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On the calculation of Maxwell's eigenfrequencies using integral equations for a buried landmine*

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Abstract

A 3-D mathematical model, using the integral equation framework, of the time-harmonic Maxwell's equations has been developed for research studies of buried penetrable targets in a dispersive isotropic soil. An efficient numerical method is developed to calculate precisely the Maxwell's eigenfrequencies of buried landmines, located in a given high frequency interval. Functions are evaluated only in the boundary of the domain, so very fine discretizations may be chosen to obtain high eigenfrequencies. We discuss the stability and convergence of the proposed method. Finally we show some numerical results, which make evident the effectiveness and relevance of the proposed numerical method.

References

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