

Hypersingular Integral Equations

The project is concerned with the theory and application of hypersingular integral equations (HIE). It assumes no previous knowledge of integral equations. Students will analyse simple one-dimensional HIE, develop methods of solution that use certain polynomial expansions, and then apply these methods to some physical problems. One concerns the diffraction of sound by a curved plate. Another concerns a piezoelectric transducer bonded to an elastic substrate. It is expected that the project will involve a mixture of analytical and numerical techniques.