

A Nonnested Augmented Subspace Method for eigenvalue problems

Haikun Dung (Institute of Computational Mathematics, Chinese Academy of Sciences)

Abstract : we will present a nonnested augmented subspace algorithm and its multilevel correction method for solving eigenvalue problems with curved interfaces. The augmented subspace algorithm and the corresponding multilevel correction method are designed based on a coarse finite element space which is not the subset of the finer finite element space. The nonnested augmented subspace method can transform the eigenvalue problem solving on the finest mesh to the solving linear equation on the same mesh and small scale eigenvalue problem on the low dimensional augmented subspace. The corresponding theoretical analysis and numerical experiments are provided to demonstrate the efficiency of the proposed algorithms. Some implementing details by using FreeFem will also be introduced and discussed in this talk.