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Numerical study on electromagnetic scattering from unbounded rough surface and obstacles. (Chinese. English summary) [Zbl 07448525](#)

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Summary: The composite scattering of electromagnetic wave incident on an unbounded rough surface and an obstacle is studied in this paper. The purpose of this paper is to analyze the influence of rough surface and obstacle on electromagnetic wave field distribution. For the composite scattering problem described by Maxwell equation in time domain with appropriate boundary conditions, combined with the uniaxial perfectly matched layer (PML) techniques, the finite difference method is used to discretize the equation. The scattering problem is solved effectively, and the influence of the shape and parameters of rough surface and obstacle on the scattering field is further studied.

MSC:

- [65M06](#) Finite difference methods for initial value and initial-boundary value problems involving PDEs
- [78M20](#) Finite difference methods applied to problems in optics and electromagnetic theory
- [78A45](#) Diffraction, scattering
- [65N06](#) Finite difference methods for boundary value problems involving PDEs
- [35Q60](#) PDEs in connection with optics and electromagnetic theory

Keywords:

[unbounded rough surface](#); [composite scattering](#); [finite difference method](#)

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