

# Compressive Raman microspectroscopy

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Raman imaging is recognized as a powerful label-free approach to provide image contrasts based on chemical selectivity. Nevertheless, Raman-based microspectroscopy has drawbacks mostly due to its inherent overwhelming data size, which slows imaging speeds, and non-trivial post-processing, in particular for non-specialists in vibrational spectroscopy. In parallel, compressive sensing has shown a paradigm shift approach where one can computationally reconstruct accurate information from highly undersampled data sets. Following the compressive sensing spirit, compressive Raman microspectroscopy has emerged as a potential approach to speed up the imaging and concomitantly simplify the post-processing analysis. In this contribution, I will discuss the concepts and assumptions in compressive Raman, in particular focusing on current challenges for fast and sensitive imaging of biological systems. I will then present recent outcomes that enabled imaging of biological specimens.