

VIBRATIONAL IMAGING BASED ON STIMULATED RAMAN SCATTERING MICROSCOPY

P. Nandakumar^a, A. Kovalev^b, and A. Volkmer

3. Physikalisches Institut, Universität Stuttgart, Stuttgart, Germany;
^a) present address: Birla Institute of Technology & Science Pilani-Goa, India; ^b) present
address: Max-Planck-Institut für Metallforschung, Stuttgart, Germany

Email: a.volkmer@physik.uni-stuttgart.de,

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A stimulated Raman scattering (SRS) microscope with near-infrared picosecond laser pulses is accomplished. We demonstrate noninvasive point-by-point chemical mapping of chemical and biological samples based on stimulated Raman loss detection with no requirement for labeling of the sample with natural or artificial fluorophores. A major benefit of the technique is its capability to respond exclusively to the linear Raman-resonance properties of the sample, and thus allowing a direct quantitative interpretation of image contrast in terms of the number density of Raman-active modes.