

Integral equations and computational engineering

Leslie F Greengard

`greengard@cims.nyu.edu`

Courant Institute, New York University, USA

Many problems in scientific computing require the solution of partial differential equations in complex geometry. There is a corresponding need for robust algorithms which are automatically adaptive and able to control precision. We present recent developments in integral equations which give rise to fast, black-box tools for problems in electrostatics, heat transfer, wave propagation and fluid dynamics.