

## **Tip Enhanced Raman (TERS) imaging: fast imaging of carbon-based nanomaterials**

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Tip Enhanced Raman Scattering (TERS) has been a subject of great scientific interest for 15 years. With recent advances in single-molecule TERS, this interest is expected to grow. Regardless of these recent achievements, the real-life application of TERS as an analytical method has been hampered by extremely long acquisition times, measured in hours, required for collection of reasonably high pixel density TERS maps.

In this talk, specifics of the TERS setup that enable fast, high pixel density nano-Raman imaging will be discussed. We will present the latest development that make possible this nanoscale imaging of chemical and physical properties of graphene and other carbon species: innovative integration of technologies brings high-throughput optics and high-resolution scanning for high-speed imaging without interferences between the techniques. The latest developments in near-field optical probes now provide reliable solutions for academic and industrial researchers alike to easily get started with nanoscale spectroscopy with a spatial resolution routinely obtained in TERS maps is in the 15 - 20 nm range, with the best resolution achieved being 7 nm.