An understanding of the types and nature of interfacial guided wave modes propagated in mine stopes can be of great benefit to the design of support structures in mines, used to mitigate the effects of rockburst. Thus, we address here the problem of guided waves at a periodically joined interface of two half spaces, which can be viewed as an idealized stope.

A 2D version of this problem has been solved analytically by Every (2008) via a mixed boundary condition plus Fourier series method. Here we, approach the 2D problem numerically, using a finite difference method via the WAVE code, which solves the system of first order wave equations on a staggered grid. The displacement discontinuity model is used to model the boundary conditions at the interface. Dilatational and shear sources are used to generate both symmetric and antisymmetric disturbances respectively.

Propagation of symmetric and antisymmetric interfacial wave modes are observed at the interface of the half spaces with a noticeable fall in amplitude with distance from the interface; as expected of any true interfacial wave mode.

Symmetric and antisymmetric interfacial wave modes have been modeled. A suitable source necessary to generate pseudo and supersonic interfacial modes needs to be modeled; as well as a study of the effect of the dimensions of the attached regions at the interface on these modes. Finally, the model needs to be extended to 3D with inclusion of a fractured rockmass around the interface in order to replicate conditions in a real mine.