

MULTI-FOCUS OPTICAL-RESOLUTION PHOTOACOUSTIC MICROSCOPY WITH ULTRASONIC ARRAY DETECTION

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In clinical practice, high imaging speed is critical to reduce motion artifacts, cost, and patient discomfort. Researchers at Washington University have developed multi-focal optical-resolution photoacoustic microscopy (MFOR-PAM) capable of high-resolution imaging of hemoglobin concentration and oxygenation in individual microvessels in vivo at high speed. Compared with a single focus, multiple foci reduce the scanning load and increase the imaging speed significantly. The current multi-focal system can acquire $1000 \times 500 \times 200$ voxels at ~ 10 -micron lateral resolution within 4 minutes, three to four times faster than existing mechanical scanning single focus optical resolution photoacoustic-microscopy.