WHAT ROLE IN SURGERY FOR RAMAN SPECTROSCOPY?

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Raman spectroscopy is used for a wide range of materials characterization applications requiring detailed molecular fingerprinting and the quantification of molecular species based on the detection of specific vibrational bonds. In medicine, inelastic scattering detection techniques were developed by multiple groups for microscopy studies (e.g., CARS, SRS) but also for bulk tissue interrogation at macroscopic scales. In this talk, I will describe how the integration of technologies relying on the detection of spontaneous Raman spectroscopy signal detection can complement current medical practice for surgical guidance and in situ diagnostics. Case studies will be presented in neurosurgical oncology, breast conserving surgery, bronchoscopy, prostate cancer diagnostics and orthopedic surgery.