

Finite Difference Quake and Wave Laboratory (FD-Q-WaveLab) *

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Our solver simulates the first order form of the 3D elastic wave equation in collocated curvilinear grids where the unknowns are particle velocities and stress fields. We discretize in space using higher order accurate finite difference schemes satisfying the Summation-By-Parts (SBP) rule. The SBP operators used here are 6th order accurate central finite difference stencils in the interior with one-sided 3rd order accurate boundary closures. Boundary conditions and frictional interfaces are imposed weakly using penalties. This results in a provably energy-stable scheme. We discretize in time using a 4th order accurate low storage Runge–Kutta scheme.

References

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