCOne^{XT} token system (page 94).

Stay safe

A handwritten signature in black ink, appearing to read 'Roger Assaker', written in a cursive style.