Abstracts

A confocal microwave imaging algorithm for breast cancer detection

Xu Li and S.C. Hagness. "A confocal microwave imaging algorithm for breast cancer detection." 2001 Microwave and Wireless Components Letters 11.3 (Mar. 2001 [MWCL]): 130-132.

We present a computationally efficient and robust image reconstruction algorithm for breast cancer detection using an ultrawideband confocal microwave imaging system. To test the efficacy of this approach, we have developed a two-dimensional (2-D) anatomically realistic MRI-derived FDTD model of the cancerous breast. The image reconstruction algorithm is applied to FDTD-computed backscatter signals, resulting in a microwave image that clearly identifies the presence and location of the malignant lesion. These simulations demonstrate the feasibility of detecting and imaging small breast tumors using this novel approach.

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