Limitations
1. compared with PCT, fPAM is designed for in vivo imaging, it cannot be used for organ imaging
2. limited depth (at most 3mm), improved by [1]
3. takes a long time to scan (18 min for single wavelength and 160 min for multiwavelength), improved by tomography in [2] microscopy in [3]
4. table-top system, improved by [4].
5. acquisition time is limited by the 10Hz laser pulse repetition frequency

Paper:
1, Photoacoustic Tomography: In Vivo Imaging from Organelles to Organs
Lihong V. Wang*, Song Hu, *Science 23 March 2012: Vol. 335 no. 6075*
Different implementations of PAT allow the spatial resolution to be scaled with the desired imaging depth in tissue while a high depth-to-resolution ratio is maintained. As a rule of thumb, the achievable spatial resolution is on the order of 1/200 of the desired imaging depth, which can reach up to 7 centimeters.

2, Real-time photoacoustic tomography of cortical hemodynamics in small animals
Changhui Li ; Andres Aguirre ; John Gamelin ; Anastasios Maurudis ; Quing Zhu ; Lihong V. Wang; *J. Biomed. Opt.* 15(1), 010509 (February 16, 2010). doi:10.1117/1.3302807
For the first time, the hemodynamics within the entire cerebral cortex of a mouse were studied by using photoacoustic tomography (PAT) in real time.

3, Realtime photoacoustic microscopy in vivo with a 30-MHz ultrasound array transducer
Roger J. Zemp, Liang Song, Rachel Bitton, K. Kirk Shung, and Lihong V. Wang.
Optics Express, Vol. 16, Issue 11, pp. 7915-7928 (2008)
The system consists of a high-repetition-rate Q-switched pump laser, a tunable dye laser, a 30-MHz linear ultrasound array transducer, a multichannel high-frequency data acquisition system, and a shared-RAM multi-core-processor computer. Data acquisition, beamforming, scan conversion, and display are implemented in realtime at 50 frames per second.

4, Real-time handheld optical-resolution photoacoustic microscopy
Parsin Hajireza, Wei Shi, and Roger J. Zemp.
Optics Express, Vol. 19, Issue 21, pp. 20097-20102 (2011)
Using fast scanning mirrors, an image guide with 30,000 fiber pixels, a refocusing lens and a unique probe we managed to reduce the footprint of an OR-PAM system from a stationary table-top system to a portable, 4cm by 6cm, probe weighing ~500g tethered to a scanning unit. increase the usability of OR-PAM for potential clinical applications such as in dermatology.