

# Press Release

Date: 25/06/2019  
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Reference number: PR-0030-CPE-170619-CPE

## **Out of the jungle into a museum, from spider webs to tire acoustics – laser vibrometry solves tricky questions in research and development**

What determines the stability of spider's webs? How do development engineers solve conflicting goals between rolling noise and tire performance? How to calibrate nanoscopic probe tips of atomic force microscopes? And how to protect priceless pieces of art against transportation stress?

The key to all these challenging questions is non-contact and thus non-reactive vibration testing using light via laser Doppler vibrometry. Its endless applications never fail to surprise. For example, in-situ vibration measurements for testing spider webs in the jungle with portable laser vibration sensors revealed that the spiral silk threads in the web show high vibration damping properties, which immediately distribute induced energy into the radial silk threads. These preserve the structural integrity through dissipation of the supplied energy and thereby elegantly prevent a destruction of the web.

Dynamic loads not only occur in spider webs but also in transportation: Extremely valuable paintings from museums are repeatedly transferred to other exhibitions, exposing them to hundreds of hours of travel stress. Such thousands of kilometers of road and air transport mean continuous low-frequency vibrations. But how to protect the valuable objects against these vibrations? Experts from the Georgia O'Keefe Museum succeeded in neutralizing the vibration influences by a vibration-optimized protective housing using innovative multipoint vibration measurement technology from Polytec. In addition to these exotic tasks, laser vibrometers solve countless measurement tasks every day in the field of technical product development and quality control: simply, quickly and accurately.

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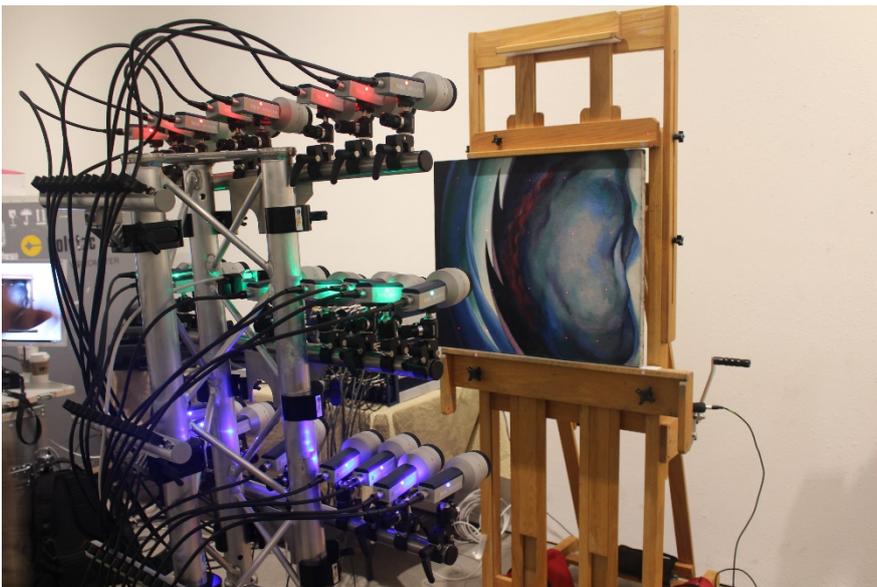
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You will find further application reports, e.g. on tire acoustics and cantilevers for atomic force probe tips, at [www.polytec.com/infocus](http://www.polytec.com/infocus)



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