# Simulation in the News

HYPERLOOP WILL WORK, SAYS SOME VERY SMART SOFTWARE

Bloomberg Businessweek

businessweek.com, September 2013

Elon Musk unveiled his hyperloop high-speed transportation concept in August; ANSYS fed the specifications into a computer in September to study the feasibility of the idea. The team, led by Sandeep Sovani, used a virtual mockup of a pod and tube to study the air pressure. The simulation showed very uneven stress markings alongside the body of the pod. "We see a lot of shear stress areas," Sovani said. "In something like an aircraft, the patterns would be very uniform." Bearings on the top of the pod would help the device stay balanced during slight changes in air pressure. Sovani plans to keep tweaking the design of the Hyperloop pods in ANSYS software and eventually send Musk some suggestions.
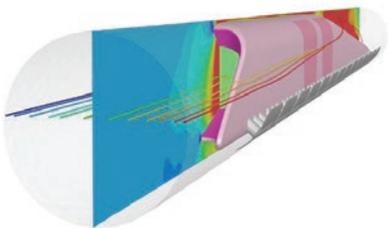
ANSYS AND GOSNIIAS PARTNER TO INCREASE SAFETY IN RUSSIAN AEROSPACE INDUSTRY

MCADCafe

mcadcafe.com, August 2013

The state-run scientific research institute GosNIIAS, which supports aviation development in Russia, has partnered with ANSYS to meet worldwide aerospace standards. Researchers there use SCADE solutions from ANSYS in an effort to streamline code generation of avionics system architecture to rapidly improve aircraft safety.

SPEEDING UP DEFENSE SIMS

*Defense News*

defensenews.com, July 2013

As exciting as it can be to simulate explosions, developing code for this purpose is painstaking. A joint project between ANSYS and the Army Armament Research, Development and Engineering Center resulted in an interface that wraps around the complex codes used for government simulations to create an easier-to-use environment. The codes model objects that explode or the things they hit. Research can be directed at changing body armor, weapons and the tactics that are used in war. The software should simplify and speed up research and development by increasing productivity.

SIMULATION AND SENSORS ADVANCE THE DIGITAL OILFIELD

Offshore

offshore-mag.com, May 2013

While trying to increase production from oilfields and deepwater reservoirs, R&D teams face high temperatures and pressures, longer tiebacks and more expensive operations. Author Ahmad Haidari of ANSYS states that companies are developing digital oil fields with simulation to reduce risk, increase efficiency and maximize recovery. Drilling can be completed more efficiently with electronic sensors on drill bits, leading to faster drilling rates and reduced damage and drill wear. Engineers employ ANSYS software to create robust drilling techniques as they move from traditional methods to simulation-based techniques. Haidari also describes how simulation is applied to flow assurance and vibration, electromagnetic analysis, and embedded software that manages the complex interaction between software, hardware and human/machine interfaces.

▶ Sample results from a CFD simulation illustrate velocity vectors of drilling mud flow at the surface of a drill bit. Color ranges are red for maximum and blue for minimum.
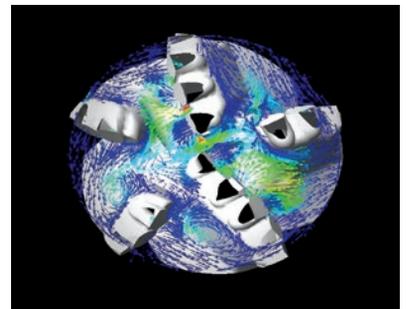
BENEATH THE LAYERS: COMPOSITE COMPLEXITY

Desktop Engineering

deskeng.com, August 2013

Composites materials are incorporated into many new products, but they aren't always easy to work with. Even as engineering software adds features to simulate the abilities of composites, designers still face challenges working with these materials because of the slight differences between similar fabrics. When asked about working with composites, ANSYS's Pierre Thieffry admitted that "everyone will use a different flavor of carbon or fabric, so they will have to characterize it on their own. That's one of the challenges with composites." Even with such difficulties, engineers continue to improve product designs with revolutionary materials.

SWISS ARMY CFD

R&D Magazine

rdmag.com, June 2013

CFD initially was a specialized tool used at aerospace corporations, but it is now indispensable for product designers in all industries. Applications range from the world's largest hydropower plant to a rear-view car mirror. As products become more complex, CFD is helping to fine-tune performance. In the academic world, researchers have approached CFD simulation as an opportunity to test the limits of what fluid flow analysis can do to further expand the fundamentals of physical understanding.

As products become more complex, CFD simulation is helping to fine-tune performance of existing technologies. ▸
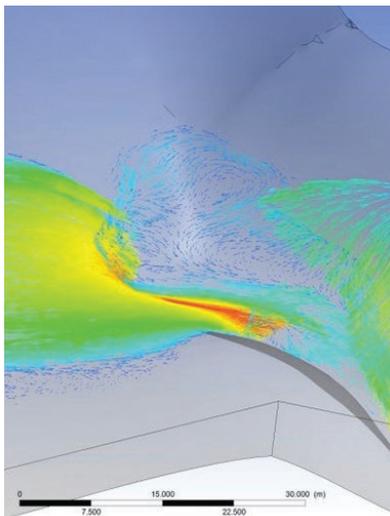
▸ Kawa Engineering employed ANSYS simulation to help locate a powerhouse close to a waterfall in a spot that would reduce flood risk.

IMAGE COURTESY KAWA ENGINEERING LTD.

ANSYS, FERRARI EXTEND PARTNERSHIP

TenLinks

tenlinks.com, September 2013

A world leader in the automotive industry, Ferrari is improving the endurance of its GT race cars with ANSYS simulation. Using CFD to optimize critical components, like brake cooling systems and full-body aerodynamics, Ferrari improves race cars while working under tight development timelines and strict regulations. Extending its Formula 1 racing relationship with ANSYS to include the GT division allows Ferrari to validate and quickly optimize designs without losing valuable aerodynamic advantages or overheating brake systems in tough endurance races. Learn more on page 32.

▲ Ferrari uses ANSYS software to gain an advantage in GT racing.

SIMULATION SHINES LIGHT ON SOLAR ENERGY

Scientific Computing World

scientific-computing.com, July 2013

As renewable energy sources become more productive and reliable, manufacturers can benefit greatly from simulation technology. Solar energy and solar panels are being incorporated into commercial building designs; they also are being added onto existing homes by owners who are interested in producing renewable energy. ANSYS's Ahmad Haidari stated that the aim is to change the manufacturing process so that less material is used, creating a less expensive product. More conventional structural engineering can be enhanced by simulation to optimize products for stresses and loads, ideal placement, wind-loading and mobility.

ANSYS SPEEDS INTERNATIONAL YACHT RACE WINNER

MarineLink

marinelink.com, August 2013

Emirates Team New Zealand's ability to deliver fast design improvements to its yacht with ANSYS CFD helped the team claim the Louis Vuitton Cup and a chance to compete in the 34th America's Cup. In the hypercompetitive sport of yacht racing, Emirates Team New Zealand encountered complex challenges. Simulation developed optimized solutions for the aerodynamic performance of the wing and sails without spending time building physical prototypes.

▲ Use of engineering simulation helped ETNZ to improve yacht aerodynamic performance in both downwind (top) and upwind (bottom) conditions.