Numerical Study of Anelastic Wave Interference in a Hysteretic Material with Boundary ANDREW SMITH, DAN KOSIK, Butler University — Many real materials, such as sand, exhibit complex hysteretic behavior which is not modeled accurately using traditional constitutive relations. In this work, a numerical simulation of anelastic wave interference in a hysteretic medium is developed using the method of Preisach and Mayergoyz. In our previous work, two-dimensional anelastic wave propagation from a single cylindrical pressure source was studied. This work focuses on extending this simulation to include multiple simultaneous pressure sources which interfere with one another. A computational study examines deviations from the linear theory with a special emphasis on surface wave motion. Applications to geophysics, particularly in prospecting with the seismic reflection method, will be discussed.

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