
MARK LYON, University of New Hampshire

Accelerated Algorithm for Computing Dielectric Scattering from Scatters Near an Infinite Plane

We present an algorithm for computing both near-field and far-field scattering emanating from scatters on or near a dielectric plane. Our approach, utilizing both equivalent source points and windowing functions, dramatically reduces the need for expensive evaluations of layered Green's functions. Numerical results determining the accuracy and efficiency of the method will be presented, demonstrating super-algebraic convergence with respect to the size of the windowed region and speeds orders of magnitudes faster than approaches based directly on layered Green's functions. Joint work with Oscar Bruno (Caltech), Carlos Pérez Arancibia (Caltech), and Catalin Turc (NJIT).