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Hybrid photoacoustic-ultrasound breast tomography

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We report on a hybrid photoacoustic and ultrasound-transmission tomographic system (PAM3). The photoacoustic component has multi-wavelength imaging capability, and implements substantial technical advancements in important hardware and software sub-systems. The ultrasound component enables for the first time, a three-dimensional sound speed map of the breast to be imaged. This map is used in the photoacoustic reconstruction to correct for inhomogeneities. The results demonstrate deep photoacoustic breast imaging. We present a system overview and demonstrate the in vivo performance of the imager.

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