

数学与系统科学研究院

计算数学所学术报告

报告人: **Dr. Tao YIN**

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报告题目:

**Hyper-singular boundary integral
equation methods for elastic
scattering problems**

邀请人: 崔涛 副研究员

报告时间: **2020 年 11 月 17 日 (周二)**

上午 10:00-11:00

报告地点: 数学院南楼

702 教室

Abstract:

This talk will present our works on the boundary integral equation methods for solving elastic scattering problems, including regularization of the hyper-singular integral operators, study of the elastic Calderón relations and efficient numerical implementation of the integral equations in both 2D and 3D. Use of Günter derivative allows to reformulate the hyper-singular integral operators as combinations of weakly-singular operators and tangential derivatives. In order to obtain formulations leading to iterative solvers (GMRES) which converge in small numbers of iterations, regularized integral equations are proposed on a basis of theoretically and computationally studied elastic-wave Calderón relations. As an example, a Chebyshev-based rectangular-polar discretization method will be introduced for the numerical implementation. Numerical simulations demonstrate the accuracy and efficiency of the proposed methodologies.

欢迎大家参加！