

数学与系统科学研究院  
计算数学所网络学术报告

报告人: **Dr. Zhichao Peng**

( *Michigan State University* )

报告题目:

**EM-WaveHoltz: a flexible  
frequency-domain Maxwell solver  
built from time-domain solvers**

邀请人: 吕茂辉 博士

报告时间: 2021 年 4 月 26 日 (周一)

上午 9:00-10:00

报告工具: 腾讯会议 (ID: 742 140 160)

入会密码: 0426

## **Abstract:**

Two main challenges to design efficient iterative solvers for the frequency-domain Maxwell equations are the indefinite nature of the underlying system and the high resolution requirements. Scalable parallel frequency-domain Maxwell solvers are highly desired. This talk will introduce the EM-WaveHoltz method which is an extension of the recently developed WaveHoltz method for the Helmholtz equation to the time-harmonic Maxwell equations. Three main advantages of the proposed method are as follows. (1) It always results in a positive definite linear system. (2) Based on the framework of EM-WaveHoltz, it is flexible and simple to build efficient frequency-domain solvers from current scalable time-domain solvers. (3) It is possible to obtain solutions for multiple frequencies in one solve. The formulation of the EM-WaveHoltz and analysis in the continuous setting for the energy conserving case will be discussed. The performance of the proposed method will be demonstrated through numerical experiments.

**欢迎大家参加！**