

**On computable eigenvalue evaluation
for elliptic eigenproblem with singularity.**

by

X. LIU (and Shin'ichi OISHI)

Waseda University, Tokyo, Japan

This talk is focussed on solving elliptic eigenvalue problem over arbitrary polygonal domain by utilizing finite element methods(FEM). First, we discuss the computable error estimation for FEM solution of elliptic partial differential problem, where the Prage-Synge theorem (hypercircle equation) is applied to deal with singularity. Second, we describe how to bound the eigenvalues of elliptic differential operator. The Lehman-Goerisch's theorem together with HP-FEM is also explored to provide sharper bounds.