Abstracts

Microwave Inverse Scattering--Local Shape Function Imaging for Improved Resolution of Strong Scatterers

G.P. Otto and W.C. Chew. "Microwave Inverse Scattering--Local Shape Function Imaging for Improved Resolution of Strong Scatterers." 1994 Transactions on Microwave Theory and Techniques 42.1 (Jan. 1994 [T-MTT]): 137-141.

Local shape function imaging uses far-field microwave scattering data to reconstruct the presence or absence of small metal cylinders throughout space, in order to model arbitrary metallic objects. The reconstructed images represent the scattering amplitude at discrete locations in space with multiple scattering effects incorporated. Super-resolution is demonstrated for monochromatic image reconstructions. Even better reconstructions are obtained with multiple frequency data. The speed of computation is increased with a fast forward solver algorithm. Also, measured data is used in the local shape function imaging algorithm and the resolution is improved over diffraction tomography.

❑ Return to main document.