Recent developments in coherent Raman imaging.

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Coherent Raman scattering encompasses coherent anti-Stokes Raman scattering (CARS), coherent Stokes Raman scattering (CSRS) [1] and stimulated Raman scattering (SRS) [2]. These three light-matter interaction processes have in common their ability to populate vibrational states of molecules that creates a modulation of the refractive index; however, they differ by the way the refractive index modulation is read. This leads to different technical implementations and different detection abilities when they are used to generate chemical images of samples. In this talk I will review how coherent Raman processes can generate images both in the time domain [3] and the spectral domain. I will also discuss what limits the imaging speed in the conventional point scanning scheme [4] and why wide field imaging can possibly breakthrough this limit [5]. Finally, I will present recent effort to push these contrast mechanisms in flexible endoscopes [6].

References:

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