

## 25 years of high performance Raman spectroscopy

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This presentation will chart the advances made by Renishaw over the last 25 years. From its inception in 1992 the Renishaw Raman microscope has continued to lead the way in Raman research and is now the most popular Raman microscope used by researchers.

The advantages of using an optical microscope coupled to a Raman spectrometer have been well documented over the last four decades. The advent of notch filter technology made it possible to develop the “bench top” Raman microscope systems that have dominated the market place for the last twenty five years. The ease of use which has accompanied these advances in instrumentation has led to a rapid expansion in the use of the Raman technology over many diverse fields, such as materials research, chemical catalysis, biochemical and biomedical, through to art restoration and gemmology. Given the level of interest and the diversity of applications, new demands are being made by researchers to move away from using traditional optical microscopy to visualise their samples.

The flexibility of the Renishaw Raman system will be highlighted with examples taken from customer Special requirements to illustrate the nature of the customisation that can be achieved using the core system.

Advances in data acquisition with a spatial resolution from macro to micro to nano, and temporal resolution from seconds to milli-second will be described and illustrated. The benefits from live tracking of uneven surfaces whilst acquiring Raman images will be described

The development of SEM / Raman will be discussed with application examples provided. The SEM structural and chemical analyser (SEM-SCA) that combines both SEM and Raman techniques into one system, so that users can take full advantage of the high spatial resolution afforded by the SEM, and the chemical information revealed by Raman. In SEM Raman mapping / imaging will be highlighted

The combination of Raman with AFM will also be discussed together with the recent developments in the TERS approach to ultra-high spatial resolution Raman spectroscopy.