

Calderon Preconditioned Time Domain Integral Equation Solvers for Electromagnetics

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Marching on in time integral equation solvers for analyzing broadband electromagnetic phenomena often suffer from spatial (dense-mesh) breakdown phenomena when applied to the analysis of low- to medium-frequency electromagnetic transients on geometrically intricate and multiscale structures. This presentation highlights the recent development of high-order accurate Calderon-inspired quasi-analytical preconditioners that address this breakdown phenomenon and demonstrates its application to engineering problems involving both perfectly conducting and dielectric structures that span multiple temporal and spatial scales.