sensitive detection. Other research groups proposed a detection technique based on a photorefractive crystal with fast response time [20], or by applying a quantum spectral filter based on spectral hole burning [21] which allows to overcome speckle decorrelation. These promising techniques have to prove their ability in vivo. The presented model assumed perfect reconstruction of the initial stresses generated in the medium, which in general will not be an easy task in an experiment. In fact, it depends on many parameters such as acoustic coupling, transducer efficiency, mechanical response, transducer characteristics, and on the availability of sufficient ultrasound data. Therefore, some calibration will be needed to accomplish the absolute quantification.

The eventual goal of the presented approach is quantitative absorption mapping which will allow for quantitative chromophore mapping. This will enable local quantification of natural chromophores such as hemoglobin, e.g. as a result of angiogenic processes or angiogenesis inhibition. Another application is the quantification of targeted contrast agents and the concentration of locally delivered drugs. These applications will be useful in fundamental research, drug development and clinical treatment monitoring. Absolute absorption imaging being our ultimate goal, the intermediate goal of fluence variation compensation, purely based on experiments, is more within reach and very useful in itself.

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