

1067-86-1887

**Bogdan G. Nita\*** ([nitab@mail.montclair.edu](mailto:nitab@mail.montclair.edu)), Department of Mathematical Sciences, Montclair State University, 1 Normal Avenue, Montclair, NJ 07405, and **Ashley Ciesla** and **Christopher Smith**. *A one dimensional algorithm for seismic imaging and inversion: theoretical development and numerical tests.*

We present a method, derived from the inverse scattering theory, for geophysical imaging and amplitude correction from measured data. No knowledge about the medium under investigation is assumed. Although derived as a series, the algorithm is shown to converge to a closed form independent of the parameters involved in the problem. Analytic and numerical one dimensional examples show excellent results in finding both the location of interfaces and the amplitude of acoustic reflections. We model several one-dimensional earth configurations and show how the algorithm can find the precise location and a good estimate of the layers' parameters. Our tests include different number of layers, high/low contrasts, velocity inversions and noisy data. (Received September 22, 2010)