

## *Modeling the Infrasound Signal Generation of Underground Explosions at the Source Physics Experiment Using the Rayleigh Integral*

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### Highlights:

- Uses the surface acceleration data as input to the Rayleigh integral to synthetically compute acoustic waveforms for the SPE experiments.
- Shown to be extremely accurate at matching the waveforms
- Has demonstrated that the underground explosive source is asymmetric for SPE 2 and SPE 3
- This coincides well with modeled data and surface fracture mapping
- This method can possibly indicate damage from previous tests
- Our plan is to identify the spall signature in the acoustic trace for SPE-4, which is designed to minimize spall

