Abstracts

Conformal imaging with a non-contacting microwave antenna array

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A model-based, non-contacting microwave imaging system, which allows for an arbitrarily shaped imaging domain to exist within the antenna array, has been developed using our Gauss-Newton iterative image reconstruction approach based on a hybrid of the finite element (FE) and boundary element (BE) methods. A new feature has been introduced to conform to the reconstructed field of view exactly to the coupling medium/object interface. This facilitates deployment of the reconstruction parameters solely to the zone occupied by the object, potentially improving resolution. Enhancements using this technique have been demonstrated in both simulations and phantom experiments.

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