Background

Annually, there are approximately 750k breast cancer biopsies performed in the US. Of these, 25 % are malignant and the rest are benign findings. In the past two decades, studies have shown that women with higher breast density have a higher risk of developing breast cancer. In addition, these women are more prone to false positives because it is difficult to distinguish between normal features in dense breast and malignant lesions with conventional mammography.

Previously, Drukker *et al.* reported a pilot study on lesion classification using a dual x-ray imaging method.4 This technique uses a three-compartment model of the breast (3CB) to characterize tissue composition. By generating images of the lipid, water, and protein (LWP) content of the breast, it may be possible to get a characteristic signature of malignant and benign lesions, thereby providing a more accurate diagnosis.

[4] K. Drukker, F. *et al.*, "Mammographic quantitative image analysis and biologic image composition for breast lesion charac. and classification," MedPhys **41**, 031915 (2014).