

Numerical Reduced Order Modelling for Wave Equations in Heterogeneous Media

Thomas Hagstrom, Southern Methodist University

We consider the problem of designing efficient but accurate numerical models for wave propagation in the time domain when the medium varies at subwavelength scales. The tools we consider include methods for the compression of temporal convolutions as well as the direct construction of the convolution operators themselves. Volume discretizations, which again will be both coupled with the convolution operators and used in their construction, will involve high-order discontinuous Galerkin and Hermite methods.