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# News from Renishaw

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## Renishaw launches breakthrough Time-resolved Raman Spectroscopy (TRRS) integration for its inVia™ confocal Raman microscopes

Renishaw is proud to announce the launch of its latest innovation in Raman spectroscopy: the integration of Time-resolved Raman Spectroscopy (TRRS) into its inVia™ confocal Raman microscope. This cutting-edge technique enables researchers and engineers to overcome the long-standing challenge of sample fluorescence, unlocking high-quality Raman spectra from samples previously deemed unmeasurable.

TRRS leverages the rapid interaction time of Raman scattered photons — occurring within picoseconds of laser excitation — to distinguish them from the slower fluorescence background. This technique employs a variety of state-of-the-art technological innovations including a newly developed single-photon avalanche diode (SPAD) array detector, designed and manufactured by our long-term strategic partner, Singular Photonics. This sensor utilises advanced CMOS SPAD technology and can detect individual photons and record their arrival time with 50 picosecond temporal precision. Historically, isolating the Raman photons from the fluorescence background has been complex, but with Renishaw's proprietary algorithms, extracting Raman data is automatic, ensuring this advanced technique is accessible to a wide range of users.

The TRRS integration enables Raman analysis of a variety of challenging samples. Please visit our website to see examples including food, oils and lubricants, and polymers (including those containing pigments and dyes).

Renishaw and Singular Photonics have been developing this technology, with multiple associated patents, for several years. Our approach will improve throughput, reduce artefacts, and streamline data extraction. This latest integration marks a significant milestone in Raman spectroscopy, making it possible to unlock chemical and structural information from real-world samples with high background fluorescence that were previously inaccessible.

To learn how TRRS can enhance your Raman analysis, please contact raman@renishaw.com or visit www.renishaw.com/raman.

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