# Seismic Imaging using Full Reciproity-gap Waveform Inversion

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We study the seismic inverse problem for the recovery of sub-surface Earth's parameters from partial boundary data. The reconstruction follows an iterative minimization of a misfit functional defined as a distance between the observed and simulated seismograms. In this talk, we investigate the introduction of a misfit functional based upon the reciprocity, which follows the deployment of new sensing devices developed such as the distributed acoustic sensing technology. The new misfit criterion defines the underlying Full Reciprocity-gap Waveform Inversion method for the characterization of sub-surface Earth's medium, [1, 2, 3].

The main feature of this method is to allow the separation between observational and computational sources. That is, the numerical sources used to generate the simulations do not have to coincide with the observational ones (from which the measurements are obtained). It offers us new possibilities to create adapted computational acquisitions, such as the combination of sparse and dense data-sets ([2]), and to easily use data from passive source events ([3]). We illustrate with two and three-dimensional reconstructions of acoustic and elastic media.

## REFERENCES

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