Dispersion analysis of spectral element methods on triangles for elastic wave propagation

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The need for geometric flexibility is especially important in computational seismology when dealing with complex wave phenomena, such as the scattering by rough topographies of the Earth and sea bottom surfaces, or the seismic response of sedimentary basins with complex structures and fault geometries. Today, such flexibility can be achieved by the recently developed triangular/tetrahedral spectral element method (TSEM); see [2, 3], and therein references. In this paper the stability and grid dispersion of the TSEM for elastic wave propagation [1], are explored and compared with those of the classical spectral elements on quadrangular grids (QSEM) [4].

References

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[4] G. Seriani, S. P. Oliveira, *Dispersion analysis of spectral element methods for elastic wave propagation*, Wave Motion, 45 (2008), pp. 729–744.