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The Hong Kong University of Science and Technology

Department of Mathematics

Mathematics Colloquium

Computation of High Frequency Waves in Unbounded Domains: Perfectly Matched Layer and Source Transfer

By

Prof. Zhiming CHEN

Academy of Mathematics and Systems Science, Chinese Academy of Sciences

Abstract

The talk considers numerical techniques for solving high frequency Helmholtz equations in unbounded domain. We first introduce several key ideas which played important role in solving the Helmholtz problem in unbounded domain including the radiation condition, absorbing boundary condition, and perfectly matched layer. The focus will be a recently introduced source transfer domain decomposition method (STDDM) whose optimal complexity is proved in the case of constant wave number based on the convergence theory of PML method. Our numerical experiments show that STDDM can be used as an efficient preconditioner for Helmholtz equations with heterogeneous wave numbers. This talk is based on joint works with Xueshuang Xiang.

Date: **Friday, 25 January 2019**
Time: **3:00p.m. - 4:00p.m.**
Venue: **Lecture Theater F, Academic Building, 1/F (near Lifts 25 - 26), HKUST**

All are welcome!