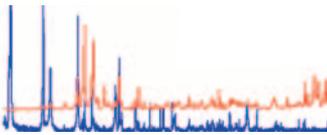


Non-destructive Testing in Industrial R&D

Non-destructive testing (NDT) is a broad category of analysis techniques used in science and industry to evaluate the properties of a material, component or system without causing damage or requiring the destruction of a test specimen. In this article learn about some exemplary NDT applications of Polytec's Scanning Vibrometers in automotive development, aerospace engineering, electrical engineering, acoustics, and power plant engineering (page 6).



Validation of Acoustic Emission Signals

It is well known that acoustic emission signals can be strongly affected by contact sensors. To get a better understanding of the main influencing factors, researchers at the Institute of Product Engineering at Karlsruhe (IPEK) used a Polytec 3-D Scanning Vibrometer for non-contact and non-reactive (zero mass loading) acquisition of the vibration and surface wave data on a test structure in combination with conventional contact sensors.

The full article is available at www.ndt.net/article/ewgae2010/papers/11_Dickerhof.pdf

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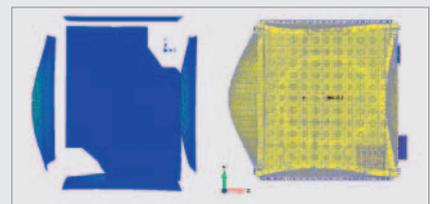
Finite Element Model Optimization of Satellites

The FalconSAT program is a student-run, faculty-led program to design, test, and eventually launch a small satellite. Accurate predictions for the dynamic responses of space launch payloads are not achieved easily. The finite element (FE) method has proven to be the best approach in creating precise dynamic models of complex structures. Researchers at the Air Force Institute of Technology (AFIT) have developed a process for extensive modal testing using the Polytec PSV 400-3D Scanning Vibrometer to create an FE model whose dynamic response closely matches the measured response of the satellite.

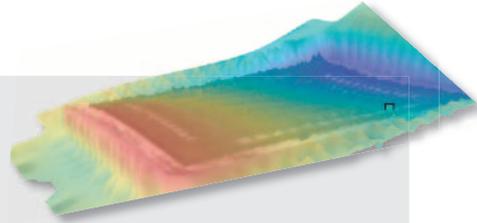
The full article will be featured in next issue of InFocus.

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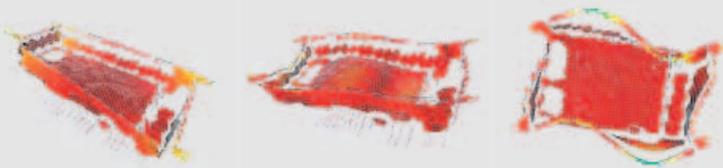


Reliability of Mechatronics Systems



The reliability of embedded electronic systems is a major concern for transportation safety and for winning business in aeronautic and automotive markets. For over 10 years, the French CEVAA Automotive NVH Testing Center has utilized Scanning Vibrometers to acquire mechanical response data during R&D and industrial process validation, and to understand the dynamical behavior of PCBs and small mechatronics. Generally, the use of accelerometers is not appropriate for such small systems. In contrast, a laser-based measurement enables precise modal analysis over a wide frequency range from a few Hz to up to 50 kHz. By combining FE methods with fatigue testing and prediction, board designs and assembly can be optimized.

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Squeak & Rattle Simulation in the Development of the New Saab 9-5 Cockpit

A new approach to squeak and rattle simulation has been developed and used in the design of the new SAAB 9-5. This engineering tool covers the complete development process of interior parts without needing to manufacture prototype hardware. In order to determine the full capability of this tool, correlations between measured test pieces and simulated design pieces were performed including measuring vibration directly with the PSV-400-3D Scanning Vibrometer.

The full article is available at <http://papers.sae.org/2010-01-1423>

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