Electromagnetic Scattering by Buried Obstacles

Fahmi ben Hassen, Klaus Erhard, Roland Potthast[1]

Abstract. We consider the scattering of electromagnetic waves by a perfect conducting obstacle which is buried in the lower half of a two-layered medium. We present a solution theory of this direct electromagnetic scattering problem with an integral equation method and show numerical examples. In the inverse problem we reconstruct the buried obstacle from the knowledge of the electromagnetic field on some measurement surface above the obstacle. We provide an iterative reconstruction scheme and discuss the applicability of point source related methods in the field of humanitarian demining.

[1]Institut for Numerical and Applied Mathematics, University of Göttingen, Germany