应用数学讲座

Научный Семинар по Прикладной Математике

Research Seminar on Applied Mathematics

应用数学报告（18）

报告人 / Докладчик / Speaker:
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题目 / Название / Title:
Some fast numerical solvers for the electromagnetic scattering from a large cavity

时间 / Время / Time：18 May 2021, 14:30-15:30

地点 / Место / Venue: Main Building, Room 336

摘要 / Аннотация / Abstract:

Cavity structures have important applications in radar imaging and optimal design. In this talk, we consider the three-dimensional electromagnetic scattering from a large open cavity that is embedded in a perfectly electric conducting infinite ground plane. Fast algorithms based on mode decomposition and fast Fourier transform are discussed for rectangular shaped cavities. In particular, we propose an efficient algorithm to evaluate the singular integrals appeared in the transparent boundary condition at the aperture of the cavity. Comparison with results based on the adaptive finite element method is given to demonstrate the efficiency of our algorithm. Extension to the scattering from axisymmetric shaped cavities as well as the applications to optimal design of minimization of radar cross section will also be discussed.

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