Master Thesis
Europhotonics Master's Program

Acquisition Optimization in Raster-Scan Optoacoustic Mesoscopy

"Fancy a nice Quote?"
- The Riddler

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Abstract

Contents

1 Introduction

By magnifying minuscule cellular and subcellular features, optical microscopes provide a powerful tool for studying tissue components and their dynamic interactions. Its excellent imaging contrast in soft tissue has made optical microscopy the most widely used imaging modality in the biomedical community.[1]

The visual power of optical microscopy relies on sharp optical focusing. Such power is rapidly reduced as photons travel deeper into biological tissue, a highly scattering medium for electromagnetic waves in the optical spec- tral range. When photons reach the optical diffusion limit ($\approx 1\,\mathrm{mm}$ in tissue), they have typically undergone tens of scattering events, which randomize the photon paths and thus prevent tight focusing [2]

2 Measurement

3 Methods

4 Conclusion & Perspective

References

[1] B. Amos. "Lessons from the history of light microscopy." *Nature cell biology* (2000). vol. 2(8):pp. E151–E152. URL `http://dx.doi.org/10.1038/35019639`.

[2] J. Fujimoto, C. Pitris et al. "Optical coherence tomography: an emerging technology for biomedical imaging and optical biopsy." *Neoplasia (New York, N.Y.)* (2000). vol. 2(1-2):pp. 9–25.