

Innovation in Industry 2018 to unveil 'amazing' technology

The first Innovation in Industry Conference will be held at the Nelson Mandela University (NMU) in Port Elizabeth on September 7, 2018. The event promises to unveil amazing new technology being used here in the South Africa. MechChem Africa talks to Clive Hands, the conference champion from NMU's engineering department, and Ernst Burger of Altair.

"Port Elizabeth is the ideal place for an advanced technology conference, and not only because NMU is based here," begins Hands. "Logistically it is easy to organise the event using our facilities, but more importantly, a number of companies in this region are deploying new technology for production-related applications, with considerable success," he says.

"At the university we are very focused on advanced technology and how we can expose both our students and our local industry to their potential. This conference is a perfect opportunity to get our local industry guys networking on what is happening out there and to galvanise discussion," he adds, while assuring that the event will not be academically focused. "We are establishing Innovation in Industry as a technical conference aimed directly at industry and real-world applications," Hands tells MechChem Africa.

Identifying the specific technologies of interest, he says that the conference will be focused on globally disruptive modern technologies: metal additive manufacturing and 3D printing; material integrity testing; design for lightweighting and optimisation; cloud-based applications including data analytics and telemetry; virtual and augmented reality; virtual design and digital twin techniques; advanced simulation; artificial intelligence and machine learning; smart manufacturing and autonomous processing.



The partnership between NMU and Altair sprung from the university's Eco-Car Project, which is all about lightweighting and optimisation in order to eke out maximum fuel efficiency in an ultra-lightweight vehicle.

happens if all this is 'flavour-of-the-day' technology that promises to 'fix-all' but then fails to deliver? Advanced technologies involve significant financial risks, after all.

"Many large OEMs have taken the leap, and they would not have done so without forensic due process, so it is fairly safe to say we are in the midst of a sea-change in the ways things have been done, how they are currently evolving, and how they will be done in the very near future. Exciting times!" he exclaims.

In partnership with Altair

"The partnership between NMU and Altair sprung from our Eco-Car Project, which is all about lightweighting and optimisation in order to eke out maximum fuel efficiency in an ultra-lightweight vehicle," Hands continues. "Some of Altair's products were strongly aligned to topology optimisation of design components, so it was a no-brainer from our side to embrace a partnership.

"Altair's design tools are well established in cutting-edge industries such as Formula 1, the America's Cup and various performance aeronautics initiatives. Most CAE software platforms are now also including optimisation aspects, but Altair continues to be the established leader," Hands believes.

"Following initial enquiries through Altair's head office in Troy, Michigan, our relationship with the local Altair office has been a marvellous adventure, spiralling out of multiple associated projects and into the university's formal engineering curriculum.

"The Altair platforms provide state-of-the-art solutions over a wide range of applications; and, most importantly, the best support I've ever encountered. Altair has supported and encouraged our initiatives every step of the

way, which enables our students – the future captains of industry – to be exposed to world-class platforms, which they will carry into their future careers," Hands tells MechChem Africa.

The benefits of simulation and optimisation

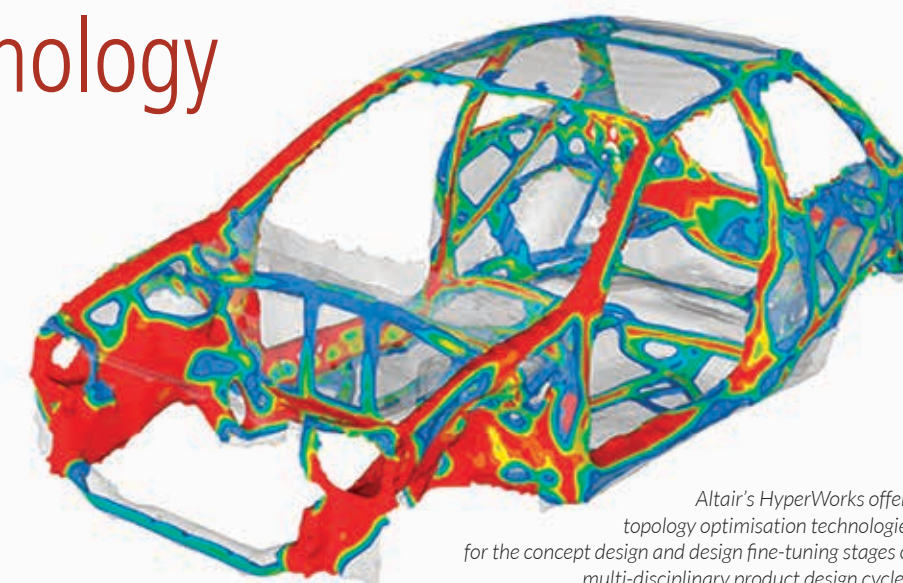
Talking about simulation and optimisation, Ernst Burger says the benefits are clear. "Lightweight and material optimised parts translate directly into reduced production waste, better energy efficiency, greater payloads and eventually stronger profits for a business. Simulation also significantly reduces the time to market for new products, which is key in today's very competitive business landscape.

"Simulation and optimisation also enable product development to be technically right-first-time and with superior business fundamentals, which make a product more likely to succeed in the market," Burger adds.

"Partnerships work when each partner involved achieves greater success than they would have been able to individually. This is clearly the case with the NMU-Altair partnership. Altair's software and academic offering makes a strong positive difference in the quality of the academic outputs that are generated by NMU, while at the same time NMU is growing in international stature as a training facility where excellence in education is delivered to students.

"As a clear example, Clive Hands has been invited to join a prestigious panel of speakers at the forthcoming European Altair Technology Conference. This is a great achievement for NMU, Clive Hands and Altair South Africa. We're all proudly South African and enjoy winning together on grand stages in this way," Burger continues.

Altair Technology Conferences (ATCs) are hosted in all major world regions where Altair customers take centre stage to talk about their approaches to new technology.



Altair's HyperWorks offers topology optimisation technologies for the concept design and design fine-tuning stages of multi-disciplinary product design cycles.



Modern metal additive manufacturing and 3D printing techniques are ideally suited for the production of lightweight and strength optimised structures created using Altair's topology optimisation software.

"Like the Innovation in Industry conference being held at NMU this September, these are not theory events. They highlight real-world deployment of technology to improve the products and businesses that rely on Altair's software products.

"All South African engineers are invited to join the European ATC, which will be held in Paris, France, from 16 to 18 October 2018. Confirmed speakers for the event already include representatives from technology icons such as Ferrari, BMW, Airbus Helicopters, Tetrapak, Shell and Alstom.

Turning attention back to the NMU's local 2018 Innovation in Industry conference in Port Elizabeth, Burger says that the same approach has been adopted, with presenters including:

- Jaco Heunis and Yanesh Naidoo from Jendemark Automation's continuous improvement and design departments, respectively.

- Dr Anton du Plessis from the CT Scanner facility at Stellenbosch University.
- Dr Royston Jones from Altair UK and Nicholas Minnaar, a local Altair technical specialist.
- The engineering and project manager for Eco-Car and PhD student at NMU, Martin Badenhorst.
- Michael Stephen, the team manager/race engineer/professional race car driver at Terry Moss Racing and All Power.
- Bryan Bullock from Rapid 3D, who is on a mission to "change the way designers approach additive manufacturing".

"We have secured speakers for a world-class agenda for this event and are convinced that we can enable and accelerate the innovation that is critical to local industries," concludes Hands.

For more information on the Innovation in Industry Conference, including exhibition opportunities, please visit iic.mandela.ac.za. □



Altair Technology Conferences (ATCs) highlight real-world deployment of technology to improve products and businesses.