Coherent Anti-Stokes Raman Scattering (CARS)

- Four wave mixing process amplifying the Anti-Stokes wavelength
- Distorted spectral shape because of interference with non-resonant background from competing interaction channels
- Low contrast due to non-resonant background
- Signal not linear to concentration -> difficult quantitative analysis
- Easy implementation of forward- and epi-detection setup
- Imaging artefacts may appear
- Straightforward detection after spectral separation

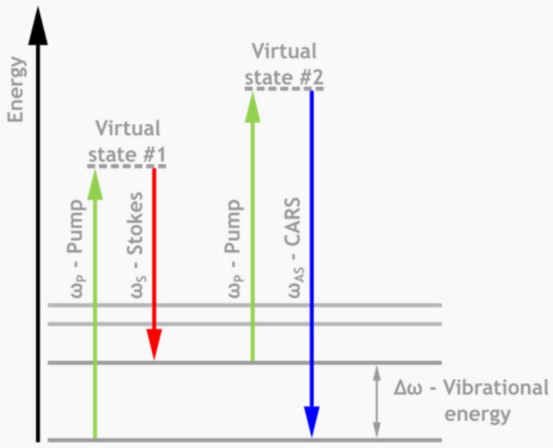


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Stimulated Raman Scattering (SRS)

- Stimulated energy transfer generating an intensity loss (SRL) and intensity gain (SRG) of the respective laser beam
- Clean Raman spectral shape
- Nearly background-free process, resulting in an intrinsic higher contrast
- Signal linear to concentration -> direct quantitative analysis
- Detection of small intensity changes requires a low-noise laser and a more elaborate detection scheme (modulation + lock-in)
- Forward detection straightforward, epi more difficult to detect

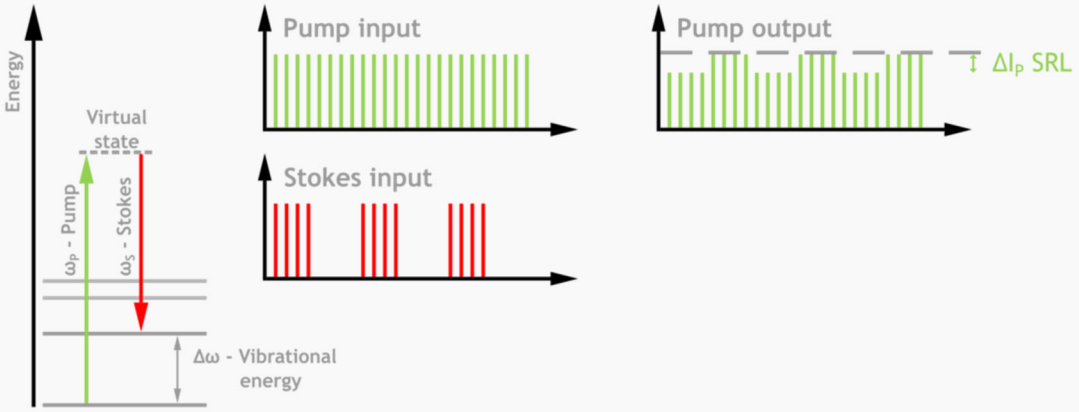


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