Abstracts

Microwave Imaging for a Dielectric Cylinder

H.-T. Lin and Y.-W. Kiang. "Microwave Imaging for a Dielectric Cylinder." 1994 Transactions on Microwave Theory and Techniques 42.8 (Aug. 1994 [T-MTT]): 1572-1579.

The problem of reconstructing both the shape and the relative permittivity of a homogeneous dielectric cylinder from the measurement of scattered field is numerically simulated. The Newton-Kantorovitch algorithm and the moment method are used to solve a set of nonlinear integral equations. Numerical results show that, with multiple incident directions, good reconstruction is obtained. This algorithm can be applied at a single frequency without limitation on the value of dielectric constant. The effect of random noise on imaging reconstruction is also investigated.

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