Image enhancement in a widefield CARS microscope

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We present a widefield CARS microscope configuration which allows enhancing the intensity and contrast of images by fine-tuning the incidence angles of the pump / probe beams with a spatial light modulator. The angles can be either set to fulfil the phase-matching condition in the sample for optimal signal or to detuned values for optimal background suppression. The presented experimental results will be supported by numerical simulations. The coherent image formation in our set-up will be discussed as well as how it can be optimised by adapted illumination patterns generated by the spatial light modulator.